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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0607658N / <i>Cooperative Engagement Capability</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	1,130.629	148.628	156.121	153.440	-	153.440	154.438	153.516	154.274	156.467	Continuing	Continuing
2039: <i>COOP Engagement</i>	1,075.181	80.047	84.368	92.802	-	92.802	91.329	70.090	69.887	70.321	Continuing	Continuing
3240: <i>CEC Increment II</i>	55.448	68.581	71.753	60.638	-	60.638	63.109	83.426	84.387	86.146	Continuing	Continuing

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): 582

A. Mission Description and Budget Item Justification

Cooperative Engagement Capability (CEC) significantly improves Battle Force Anti-Air Warfare (AAW) capability by coordinating all Battle Force AAW sensors into a single, real-time, composite track picture to support integrated fire control.

CEC distributes sensor data from each USMC Command Control Unit, US Navy Ship, and US Navy Aircraft, or Cooperating Unit (CU), to all other CUs in the battle force through a real-time, line of sight, high data-rate sensor and engagement data distribution network. CEC is highly resistant to jamming and provides accurate gridlocking between CUs. Each CU independently employs high capacity, parallel processing and advanced algorithms to combine all distributed sensor data into a fire control quality track picture which is the same for all CUs. CEC data is presented as a superset of the best AAW sensor capabilities from each CU, all of which are integrated into a single input to each CU's combat weapons system.

CEC significantly improves our Battle Force defense in depth, including both local area and ship defense capabilities against current and future AAW threats. Moreover, CEC provides critical connectivity and integration of over-land air defense systems capable of countering emerging air threats, including land attack cruise missiles, in a complex littoral environment.

The CEC Program Office oversees CEC development for all services with funding provided for their respective combat systems. CEC consists of the Data Distribution System (DDS), the Cooperative Engagement Processor (CEP), and interface with Combat Systems and sensors. The DDS encodes and distributes own-ship sensor and engagement data and is a high capacity, jam resistant, directional system providing high data throughput as well common time and common positional frame of reference. The CEP is a high capacity distributed processor that processes data from all integrated radars. The data is passed to the ship's combat system as a high quality, common, continuous, engageable track.

The Navy implemented a Signal Data Processor (SDP) approach to modify the current equipment to meet reduced size, weight, cost, power and cooling objectives. This SDP approach also supports continuity for interoperability improvements and program protection, as well as supporting open architecture initiatives, and comms independence. The SDP hardware complies with Category 3 Open Architecture Computing Environment (OACE) standards. The SDP-S is being fielded fleet-wide to all US Navy, USMC, and FMS CEC units.

Network Enabled Electronic Defense System (NEEDS) modifies CEC software to add significant Electronic Warfare capability.

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CEC operates in increasingly contentious cyber-space. Measures are being taken to robustly mitigate, and where possible completely remediate cyber vulnerabilities.

CEC Capability Development Document (CDD) Increment II evolves Increment I capabilities by enhancing the current naval air defense and sensor network system capabilities through the expansion of network capacity as well as extension into other warfare mission domains. CEC CDD Increment II shall integrate new sensor types and track data sources into the

network, such as surface search radars and passive detection sensors, as well as relevant data from other networks. CEC CDD Increment II shall accommodate more CUs and provide a more complete, robust, and resilient situational awareness picture, composite identification, and Integrated Fire Control (IFC), with assured communications for Integrated Air and

Missile Defense (IAMD), surface warfare, and electronic mission warfare domains.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	162.676	156.121	175.794	-	175.794
Current President's Budget	148.628	156.121	153.440	-	153.440
Total Adjustments	-14.048	0.000	-22.354	-	-22.354
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-9.000	0.000			
• SBIR/STTR Transfer	-5.048	0.000			
• Program Adjustments	0.000	0.000	-23.641	-	-23.641
• Rate/Misc Adjustments	0.000	0.000	1.287	-	1.287

Change Summary Explanation

FY 2024 decrease of \$20.447M is due to Program Adjustments and \$1.907M is due to Rate/Misc Adjustments.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0607658N / <i>Cooperative Engagement Capability</i>	Project (Number/Name) 2039 / <i>COOP Engagement</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2039: <i>COOP Engagement</i>	1,075.181	80.047	84.368	92.802	-	92.802	91.329	70.090	69.887	70.321	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 582

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CEC Capability Development Document (CDD) Increment II evolves Increment I capabilities by enhancing the current naval air defense and sensor network system capabilities through the expansion of network capacity as well as extension into other warfare mission domains. CEC CDD Increment II shall integrate new sensor types and track data sources into the network, such as surface search radars and passive detection sensors, as well as relevant data from other networks. CEC CDD Increment II shall accommodate more CUs and provide a more complete, robust, and resilient situational awareness picture, composite identification, and Integrated Fire Control (IFC), with assured communications for Integrated Air and Missile Defense (IAMD), surface warfare, and electronic mission warfare domains.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: E-2D	3.975	5.818	5.754	0.000	5.754
Articles:	-	-	-	-	-
FY 2023 Plans: Support OT of E-2D DSSC 4 and DSSC 4 Fleet Release. Continue software development and test for E-2D DSSC 5 CEC software, including interface development and integration of CEC capabilities, and of E-2D CEC networking, sensor, and tracker capability and performance improvements included in DSSC 5 software and associated hardware. Begin detailed design efforts for E-2D DSSC 6 CEC software including interface development and integration of CEC capabilities, and of E-2D CEC networking, sensor, and tracker capability and performance improvements included in DSSC 6 software and associated hardware.					
FY 2024 Base Plans: Continue software development and test for E-2D DSSC 5 CEC software, including interface development and integration of CEC capabilities, and of E-2D CEC networking, sensor, and tracker capability and performance improvements included in DSSC 5 software and associated hardware. Integrate CEC Block II Capability Group 3 with E-2D Sensors and Interfaces. Conduct Laboratory and Developmental Flight Test for CEC with E-2D DSSC 5. Prepare for E-2D DSSC 5 OT. Continue detailed design efforts for E-2D DSSC 6 CEC software including interface development and integration of CEC capabilities, and of E-2D CEC networking, sensor, and tracker capability and performance improvements included in DSSC 6 software and associated hardware.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Decrease is due to minor pricing differences.					
Title: B/L 2.1 INTEGRATION AND FOT&E TESTING	11.213	12.751	15.309	0.000	15.309
Articles:	-	-	-	-	-
FY 2023 Plans:					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
Support multiple Combat System Shipboard Qualification Tests (CSSQT) for Aegis and SSDS platforms. Complete CEC TEMP Rev 6 Ch 1 approval. Conduct CEC Operational Test (OT) IIIF Supersonic Tracking Exercise (TRACKEX). Begin OT-D2 of AN/USG-2B with CVN 78. Begin OT-D4 of AN/USG-2B with Aegis Weapon System (AWS) 9.2.1/9.2.2. Begin OT-D3 of CEC AN/USG-2B on DDG 1000. Continue planning for FFG(X) DT events. Conduct planning for LUSV DT events. Continue planning for CEC Block II testing beginning with BlkII DT/OT-B1 for Capability Group (CG) 3. Complete development of CEC Block II TEMP.						
FY 2024 Base Plans: Support multiple Combat System Shipboard Qualification Tests (CSSQT) for Aegis and SSDS platforms. Commence DT/OT of CEC Increment II Block 2 Capability Group 3. Continue OT-D2 of AN/USG-2B with CVN 78. Continue OT-D4 of AN/USG-2B with Aegis Weapon System (AWS) 9.2.1/9.2.2/9.2.3. Continue OT-D3 of CEC AN/USG-2B on DDG 1000. Continue planning for FFG(X) DT events. Continue planning for LUSV DT events.						
FY 2024 OCO Plans: N/A						
FY 2023 to FY 2024 Increase/Decrease Statement: Increase is due to DT/OT requirements for CEC Increment II/Block II capabilities transitioning to the main ACAT IC program.						
Title: SYSTEM IMPROVEMENTS						
FY 2023 Plans: Complete CEC Software Baseline Review (SBR) Systems Engineering Technical Review (SETR) events. Complete software development for CEC SW Versions 10.56, 11.06, 11.10, and 11.14. Complete multiple CEC software Final Qualification Testing (FQT)/Independent Verification & Validation (IV&V) events for CEC Aegis, SSDS, DDG-1000, and E-2D configurations. Complete multiple Software Releases in support of Aegis, SSDS, DDG-1000, and E-2D platform events. Complete multiple CEC Product Release Panels (PRP) and Product Certification Panels (PCP) in support of CEC deliveries to Aegis, SSDS, DDG-1000, and E-2D platforms. Complete multiple CEC S/W safety assessments for Aegis, SSDS, DDG-1000, and E-2D configurations. Continue PDMC model development, Technical Data Package (TDP), and qualification. Complete CEC Signal Data Processor-Next (SDP-Next) prototype demonstration. Continue development of CEC Signal Data Processor (SDP)-Next Engineering Development Model (EDM). Develop SDP-Next TDP. Support NSA Certification process for SDP-Next. Continue CEC S/W development for LUSV. Continue CEC S/W						
	Articles:	22.606	32.132	7.561	0.000	7.561
		-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
development and coordination with AEGIS B/L 10.1 development for the Frigate Weapon System onboard the FFG-62 class. Conduct SBR 22.3/4 and SBR 23.1/2 SETR events for CEC FFG software development. Support FFG CIG2 and CIG3 Integration and Test events. Support CEC Blk II S/W integration and test for Capability Group 3. Continue robust systems engineering in conjunction with shipboard, airborne, and land-based combat systems to integrate Communications as a Service (CaaS) in CEC. Continue development and modifications to CEC Special Test Equipment (STE) in support of testing the CaaS capability. Continue robust systems engineering in conjunction with navigation systems and shipboard, airborne, and land-based combat systems to integrate Non-GPS Aided Positioning, Navigation, and Timing [PNT] for Surface Ships (NoGAPSS) technology in CEC in support of Assured PNT capability deployment in FY24.					
FY 2024 Base Plans: Complete CEC Software Baseline Review (SBR) Systems Engineering Technical Review (SETR) events. Complete software development for CEC SW Versions 2.1.11.16 and 2.1.11.20. Complete multiple CEC software Final Qualification Testing (FQT)/Independent Verification & Validation (IV&V) events for CEC Aegis, SSDS, DDG-1000, and E-2D configurations. Complete multiple Software Releases in support of Aegis, SSDS, DDG-1000, and E-2D platform events. Complete multiple CEC Product Release Panels (PRP) and Product Certification Panels (PCP) in support of CEC deliveries to Aegis, SSDS, DDG-1000, and E-2D platforms. Complete multiple CEC S/W safety assessments for Aegis, SSDS, DDG-1000, and E-2D configurations. Complete SDP-Next demonstration, qualification testing and TDP. Support NSA Certification process for SDP-Next. Continue CEC S/W development for LUSV. Continue CEC S/W development and coordination with AEGIS B/L 10.1 development for the Frigate Weapon System onboard the FFG-62 class. Support CEC Blk II S/W development and test for Capability Groups 3 & 4. Continue robust systems engineering in conjunction with shipboard, airborne, and land-based combat systems to integrate Communications as a Service (CaaS) in CEC.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Decrease is due to realignment of Systems Improvement RDT&E to OM&N for software maintenance efforts and to CEC Increment II Project 3240.					
Title: NETWORK ENABLED ELECTRONIC DEFENSE SYSTEM (NEEDS)					
Articles:					
	0.453	0.534	0.000	0.000	0.000
	-	-	-	-	-
FY 2023 Plans:					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Perform fixes for residual software problems. FY 2024 Base Plans: N/A FY 2024 OCO Plans: N/A FY 2023 to FY 2024 Increase/Decrease Statement: Decrease from FY23 to FY24 due to completion of NEEDS effort.					
Title: FIELD ACTIVITIES	9.275	10.943	10.822	0.000	10.822
Articles:	-	-	-	-	-
FY 2023 Plans: Continue field activity support of CEC development and fielding efforts (including Software Engineering / Integration Agent (SE/IA), Technical Direction Agent, In-Service Engineering Agent, Integrated Logistics Support planning) and program management support. Facilitate fielding of systems improvements and maintenance efforts. FY 2024 Base Plans: Continue field activity support of CEC development and fielding efforts (including Software Engineering / Integration Agent (SE/IA), Technical Direction Agent, In-Service Engineering Agent, Integrated Logistics Support planning) and program management support. Facilitate fielding of systems improvements and maintenance efforts. FY 2024 OCO Plans: N/A FY 2023 to FY 2024 Increase/Decrease Statement: Decrease from FY23 to FY24 due to minor pricing differences.					
Title: NAVAL INTEGRATED FIRE CONTROL-COUNTER AIR (NIFC-CA)	6.799	8.022	7.934	0.000	7.934
Articles:	-	-	-	-	-
FY 2023 Plans:					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
Support NIFC At-Sea and Live Fire test events. Continue robust systems engineering for NIFC Increment 3 in close coordination with other NIFC pillars. Support NIFC Increment 3 interface and integration design document development and test support and testing. Continue requirement discussions with USMC.					
FY 2024 Base Plans: Support NIFC At-Sea and Live Fire test events. Continue robust systems engineering for NIFC Increment 3 in close coordination with other NIFC pillars. Support NIFC Increment 3 interface and integration design document development and test support and testing.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Decrease from FY23 to FY24 due to minor pricing differences.					
Title: PROGRAM PROTECTION					
Articles:					
	10.595	12.500	12.361	0.000	12.361
	-	-	-	-	-
FY 2023 Plans: Provide CEC Program Protection support to manage risks from foreign intelligence collection threats to CEC hardware, software, or supply chain exploitation. CEC critical program information (CPI) is required to be protected with anti-tamper. The effort will further the use of anti-tamper protection within the program. CEC will work closely with the Cyber Assessment Agency and Defense Assessment Management Office to access impacts to the program from exploitation. The effort will further maintain the Program Protection Plan (PPP) and updates to the program Security Classification Guide (SCG).					
FY 2024 Base Plans: Provide CEC Program Protection support to manage risks from foreign intelligence collection threats to CEC hardware, software, or supply chain exploitation. CEC critical program information (CPI) is required to be protected with anti-tamper. The effort will further the use of anti-tamper protection within the program. CEC will work closely with the Cyber Assessment Agency and Defense Assessment Management Office to access impacts to the program from exploitation. The effort will further maintain the Program Protection Plan (PPP) and updates to the program Security Classification Guide (SCG).					
FY 2024 OCO Plans:					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
		FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A						
FY 2023 to FY 2024 Increase/Decrease Statement: Decrease from FY23 to FY24 due to minor pricing differences.						
Title: CEC INCREMENT 2		0.815	0.000	0.000	0.000	0.000
		Articles:	-	-	-	-
Description: CEC Increment 2 refers to initial efforts to expand CEC tracking capabilities to include surface tracking and other experimental / proof of concept efforts. CEC Increment 2 does not cover efforts associated with CEC Increment II. CEC Increment II is covered under PE 0607658N / (U)Cooperative Engagement Capability Project 3240 / CEC Increment II starting in FY20.						
FY 2023 Plans: N/A						
FY 2024 Base Plans: N/A						
FY 2024 OCO Plans: N/A						
Title: ENTERPRISE AIR SURVEILLANCE RADAR (EASR)		6.430	0.809	6.598	0.000	6.598
		Articles:	-	-	-	-
FY 2023 Plans: Majority of EASR integration and test efforts deferred to FY24 - FY25. Continue CEC Baseline 11/SSDS Baseline 12 Integration and Test in support of CVN 79 and LHA 8 CSLO.						
FY 2024 Base Plans: Continue CEC Baseline 11 Integration and Test with SSDS Baseline 12 and EASR. Support integration of CEC Increment II Blk 2 Capability Group 3 with SSDS Baseline 12 and EASR baselines.						
FY 2024 OCO Plans: N/A						
FY 2023 to FY 2024 Increase/Decrease Statement: Increase is due to rephasing of FY23 efforts to FY24 and beyond.						
Title: CEC CYBER RESILIENCY		7.064	0.859	7.354	0.000	7.354

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p align="right"><i>Articles:</i></p> <p>FY 2023 Plans: Majority of CEC Cyber Resiliency efforts deferred to FY24 - FY25. Ensure cybersecurity requirements are fully considered and implemented in SDP Next development efforts. Define and support conduct of IA testing of CEC software baselines, Gold Disk releases, and hardware upgrades underway in FY23. Participate in CEC Block II development efforts to ensure cybersecurity requirements are defined, considered, and implemented. Ensure ATO and other cybersecurity compliance requirements are met, and support PEO IWS, SEA 03, and platform combat system cybersecurity data calls.</p> <p>FY 2024 Base Plans: Continue implementation of CEC CTT findings, cross domain interface solutions, and various other CEC cybersecurity enhancement capabilities (most classified) in CEC 11.x software baselines, Gold disk releases, and hardware upgrades. Ensure cybersecurity requirements are fully considered and implemented in SDP Next development efforts. Define and support conduct of IA testing of CEC software baselines, Gold Disk releases, and hardware upgrades underway in FY24. Participate in CEC Increment II Block 2 development efforts to ensure cybersecurity requirements are defined, considered, and implemented. Ensure ATO and other cybersecurity compliance requirements are met, and support PEO IWS, SEA 03, and platform combat system cybersecurity data calls. Support combat system and CEC cybersecurity interface and hardware/software design requirement definition, development, and implementation.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase is due to rephasing of FY23 efforts to FY24 and beyond.</p>	-	-	-	-	-
<p>Title: ANTENNA DEVELOPMENT</p> <p align="right"><i>Articles:</i></p> <p>FY 2023 Plans: N/A</p> <p>FY 2024 Base Plans:</p>	0.822	0.000	19.109	0.000	19.109
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Support development of prototype antenna waveform and communications technologies and architectures to be incorporated into a future replacement for the Planar Array Antenna Assembly (PAAA) antenna.					
<i>FY 2024 OCO Plans:</i> N/A					
<i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Increase is due to internal realignment of System Improvements RDT&E to support future antenna technology maturation and risk reduction efforts.					
Accomplishments/Planned Programs Subtotals	80.047	84.368	92.802	0.000	92.802

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024 Base</u>	<u>FY 2024 OCO</u>	<u>FY 2024 Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• SCN: Navy, SCN	18.507	39.000	26.700	-	26.700	34.000	27.700	14.200	43.500	232.834	941.087
• APN/0204152N: Navy, APN	18.341	18.708	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• OPN/2606: CEC	24.641	33.200	37.677	-	37.677	27.410	33.075	33.731	34.448	Continuing	Continuing
• RDT&E/0206313M: USMC	1.651	1.701	1.752	-	1.752	1.804	1.858	0.000	0.000	Continuing	Continuing
• O&M,N/0206626M: USMC	2.278	2.347	2.417	-	2.417	2.490	2.564	2.600	2.700	Continuing	Continuing
• OPN/0960: CG MOD	1.400	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3,461.635

Remarks

D. Acquisition Strategy
 Full Rate Production for CEC AN/USG-3B variant approved April 2014. Current version of CEC Acquisition Strategy (AS) approved by ASN (RDA) on 29 June 2020. Current version of CEC Acquisition Plan (AP) approved Q2 FY 2021. Revisions to the CEC AS and AP are in currently in process. The next revision of the CEC AS is expected to be approved in Q2 FY2023. The next revision of the CEC AP is expected to be approved in Q3 FY2023.

Contracts:
 CEC Design Agent/Engineering Services (DA/ES) follow-on sole source contract awarded Q4 FY 2013. A sole source 15 month CEC DA/ES contract extension awarded Q4 FY 2018.
 CEC DA/ES contract competitively awarded Q3 FY 2019. For DA, the contractor will maintain the CEC hardware and software development environment and testing infrastructure including; Systems and Software Laboratories, the external RF Range, the Compact Antenna Range, and the CEC Classified Development LAN.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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For ES, the contractor will develop software implementing CEC capability improvements; support advance studies and integration; and perform CEC software sustainment and support.

CEC Production - Contract competitively awarded in Q2 FY 2015.

CEC SDP-S Production - Contract competitively awarded in Q4 FY 2017.

CEC PAAA Competitive - Contract competitively awarded in Q3 FY 2020.

CEC Production - Contract competitively awarded in Q4 FY 2022

CEC PAAA-A Development - Contract competitively awarded in Q3 FY 2022

CEC PAAA-D Development - Contract competitively awarded in Q1 FY 2023

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy												Date: March 2023			
Appropriation/Budget Activity 1319 / 7				R-1 Program Element (Number/Name) PE 0607658N / Cooperative Engagement Capability						Project (Number/Name) 2039 / COOP Engagement					
Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
AN/USG-2/3 Design Agent/Engineering Services	C/CPFF	Raytheon : St. Petersburg, FL	181.692	12.737	Oct 2021	17.264	Oct 2022	5.799	Oct 2023	-		5.799	Continuing	Continuing	Continuing
TDA	C/CPFF	JHU/APL : Laurel, MD	131.564	12.209	Oct 2021	15.549	Oct 2022	5.810	Oct 2023	-		5.810	Continuing	Continuing	Continuing
SI/DA	C/CPAF	General Dynamics : Fairfax, VA	23.979	0.000		0.000		0.000		-		0.000	0.000	23.979	-
SI/DA	C/CPAF	Award Fees : Not Specified	2.903	0.000		0.000		0.000		-		0.000	0.000	2.903	-
DDG 1000	C/CPAF	Raytheon : Massachusetts	10.983	0.000		0.000		0.000		-		0.000	0.000	10.983	-
DDG 1000	C/CPAF	Award Fees : Not Specified	0.447	0.000		0.000		0.000		-		0.000	0.000	0.447	-
NIFC-CA Integration	Various	Various : Various	64.492	6.799	Oct 2021	8.022	Oct 2022	7.934	Oct 2023	-		7.934	Continuing	Continuing	Continuing
In-Service Engineering Activity	WR	NSWC : Port Hueneme, CA	16.086	2.478	Oct 2021	3.607	Oct 2022	2.247	Oct 2023	-		2.247	Continuing	Continuing	Continuing
Software Support Activity/ SEIA	WR	NSWC : Dahlgren, VA	29.271	2.545	Oct 2021	3.267	Oct 2022	2.189	Oct 2023	-		2.189	Continuing	Continuing	Continuing
Production Engineering Activity	WR	NSWC : Crane, IN	8.038	0.712	Oct 2021	1.238	Oct 2022	0.838	Oct 2023	-		0.838	Continuing	Continuing	Continuing
JTRS	Various	Various : Various	8.500	0.000		0.000		0.000		-		0.000	0.000	8.500	-
Various	WR	Various : Various	31.873	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
NAVSSI	WR	NIWC : San Diego, CA	0.368	0.000		0.000		0.000		-		0.000	0.000	0.368	-
Certification	MIPR	NSA : Fort Meade, MD	1.200	0.000		0.000		0.000		-		0.000	0.000	1.200	-
Certification	WR	NIWC : Charleston, SC	0.930	0.000		0.000		0.000		-		0.000	0.000	0.930	-
Joint Exercises	WR	Various : Various	3.744	0.000		0.000		0.000		-		0.000	0.000	3.744	-
LBTS Testing	WR	CDSA Dam Neck : Virginia Beach, VA	10.095	0.600	Oct 2021	1.250	Oct 2022	0.700	Oct 2023	-		0.700	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0607658N / <i>Cooperative Engagement Capability</i>	Project (Number/Name) 2039 / <i>COOP Engagement</i>
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
LBTS Testing	WR	SCSC : Wallops Island, VA	9.683	0.600	Oct 2021	0.900	Oct 2022	0.800	Oct 2023	-		0.800	Continuing	Continuing	Continuing
E-2D Integration	Various	Various : Various	65.648	3.975	Oct 2021	5.818	Oct 2022	5.754	Oct 2023	-		5.754	Continuing	Continuing	Continuing
MSI/NCCT	MIPR	Wright Patterson AFB : Dayton, OH	1.228	0.000		0.000		0.000		-		0.000	0.000	1.228	-
Common Array Block Development	C/CPFF	Raytheon : St. Petersburg, FL	82.856	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
NEEDS	Various	Various : Various	49.619	0.453	Oct 2021	0.534	Oct 2022	0.000		-		0.000	Continuing	Continuing	Continuing
AMDR	Various	Various : Various	17.308	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
JTMC	C/CPFF	Raytheon : St. Petersburg, FL	1.000	0.000		0.000		0.000		-		0.000	0.000	1.000	-
FCLIP	Various	Various : Various	37.777	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
CEC Increment 2	Various	Various : Various	7.772	0.815	Oct 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Protection	C/BA	NSMA : Washington, DC	40.624	10.595	Oct 2021	12.500	Oct 2022	12.361	Oct 2023	-		12.361	Continuing	Continuing	Continuing
EASR	Various	Various : Various	21.292	6.430	Oct 2021	0.809	Oct 2022	6.598	Oct 2023	-		6.598	Continuing	Continuing	Continuing
Crypto Modernization	Various	Various : Various	4.552	0.000		0.000		0.000		-		0.000	0.000	4.552	-
Digital Warfare Tactical Networking Initiative Implementation	Various	Various : Various	50.506	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
FTIIP	Various	Various : Various	6.500	0.000		0.000		0.000		-		0.000	0.000	6.500	-
Cyber Resiliency	Various	Various : Various	11.524	7.064	Oct 2021	0.859	Oct 2022	7.354	Oct 2023	-		7.354	Continuing	Continuing	Continuing
ELEKTRA	Various	Various : Various	1.520	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
ANTENNA DEVELOPMENT	Various	Various : Various	6.811	0.822	Oct 2021	0.000		19.109	Oct 2023	-		19.109	Continuing	Continuing	Continuing
Subtotal			942.385	68.834		71.617		77.493		-		77.493	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy **Date:** March 2023

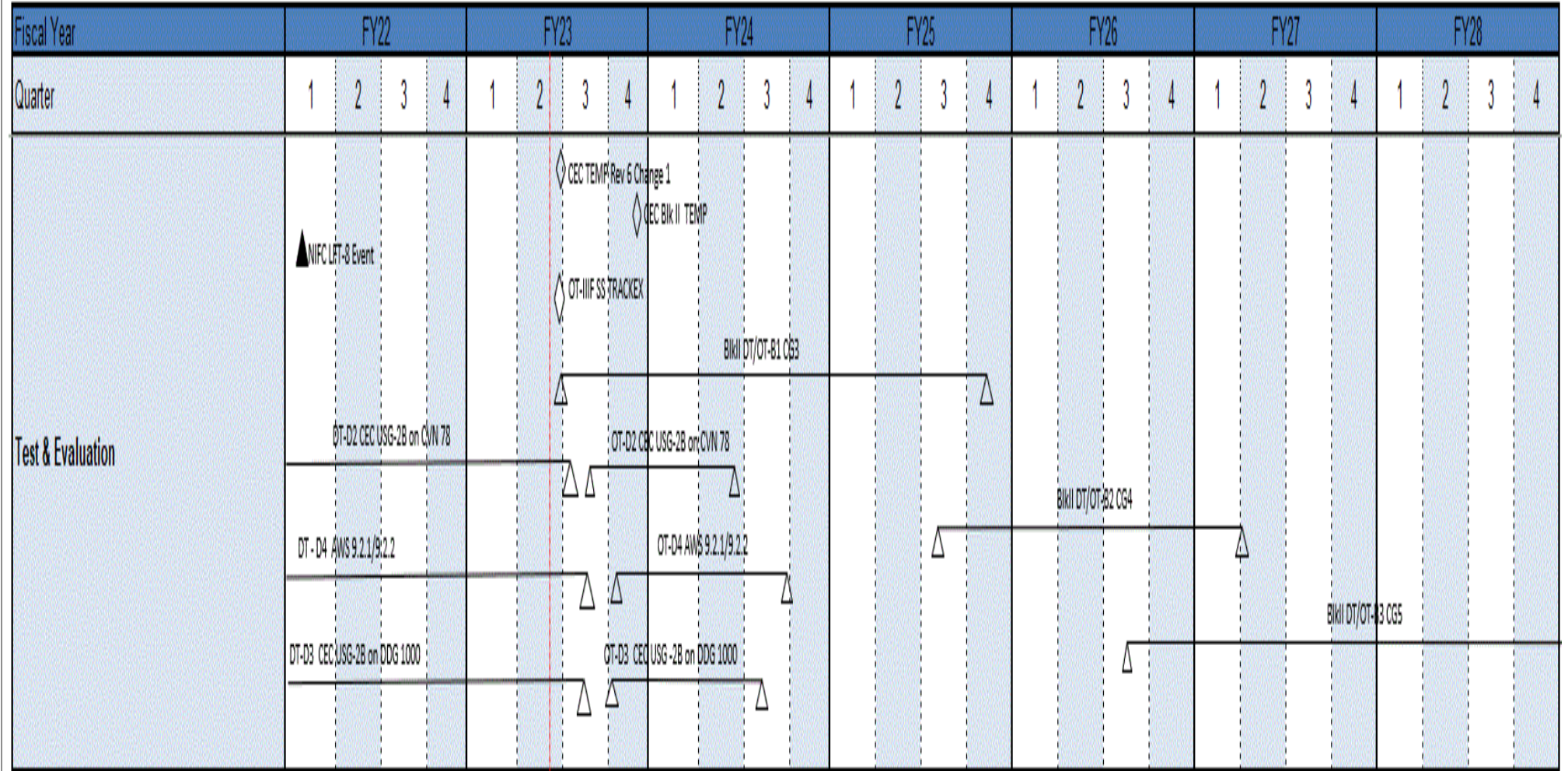
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0607658N / <i>Cooperative Engagement Capability</i>	Project (Number/Name) 2039 / <i>COOP Engagement</i>
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Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Developmental Test & Evaluation (DT&E)	C/CPFF	Raytheon : St. Petersburg, FL	11.400	1.570	Oct 2021	1.931	Oct 2022	2.312	Oct 2023	-		2.312	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	C/CPFF	JHU/APL : Laurel, MD	10.940	1.823	Oct 2021	2.022	Oct 2022	2.444	Oct 2023	-		2.444	Continuing	Continuing	Continuing
Prior Year Operational Test & Evaluation Not Funded FYDP (PYOT&E)	WR	NRL : Washington, DC	0.313	0.000		0.000		0.000		-		0.000	0.000	0.313	-
Developmental Test & Evaluation (DT&E)	WR	NSWC : Port Hueneme, CA	34.221	0.747	Oct 2021	1.029	Oct 2022	1.214	Oct 2023	-		1.214	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NAVAIR (PMA207) : Patuxent River, MD	16.033	0.908	Oct 2021	0.992	Oct 2022	1.173	Oct 2023	-		1.173	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NSWC : Corona, CA	25.457	0.500	Oct 2021	0.807	Oct 2022	0.988	Oct 2023	-		0.988	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E)	WR	COMOPTEVFOR : Norfolk, VA	19.232	1.574	Oct 2021	1.699	Oct 2022	1.994	Oct 2023	-		1.994	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NSWC : Dahlgren, VA	9.770	0.800	Oct 2021	0.997	Oct 2022	1.178	Oct 2023	-		1.178	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E)	WR	NSWC : Port Hueneme, CA	0.000	1.231	Oct 2021	1.231	Oct 2022	1.414	Oct 2023	-		1.414	0.000	3.876	-
Operational Test & Evaluation (OT&E)	WR	NAVAIR (PMA207) : Patuxent River, MD	0.000	0.400	Oct 2021	0.493	Oct 2022	0.676	Oct 2023	-		0.676	0.000	1.569	-
Operational Test & Evaluation (OT&E)	WR	NSWC : Corona, CA	0.000	1.195	Oct 2021	1.109	Oct 2022	1.292	Oct 2023	-		1.292	0.000	3.596	-
Operational Test & Evaluation (OT&E)	WR	NSWC : Dahlgren, VA	0.000	0.465	Oct 2021	0.441	Oct 2022	0.624	Oct 2023	-		0.624	0.000	1.530	-
Subtotal			127.366	11.213		12.751		15.309		-		15.309	Continuing	Continuing	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0607658N / Cooperative Engagement C apability	Project (Number/Name) 2039 / COOP Engagement
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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0607658N / <i>Cooperative Engagement Capability</i>	Project (Number/Name) 2039 / <i>COOP Engagement</i>
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<p align="center">Legend</p> <p>◆ Actual Milestone Completion</p> <p>◇ Planned Milestone Completion</p> <p>▲ Actual Event Start/Completion</p> <p>△ Planned Event Start/Completion</p> <p> Current Date</p> <p>--- Delivery Period based on Last Order Date</p>	<p align="center">Acronym List</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">ACB: Advance Capability Build</td> <td style="width: 33%;">FCUIP: Fire Control Loop Improvement Project</td> <td style="width: 33%;">OT: Operational Test</td> </tr> <tr> <td>AWS: Aegis Weapon System</td> <td>FNC: Future Naval Capability</td> <td>OY: Option Year</td> </tr> <tr> <td>AP: Acquisition Plan</td> <td>FOC: Full Operational Capability</td> <td>PAAA: Plannar Array Antenna Assembly</td> </tr> <tr> <td>AS: Acquisition Strategy</td> <td>FQT/IV&V: Full Qualification Testing/Independent Verification And Validation</td> <td>PDR: Preliminary Design Review</td> </tr> <tr> <td>APB: Acquisition Program Baseline</td> <td>FSBR: Final Software Build Review</td> <td>PH: Phase</td> </tr> <tr> <td>CAB: Common Array Block</td> <td>FTIIP: Far Term Interoperability Improvement Project</td> <td>PSWG: Product Support Working Group</td> </tr> <tr> <td>Common Array Block - Shipboard</td> <td>FY: Fiscal Year</td> <td>RFP: Request For Proposal</td> </tr> <tr> <td>CDD: Capability Development Document</td> <td>HS: Hypersonic</td> <td>SBR: Software Build Review</td> </tr> <tr> <td>CEC: Cooperative Engagement Capability</td> <td>ILA: Independent Logistics Assessment</td> <td>SBT: Sea Based Terminal</td> </tr> <tr> <td>CEN: CEC Enhanced Network</td> <td>IPR: Internal Program Review</td> <td>SDP-S: Signal Data Processor - Sierra</td> </tr> <tr> <td>CSSQT: Combat System Shipboard Qualification Trials</td> <td>LFT: Live Fire Test</td> <td>SFR: System Functional Review</td> </tr> <tr> <td>CTT: CEC Technical Training</td> <td>NIFC: Naval Integrated Fire Control</td> <td>SRR: System Requirements Review</td> </tr> <tr> <td>DA/ES: Design Agent/Engineering Services</td> <td>NIFC P: Naval Integrated Fire Control Passive</td> <td>SSDS: Ship Self Defense System</td> </tr> <tr> <td>DT: Developmental Test</td> <td>NIFC-CA: Naval Integrated Fire Control - Counter Air</td> <td>SS TRACKEX: Supersonic Tracking Exercise</td> </tr> <tr> <td>DWO: Digital Warfare Office</td> <td>NoGAPSS: Non-GPS Aided PNT (Position, Navigation and Timing) for Surface and Subsurface</td> <td>SSWG: Supply Support Working Group</td> </tr> <tr> <td>ERS - Enterprise Radar Suite</td> <td></td> <td>SWBLR: Software Baseline Review</td> </tr> <tr> <td></td> <td></td> <td>TEMP: Test and Evaluation Master Plan</td> </tr> <tr> <td></td> <td></td> <td>TIM: Technical Interchange Meeting</td> </tr> <tr> <td></td> <td></td> <td>TRR: Technical Readiness Review</td> </tr> </table>	ACB: Advance Capability Build	FCUIP: Fire Control Loop Improvement Project	OT: Operational Test	AWS: Aegis Weapon System	FNC: Future Naval Capability	OY: Option Year	AP: Acquisition Plan	FOC: Full Operational Capability	PAAA: Plannar Array Antenna Assembly	AS: Acquisition Strategy	FQT/IV&V: Full Qualification Testing/Independent Verification And Validation	PDR: Preliminary Design Review	APB: Acquisition Program Baseline	FSBR: Final Software Build Review	PH: Phase	CAB: Common Array Block	FTIIP: Far Term Interoperability Improvement Project	PSWG: Product Support Working Group	Common Array Block - Shipboard	FY: Fiscal Year	RFP: Request For Proposal	CDD: Capability Development Document	HS: Hypersonic	SBR: Software Build Review	CEC: Cooperative Engagement Capability	ILA: Independent Logistics Assessment	SBT: Sea Based Terminal	CEN: CEC Enhanced Network	IPR: Internal Program Review	SDP-S: Signal Data Processor - Sierra	CSSQT: Combat System Shipboard Qualification Trials	LFT: Live Fire Test	SFR: System Functional Review	CTT: CEC Technical Training	NIFC: Naval Integrated Fire Control	SRR: System Requirements Review	DA/ES: Design Agent/Engineering Services	NIFC P: Naval Integrated Fire Control Passive	SSDS: Ship Self Defense System	DT: Developmental Test	NIFC-CA: Naval Integrated Fire Control - Counter Air	SS TRACKEX: Supersonic Tracking Exercise	DWO: Digital Warfare Office	NoGAPSS: Non-GPS Aided PNT (Position, Navigation and Timing) for Surface and Subsurface	SSWG: Supply Support Working Group	ERS - Enterprise Radar Suite		SWBLR: Software Baseline Review			TEMP: Test and Evaluation Master Plan			TIM: Technical Interchange Meeting			TRR: Technical Readiness Review
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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0607658N / <i>Cooperative Engagement Capability</i>	Project (Number/Name) 2039 / <i>COOP Engagement</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2039				
CSB/Gate 6/7 FY22	2	2022	2	2022
CSB/Gate 6 FY23	2	2023	2	2023
CSB/Gate 6 FY24	1	2024	1	2024
CSB/Gate 6 FY25	1	2025	1	2025
CSB/Gate 6 FY26	1	2026	1	2026
CSB/Gate 6 FY27	1	2027	1	2027
CSB/Gate 6 FY28	1	2028	1	2028
SI Inc 21.3/4 SETR	1	2022	1	2022
SI Inc 22.1/2 SETR	3	2022	3	2022
SI Inc 22.3/4 SETR	2	2023	2	2023
SI Inc 23.1/2 SETR	3	2023	3	2023
SI Inc 23.3/4 SETR	1	2024	1	2024
SI Inc 24.1/2 SETR	3	2024	3	2024
SI Inc 24.3/4 SETR	1	2025	1	2025
SI Inc 25.1/2 SETR	3	2025	3	2025
SI Inc 25.3/4 SETR	1	2026	1	2026
SI Inc 26.1/2 SETR	3	2026	3	2026
SI Inc 26.3/4 SETR	1	2027	1	2027
SI Inc 27.1/2 SETR	3	2027	3	2027
SI Inc 27.3/4 SETR	1	2028	1	2028
SI Inc 28.1/2 SETR	3	2028	3	2028

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0607658N / <i>Cooperative Engagement Capability</i>	Project (Number/Name) 2039 / <i>COOP Engagement</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
SDP-Next Demo	2	2023	2	2023
SDP-Next EDM	4	2023	4	2023
PDMC Mod TDP	2	2024	2	2024
CEC Aegis BL10 Inc 21.3/4 SETR	1	2022	1	2022
CEC Aegis BL10 FQT/IV&V 1	2	2022	3	2022
CEC Aegis BL10 FQT/IV&V 2	4	2023	1	2024
CEC SSDS BL12 Incr 21.3/4 SETR	1	2022	1	2022
CEC SSDS BL12 Incr 22.1/2 SETR	3	2022	3	2022
CEC SSDS BL12 FQT/IV&V 1	1	2022	3	2022
CEC SSDS BL12 FQT/IV&V 2	3	2023	4	2023
SSWG FY 22	1	2022	1	2022
PSWG FY22	3	2022	3	2022
SSWG FY 23	1	2023	1	2023
PSWG FY 23	3	2023	3	2023
SSWG FY 24	1	2024	1	2024
PSWG FY 24	3	2024	3	2024
SSWG FY 25	1	2025	1	2025
PSWG FY 25	3	2025	3	2025
SSWG FY26	1	2026	1	2026
PSWG FY26	3	2026	3	2026
SSWG FY27	1	2027	1	2027
PSWG FY27	3	2027	3	2027
SSWG FY28	1	2028	1	2028
PSWG FY28	3	2028	3	2028
CEC Cyber Inc 21.3/4	1	2022	1	2022

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0607658N / <i>Cooperative Engagement Capability</i>	Project (Number/Name) 2039 / <i>COOP Engagement</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
CEC Cyber Inc 22.1/2	3	2022	3	2022
CEC Cyber Inc 22.3/4	2	2023	2	2023
CEC Cyber Inc 23.1/2	3	2023	3	2023
CEC Cyber Inc 23.3/4	1	2024	1	2024
CEC Cyber Inc 24.1/2	3	2024	3	2024
CEC Cyber Inc 24.3/4	1	2025	1	2025
CEC Cyber Inc 25.1/2	3	2025	3	2025
CEC Cyber Inc 25.3/4	1	2026	1	2026
CEC Cyber Inc 26.1/2	3	2026	3	2026
CEC Cyber Inc 26.3/4	1	2027	1	2027
CEC Cyber Inc 27.1/2	3	2027	3	2027
CEC Competitive Production (Previous)	1	2022	4	2023
CEC Future Competitive Production (Current)	1	2022	4	2026
CEC SDP-S Competitive Production	1	2022	1	2023
CEC DA/ES Follow-On Competitive	1	2022	4	2024
CEC USG-2/2A/3 Repair	1	2022	4	2023
Plannar Antenna Array Assembly (PAAA) Production	1	2022	1	2025
PAAA-A Development OTA	3	2022	4	2025
PAAA-D Development OTA	1	2023	4	2026
NIFC-CA LFT-8 Event	1	2022	1	2022
OT-IIF Supersonic Trackex (SS TRX)	2	2023	2	2023
DT-D2 CEC USG-2B on CVN 78	1	2022	2	2022
OT-D2 CEC USG-2B on CVN 78	3	2022	2	2023
DT-D3-CEC USG-2B on DDG 1000	1	2022	3	2023
OT-D3 USG-2B on DDG 1000	4	2023	3	2024

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0607658N / <i>Cooperative Engagement Capability</i>	Project (Number/Name) 2039 / <i>COOP Engagement</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
CEC TEMP Rev 6 Change 1	2	2023	2	2023
CEC BLK II TEMP	4	2023	4	2023
DT-D4 AWS 9.2.1/9.2.2	1	2022	3	2023
OT-D4 AWS 9.2.1/9.2.2	4	2023	3	2024
BLKII DT/OT-B1 CG3	3	2022	4	2025
BLKII DT/OT-B2 CG4	3	2025	1	2027
BLKII DT/OT-B3 CG5	2	2026	4	2028

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0607658N / <i>Cooperative Engagement Capability</i>	Project (Number/Name) 3240 / <i>CEC Increment II</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3240: <i>CEC Increment II</i>	55.448	68.581	71.753	60.638	-	60.638	63.109	83.426	84.387	86.146	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 582

A. Mission Description and Budget Item Justification

CEC Capability Development Document (CDD) Increment II evolves Increment I capabilities by enhancing the current naval air defense and sensor network system capabilities through the expansion of network capacity as well as extension into other warfare mission domains. CEC CDD Increment II shall integrate new sensor types and track data sources into the network, such as surface search radars and passive detection sensors, as well as relevant data from other networks. CEC CDD Increment II shall accommodate more CUs and provide a more complete, robust, and resilient situational awareness picture, composite identification, and Integrated Fire Control (IFC), with assured communications for Integrated Air and Missile Defense (IAMD), surface warfare, and electronic mission warfare domains.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: CEC FAR-TERM INTEROPERABILITY IMPROVEMENT PROJECT (FTIIP)	5.636	0.409	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2023 Plans: Complete CG 3 development and System Integration Testing (SIT). Begin CG 4 development. Begin land based testing for Mode-S, AIS and EW Sensors.					
FY 2024 Base Plans: N/A					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Decrease is due to transition from FTIIP specific efforts to testing of integrated CEC Block II capabilities in FY24.					
Title: NIFC HYPERSONIC	6.189	5.308	4.969	0.000	4.969
Articles:	-	-	-	-	-
FY 2023 Plans: Complete CG 3 development and System Integration Testing (SIT). Begin CG 4 development. Continue software development efforts to expand CEC speed, acceleration and altitude attributes for inclusion in the CEC					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023		
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0607658N / <i>Cooperative Engagement Capability</i>	Project (Number/Name) 3240 / <i>CEC Increment II</i>			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
Composite Tracking environment to address advanced and more stressing threats (Hypersonics). Validate NIFC Hypersonics system network performance requirements to support system hardware improvements.					
FY 2024 Base Plans: Continue CG 4 development. Continue software development efforts to expand CEC speed, acceleration and altitude attributes for inclusion in the CEC Composite Tracking environment to address advanced and more stressing threats (Hypersonics). Validate NIFC Hypersonics system network performance requirements to support system hardware improvements.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Decrease is due to minor pricing differences.					
Title: CRYPTO MODERNIZATION					
Articles:					
	9.570	10.429	9.496	0.000	9.496
	-	-	-	-	-
FY 2023 Plans: Complete CG 3 development and System Integration Testing (SIT). Begin CG 4 development. Continue a cryptographic modernization effort for Signal Data Processor (SDP), to include the continued development of a new Programmable Cryptographic Module (PCM), in support of the significant increase in cryptographic performance that is required to enable more resilient networks and add additional protections to the CEC network.					
FY 2024 Base Plans: Continue CG 4 development. Continue a cryptographic modernization effort for Signal Data Processor (SDP), to include the continued development of a new Programmable Cryptographic Module (PCM), in support of the significant increase in cryptographic performance that is required to enable more resilient networks and add additional protections to the CEC network.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Decrease from FY23 to FY24 due to minor pricing differences.					
Title: NIFC Passive					
	11.992	9.290	8.183	0.000	8.183

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p align="right">Articles:</p> <p>FY 2023 Plans: Complete CG 3 development and System Integration Testing (SIT). Begin CG 4 development. In Close Coordination with PEO IWS 2.0 and PMA-231, continue integration of Electronic Warfare [EW] capabilities in CEC support of developing a SLQ-32(V)6 adaptive layer interface. Continue robust systems engineering efforts for CEP and DDS software development to route EW data via the CEC DDS network, ingest EW data into the CEP track picture, and use EW data to enhance Composite ID recommendations to Combat Systems.</p> <p>FY 2024 Base Plans: Continue CG 4 development. In Close Coordination with PEO IWS 2.0 and PMA-231, continue integration of Electronic Warfare [EW] capabilities in CEC support of developing a SLQ-32(V)6 adaptive layer interface. Continue robust systems engineering efforts for CEP and DDS software development to route EW data via the CEC DDS network, ingest EW data into the CEP track picture, and use EW data to enhance Composite ID recommendations to Combat Systems.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decrease is due to transition from NIFC Passive specific efforts to testing of integrated CEC Block II capabilities in FY24.</p>	-	-	-	-	-
<p>Title: FIRECAPE</p> <p align="right">Articles:</p> <p>FY 2023 Plans: Complete CG 3 development and System Integration Testing (SIT). Begin CG 4 development. Begin early integration and development of 'Patterns of Life' algorithms for inclusion in the CEC track picture to assist with identification of anomalies and events of interest. Continue FY22 efforts for inclusion in CEC tactical code, integrating and fielding algorithms in CEC to provide common threat evaluation and arbitration across the Force, and augmenting CEC Cooperative Engagement Decision Function with algorithms to calculate assignments and recommend actions to the combat system.</p> <p>FY 2024 Base Plans: Continue CG 4 development. Continue integration and development of 'Patterns of Life' algorithms for inclusion in the CEC track picture to assist with identification of anomalies and events of interest. Continue FY23</p>	1.764 -	4.422 -	11.381 -	0.000 -	11.381 -

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023		
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0607658N / <i>Cooperative Engagement Capability</i>	Project (Number/Name) 3240 / <i>CEC Increment II</i>			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
efforts for inclusion in CEC tactical code, integrating and fielding algorithms in CEC to provide common threat evaluation and arbitration across the Force, and augmenting CEC Cooperative Engagement Decision Function with algorithms to calculate assignments and recommend actions to the combat system.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Increase is due to rephasing of FY22 and FY23 efforts to FY24-FY25.					
Title: Communications-as-a-Service (CaaS)					
Articles:					
	6.199	9.494	3.702	0.000	3.702
	-	-	-	-	-
FY 2023 Plans: Complete CG 3 development and System Integration Testing (SIT). Begin CG 4 development. Continue integration of CEC with CaaS 2.0. Integrate CEC Increment II Block 2 functionality including Distributed Scheduler with CaaS 2.0. Integrate CEC with CaaS DLEP interface.					
FY 2024 Base Plans: Continue CG 4 development. Continue integration of CEC with CaaS 2.0. Continue integration of CEC Increment II Block 2 functionality including Distributed Scheduler with CaaS 2.0. Continue integration of CEC with CaaS DLEP interface.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Decease from FY23 to FY24 due to transition from primarily software development to integration and test.					
Title: DIGITAL WARFARE TACTICAL NETWORKING INITIATIVE IMPLEMENTATION					
Articles:					
	6.181	3.339	0.000	0.000	0.000
	-	-	-	-	-
FY 2023 Plans: Continue leading a Cross Functional Team (CFT) with participation from key naval tactical network organizations and fleet representation to conduct systems engineering and experimentation for improving tactical data dissemination to support further development of Integrated Fires Control concepts.					
FY 2024 Base Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0607658N / <i>Cooperative Engagement Capability</i>	Project (Number/Name) 3240 / <i>CEC Increment II</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
(CaaS) Agile SW development and maturation. Continue C2P, Common Data Link (CDL), and Tactical Targeting Networking Technology (TTNT) integration testing. FY 2024 Base Plans: FY24 and FY25 CaaS Certification and Production Transition efforts transferred to NAVWAR PMW160. FY 2024 OCO Plans: N/A FY 2023 to FY 2024 Increase/Decrease Statement: Decrease from FY23 to FY24 due to transition of effort to NAVWAR PMW160.					
Accomplishments/Planned Programs Subtotals	68.581	71.753	60.638	0.000	60.638

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

N/A

Remarks

D. Acquisition Strategy

The CEC Increment II Acquisition Strategy (AS) is covered under the Cooperative Engagement Capability / COOP Engagement Project 2039 Acquisition Strategy (AS). The next revision of the CEC AS is expected to be approved in Q2 FY2023. CEC Increment II Capability Development Document (CDD) approved 18 March 2020.

Contracts:

- Signal Data Processor (SDP) Next - Contract competitively awarded via Other Transaction Authority (OTA) on 5 May 2021.
- Communications-as-a-Service Maturation - Contract sole source awarded on 4 June 2021
- SDP Next Phase II - Contract competitively awarded via OTA on 30 September 2022

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0607658N / <i>Cooperative Engagement Capability</i>	Project (Number/Name) 3240 / <i>CEC Increment II</i>
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
CRYPTO Modernization	Various	Various : Not Specified	12.635	9.570	Oct 2021	10.429	Oct 2022	9.496	Oct 2023	-		9.496	Continuing	Continuing	Continuing
FTIIP	Various	Various : Not Specified	12.749	5.636	Oct 2021	0.409	Oct 2022	0.000		-		0.000	6.400	25.194	-
NIFC Hypersonic	Various	Various : Not Specified	7.190	6.189	Oct 2021	5.308	Oct 2022	4.969	Oct 2023	-		4.969	Continuing	Continuing	Continuing
NIFC Passive	Various	Various : Not Specified	18.092	11.992	Oct 2021	9.290	Oct 2022	8.183	Oct 2023	-		8.183	Continuing	Continuing	Continuing
FIRECAPE	Various	Various : Not Specified	0.000	1.764	Oct 2021	4.422	Oct 2022	11.381	Oct 2023	-		11.381	Continuing	Continuing	Continuing
CaaS	Various	Various : Not Specified	4.782	6.199	Oct 2021	9.494	Oct 2022	3.702	Oct 2023	-		3.702	19.700	43.877	-
DWO	Various	Various : Not Specified	0.000	6.181	Oct 2021	3.339	Oct 2022	0.000		-		0.000	0.000	9.520	-
ELEKTRA	Various	Various : Not Specified	0.000	8.457	Oct 2021	18.132	Oct 2022	22.907	Oct 2023	-		22.907	0.000	49.496	-
CaaS & CERT & PRODUCTION	Various	Various : Not Specified	0.000	12.593	Oct 2021	10.930	Oct 2022	0.000		-		0.000	0.000	23.523	-
Subtotal			55.448	68.581		71.753		60.638		-		60.638	Continuing	Continuing	N/A

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	55.448	68.581	71.753	60.638	-	60.638	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy

Date: March 2023

Appropriation/Budget Activity
1319 / 7

R-1 Program Element (Number/Name)
PE 0607658N / *Cooperative Engagement Capability*

Project (Number/Name)
3240 / *CEC Increment II*

Fiscal Year	FY22				FY23				FY24				FY25				FY26				FY27				FY28							
Quarter	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				
Acquisition Milestones																																
Program Milestones																																
CEC Far Term Interoperability Improvement Project (FTIIP)	◆ Incr 21.3/4 SETR		◆ Incr 22.1/2 SETR				◆ Incr 22.3/4 SETR	◆ Incr 23.1/2 SETR																								
Naval Integrated Fire Control Passive (NIFC P)	◆ Incr 21.3/4 SETR		◆ Incr 22.1/2 SETR				◆ Incr 22.3/4 SETR	◆ Incr 23.1/2 SETR		◆ Incr 23.3/4 SETR	◆ Incr 24.1/2 SETR		◆ Incr 24.3/4 SETR	◆ Incr 25.1/2 SETR		◆ Incr 25.3/4 SETR	◆ Incr 26.1/2 SETR															
CEC Naval Integrated Fire Control (NIFC) Hypersonic (HS)	◆ Incr 21.3/4 SETR		◆ Incr 22.1/2 SETR				◆ Incr 22.3/4 SETR	◆ Incr 23.1/2 SETR		◆ Incr 23.3/4 SETR	◆ Incr 24.1/2 SETR		◆ Incr 24.3/4 SETR	◆ Incr 25.1/2 SETR		◆ Incr 25.3/4 SETR	◆ Incr 26.1/2 SETR															
FIRECAPE	◆ Incr 21.3/4 SETR		◆ Incr 22.1/2 SETR				◆ Incr 22.3/4 SETR	◆ Incr 23.1/2 SETR		◆ Incr 23.3/4 SETR	◆ Incr 24.1/2 SETR		◆ Incr 24.3/4 SETR	◆ Incr 25.1/2 SETR		◆ Incr 25.3/4 SETR	◆ Incr 26.1/2 SETR															
CEC Comms and Interoperability for IF (CIIF) Comms as a Service NFC	◆ Incr 21.3/4 SETR		◆ Incr 22.1/2 SETR				◆ Incr 22.3/4 SETR	◆ Incr 23.1/2 SETR		◆ Incr 23.3/4 SETR	◆ Incr 24.1/2 SETR																					
CEC ELEKTRA								◆ Incr 23.1/2 SETR		◆ Incr 23.3/4 SETR	◆ Incr 24.1/2 SETR		◆ Incr 24.3/4 SETR	◆ Incr 25.1/2 SETR		◆ Incr 25.3/4 SETR	◆ Incr 26.1/2 SETR		◆ Incr 26.3/4 SETR	◆ Incr 27.1/2 SETR												
Digital Warfare Tactical Networking Initiative Implementation	◆ Demo																															
Transition to CEC Block 3 Development																																
Contracts																																
CEC Signal Data Processor (SDP) - Next Phase I OTA				▲																												
CEC Comms and Interoperability for IF (CIIF) Comms as a Service NFC Development				▲																												
CEC Signal Data Processor (SDP) - Next Phase II OTA																																

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0607658N / <i>Cooperative Engagement Capability</i>	Project (Number/Name) 3240 / <i>CEC Increment II</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3240				
MS C	4	2023	4	2023
IOC	4	2024	4	2024
FOC	4	2026	4	2026
CAPABILITY GROUP 3 DEV & TEST	1	2022	4	2023
CAPABILITY GROUP 4 DEV & TEST	3	2023	2	2026
CAPABILITY GROUP 5 DEV & TEST	1	2025	4	2026
CEC FTIIP Incr 21.3/4 SETR	1	2022	1	2022
CEC FTIIP Incr 22.1/2 SETR	3	2022	3	2022
CEC FTIIP Incr 22.3/4 SETR	2	2023	2	2023
CEC FTIIP Incr 23.1/2 SETR	3	2023	3	2023
NIFC Passive Incr 21.3/4 SETR	1	2022	1	2022
NIFC Passive Incr 22.1/2 SETR	3	2022	3	2022
NIFC Passive Incr 22.3/4 SETR	2	2023	2	2023
NIFC Passive Incr 23.1/2 SETR	3	2023	3	2023
NIFC Passive Incr 23.3/4 SETR	1	2024	1	2024
NIFC Passive Incr 24.1/2 SETR	3	2024	3	2024
NIFC Passive Incr 24.3/4 SETR	1	2025	1	2025
NIFC Passive Incr 25.1/2 SETR	3	2025	3	2025
NIFC Passive Incr 25.3/4 SETR	1	2026	1	2026
NIFC Passive Incr 26.1/2 SETR	3	2026	3	2026
CEC NIFC Hypersonic Incr 21.3/4 SETR	1	2022	1	2022

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0607658N / <i>Cooperative Engagement Capability</i>	Project (Number/Name) 3240 / <i>CEC Increment II</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
CEC NIFC Hypersonic Incr 22.1/2 SETR	3	2022	3	2022
CEC NIFC Hypersonic Incr 22.3/4 SETR	2	2023	2	2023
CEC NIFC Hypersonic Incr 23.1/2 SETR	3	2023	3	2023
CEC NIFC Hypersonic Incr 23.3/4 SETR	1	2024	1	2024
CEC NIFC Hypersonic Incr 24.1/2 SETR	3	2024	3	2024
CEC NIFC Hypersonic Incr 24.3/4 SETR	1	2025	1	2025
CEC NIFC Hypersonic Incr 25.1/2 SETR	3	2025	3	2025
CEC FIRECAPE Incr 21.3/4 SETR	1	2022	1	2022
CEC FIRECAPE Incr 22.1/2 SETR	3	2022	3	2022
CEC FIRECAPE Incr 22.3/4 SETR	2	2023	2	2023
CEC FIRECAPE Incr 23.1/2 SETR	3	2023	3	2023
CEC FIRECAPE Incr 23.3/4 SETR	1	2024	1	2024
CEC FIRECAPE Incr 24.1/2 SETR	3	2024	3	2024
CEC FIRECAPE Incr 24.3/4 SETR	1	2025	1	2025
CEC FIRECAPE Incr 25.1/2 SETR	3	2025	3	2025
CEC CIIF CaaS FNC Incr 21.3/4 SETR	1	2022	1	2022
CEC CIIF CaaS FNC Incr 22.1/2 SETR	3	2022	3	2022
CEC CIIF CaaS FNC Incr 22.3/4 SETR	2	2023	2	2023
CEC CIIF CaaS FNC Incr 23.1/2 SETR	3	2023	3	2023
CEC CIIF CaaS FNC Incr 23.3/4 SETR	1	2024	1	2024
CEC CIIF CaaS FNC Incr 24.1/2 SETR	3	2024	3	2024
CEC ELEKTRA Incr 23.1/2 SETR	3	2023	3	2023
CEC ELEKTRA Incr 23.3/4 SETR	1	2024	1	2024
CEC ELEKTRA Incr 24.1/2 SETR	3	2024	3	2024
CEC ELEKTRA Incr 24.3/4 SETR	1	2025	1	2025

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0607658N / <i>Cooperative Engagement Capability</i>	Project (Number/Name) 3240 / <i>CEC Increment II</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
CEC ELEKTRA Incr 25.1/2 SETR	3	2025	3	2025
CEC ELEKTRA Incr 25.3/4 SETR	1	2026	1	2026
CEC ELEKTRA Incr 26.1/2 SETR	3	2026	3	2026
CEC ELEKTRA Incr 26.3/4 SETR	1	2027	1	2027
CEC ELEKTRA Incr 27.1/2 SETR	3	2027	3	2027
CEC ELEKTRA Incr 27.3/4 SETR	1	2028	1	2028
CEC ELEKTRA Incr 28.1/2 SETR	3	2028	3	2028
DWO DEMO	1	2022	1	2022
CEC BLK II TEMP	4	2023	4	2023
CEC Signal Data Processor (SDP) - Next Phase I OTA	1	2022	3	2022
CEC Comms and Interoperability for IF (CIIF) Comms as a Service NFC Develop	1	2022	3	2022
CEC Signal Data Processor (SDP) - Next Phase II OTA	4	2022	4	2025
SRR	1	2026	1	2026
SFR	3	2026	3	2026
CEC BLOCK 3 Incr 26.3/4 SETR	1	2027	1	2027
CEC BLOCK 3 Incr 27.1/2 SETR	3	2027	3	2027
CEC BLOCK 3 Incr 27.3/4 SETR	1	2028	1	2028
CEC BLOCK 3 Incr 28.1/2 SETR	3	2028	3	2028