Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy

Date: February 2018

Appropriation/Budget Activity

1319: Research, Development, Test & Evaluation, Navy I BA 5: System

Development & Demonstration (SDD)

R-1 Program Element (Number/Name)

PE 0604574N I Navy Tactical Computer Resources

| COST (\$ in Millions) | Prior Years | FY 2017 | FY 2018 | FY 2019 Base | FY 2019 OCO | FY 2019 Total | FY 2020 | FY 2021 | FY 2022 | FY 2023 | Cost To Complete | Total Cost |
|---|----------------|---------|---------|-----------------|----------------|------------------|---------|---------|---------|---------|------------------|---------------|
| Total Program Element | 7.937 | 3.059 | 4.817 | 4.642 | - | 4.642 | 4.022 | 3.994 | 4.078 | 4.163 | Continuing | Continuing |
| 3360: Common Processing System (CPS) | 2.644 | 0.877 | 1.685 | 1.599 | - | 1.599 | 1.445 | 1.478 | 1.508 | 1.541 | Continuing | Continuing |
| 3361: Common Display System (CDS) | 5.293 | 2.182 | 3.132 | 3.043 | - | 3.043 | 2.577 | 2.516 | 2.570 | 2.622 | Continuing | Continuing |

A. Mission Description and Budget Item Justification

The Common Processing System (CPS) and Common Display System (CDS) programs support developing technology insertions in a competitively sourced environment. CPS & CDS provide technical replacements for obsolete display and processing equipment (such as AN/UYQ-70) for multiple warfare systems aboard Surface Combatants and Large Deck class ships.

CPS provides computer processing and memory, data storage and extraction, and Input/Output (I/O) interface to support hosting Navy combat system software applications and computing resources. These upgrades support AEGIS Modernization, AEGIS new construction, AEGIS Ashore, Ship Self Defense System (SSDS) MK2, Surface Electronic Warfare Improvement Program (SEWIP), and other Navy programs. Funding provides for technical management and Engineering Change Proposals (ECP) development for the common baseline. Procurement and development funds provided by user programs to support program unique requirements.

CDS provides operator display consoles with a common human machine interface to support the Combat System operations. These upgrades support AEGIS modernization, AEGIS new construction, AEGIS Ashore, DDG-1000, Ship Self Defense System (SSDS) MK 2, Gun Weapon System (GWS), and SEWIP. Funding provides for technical management and Engineering Change Proposals (ECP) development for the common baseline. Procurement and development funds provided by user programs to support program unique requirements.

| B. Program Change Summary (\$ in Millions) | FY 2017 | FY 2018 | FY 2019 Base | FY 2019 OCO | FY 2019 Total |
|---|---------|---------|--------------|-------------|---------------|
| Previous President's Budget | 3.098 | 4.817 | 4.727 | - | 4.727 |
| Current President's Budget | 3.059 | 4.817 | 4.642 | - | 4.642 |
| Total Adjustments | -0.039 | 0.000 | -0.085 | - | -0.085 |
| Congressional General Reductions | - | - | | | |
| Congressional Directed Reductions | - | - | | | |
| Congressional Rescissions | - | - | | | |
| Congressional Adds | - | - | | | |
| Congressional Directed Transfers | - | - | | | |
| Reprogrammings | - | - | | | |
| SBIR/STTR Transfer | -0.039 | 0.000 | | | |
| Rate/Misc Adjustments | 0.000 | 0.000 | -0.085 | - | -0.085 |

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| Exhibit R-2A, RDT&E Project J | ustification: | PB 2019 N | lavy | | | | | | | Date: Febr | ruary 2018 | | |
|---|----------------|-----------|---------|-----------------|---|------------------|---------|---------|---------|--|---------------------|---------------|--|
| Appropriation/Budget Activity 1319 / 5 | | | | | \ , , , , , , , , , , , , , , , , , , , | | | | • ` | pject (Number/Name) 60 / Common Processing System (CPS) | | | |
| COST (\$ in Millions) | Prior Years | FY 2017 | FY 2018 | FY 2019 Base | FY 2019 OCO | FY 2019 Total | FY 2020 | FY 2021 | FY 2022 | FY 2023 | Cost To Complete | Total Cost | |
| 3360: Common Processing System (CPS) | 2.644 | 0.877 | 1.685 | 1.599 | - | 1.599 | 1.445 | 1.478 | 1.508 | 1.541 | Continuing | Continuing | |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | | |

A. Mission Description and Budget Item Justification

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

The Common Processing System (CPS) program supports developing open architecture computer processing hardware and storage technology in a competitively sourced environment. CPS provides technical replacements for obsolete processing equipment (such as AN/UYQ-70) for multiple warfare systems aboard Surface Combatants and Large Deck class ships. CPS provides computer processing and memory, data storage and extraction, and Input/Output (I/O) interface to support hosting Navy combat system software applications and computing resources. These upgrades support AEGIS Modernization, AEGIS new construction, Ship Self Defense System (SSDS) MK2, Surface Electronic Warfare Improvement Program (SEWIP), and other Navy programs. Funding provides for technical management and Engineering Change Proposals (ECP) development for the common baseline. Procurement and development funds provided by user programs to support program unique requirements.

| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each) | | | FY 2019 | FY 2019 | FY 2019 |
|---|---------|---------|---------|---------|---------|
| | FY 2017 | FY 2018 | Base | oco | Total |
| Title: Common Processing System (CPS) | 0.877 | 1.685 | 1.599 | 0.000 | 1.599 |
| Articles: | - | - | - | - | - |
| FY 2018 Plans: | | | | | |
| Continue system engineering support of CPS TI-12 / TI-16 development efforts required to support various | | | | | |
| Combat and Weapon System Configurations. Support Engineering Analysis of issues identified within field configuration TI-12 to develop resolution plan to improve reliability, readiness, or reduce operating costs. | | | | | |
| Support System Engineering efforts required to achieve In-Progress Review for TI-20 milestone. FY18 increase | | | | | |
| is due to additional efforts required to support Technology Insertion (TI) MK 6 MOD 1 Equipment Suite CPS | | | | | |
| modifications to support the Critical Design Review (CDR), Test Readiness Review (TRR) and delivery of the initial Technical Data Package (TDP) all in FY18. MK 6 MOD 1 includes CPS Capability updates, DMS resolution | | | | | |
| and ACB-20 NCD derived requirement improvements. In addition, initial design work for TI MK 7 CPS will | | | | | |
| commence in FY18. | | | | | |
| FY 2019 Base Plans: | | | | | |
| Continue system engineering support of CPS TI-16 development efforts required to support various Combat | | | | | |
| and Weapon System Configurations. Support Engineering Analysis of issues identified within field configuration | | | | | |
| | | | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy | | | Date: February 2018 |
|---|--------------------------------------|------------|------------------------------|
| · · · · · · · · · · · · · · · · · · · | , | (| umber/Name) |
| 1319 / 5 | PE 0604574N I Navy Tactical Computer | 3360 / Con | nmon Processing System (CPS) |
| | Resources | | |

| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each) | FY 2017 | FY 2018 | FY 2019 Base | FY 2019 OCO | FY 2019 Total |
|--|---------|---------|-----------------|----------------|------------------|
| TI-12 to develop resolution plan to improve reliability, readiness, or reduce operating costs. Support System Engineering efforts required to achieve Program Readiness Review (PRR) for TI-20 milestone in 4th quarter. | | | | | |
| FY 2019 OCO Plans: N/A | | | | | |
| FY 2018 to FY 2019 Increase/Decrease Statement: Rate/Misc adjustments. | | | | | |
| Accomplishments/Planned Programs Subtotals | 0.877 | 1.685 | 1.599 | 0.000 | 1.599 |

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

N/A

<u>Remarks</u>

D. Acquisition Strategy

CPS TI-16: Award build to Print Indefinite Delivery Indefinite Quantity (IDIQ) production contract for FY17-FY21.

E. Performance Metrics

Major Milestones:

CPS TI-12 Build-To-Print Contract Award (Procurement Order Available until second quarter FY17.

CPS TI-20 In Process Review No. 1 third quarter FY17.

CPS TI-20 In Process Review No. 2 first quarter FY18.

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CDP TI-20 Preliminary Design Review third quarter FY18.

CPS TI-20 Production Readiness Review fourth quarter FY19.

| Exhibit R-3, RDT&E | Project C | ost Analysis: PB 2 | 2019 Navy | / | | | | | | | | Date: | February | 2018 | | | | |
|--------------------------------------|--------------------------------------|-----------------------------------|----------------|---------|---------------|---------|---------------|-----------------|--|----------------|---------------|------------------|------------|---|--------------------------------|--|--|--|
| Appropriation/Budg 1319 / 5 | ppropriation/Budget Activity 319 / 5 | | | | | | | | R-1 Program Element (Number/Name) PE 0604574N I Navy Tactical Computer Resources | | | | | Project (Number/Name) 3360 / Common Processing System (CF | | | | |
| Product Development (\$ in Millions) | | | | FY 2017 | | FY 2018 | | FY 2019 Base | | FY 2019 OCO | | FY 2019 Total | | | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To | Total Cost | Target Value of Contract | | | |
| Systems Engineering | WR | NSWC : PHD | 0.010 | 0.000 | | 0.240 | Oct 2017 | 0.147 | Oct 2018 | - | | 0.147 | Continuing | Continuing | Continuing | | | |
| Systems Engineering | WR | NSWC : Dahlgren | 1.384 | 0.760 | Nov 2016 | 0.785 | Nov 2017 | 0.785 | Nov 2018 | - | | 0.785 | Continuing | Continuing | Continuing | | | |
| Systems Engineering | C/CPIF | TBD : TBD | 1.166 | 0.063 | Nov 2016 | 0.605 | Dec 2017 | 0.607 | Oct 2018 | - | | 0.607 | 0.000 | 2.441 | - | | | |
| | | Subtotal | 2.560 | 0.823 | | 1.630 | | 1.539 | | - | | 1.539 | Continuing | Continuing | N/A | | | |
| Management Servic | es (\$ in M | lillions) | | FY 2 | 2017 | FY 2 | 2018 | | 2019 ise | | 2019 CO | FY 2019 Total | | | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To | Total Cost | Target Value of Contract | | | |
| Program Management Services | Various | Various : Various | 0.084 | 0.054 | Oct 2016 | 0.055 | Oct 2017 | 0.060 | Oct 2018 | - | | 0.060 | Continuing | Continuing | Continuing | | | |
| | | Subtotal | 0.084 | 0.054 | | 0.055 | | 0.060 | | - | | 0.060 | Continuing | Continuing | N/A | | | |
| | | | Prior Years | FY | 2017 | FY: | 2018 | | 2019 ise | | 2019 CO | FY 2019 Total | Cost To | Total Cost | Target Value of Contract | | | |

1.685

1.599

Remarks

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Project Cost Totals

2.644

0.877

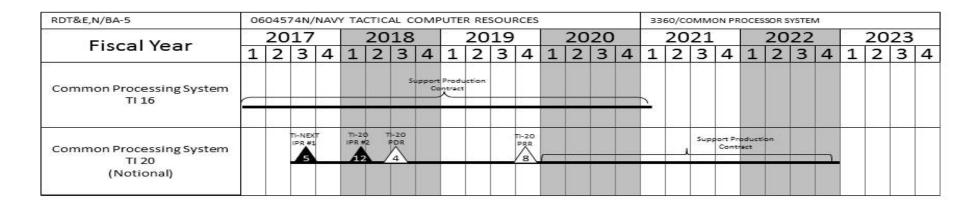
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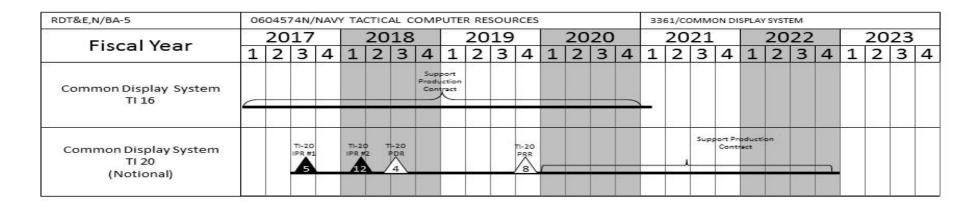
1.599 Continuing Continuing

N/A

| Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy | | | Date: February 2018 |
|---|--|-------|---|
| Appropriation/Budget Activity 1319 / 5 | R-1 Program Element (Number/Name) PE 0604574N I Navy Tactical Computer Resources | - , (| umber/Name) nmon Processing System (CPS) |



| Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy | | | Date: February 2018 |
|---|---|-------|---|
| , · · · · · · · · · · · · · · · · · · · | , | - , (| umber/Name) nmon Processing System (CPS) |



| Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy | | | Date: February 2018 |
|--|-----|-------|---|
| Appropriation/Budget Activity 1319 / 5 | , , | - , (| umber/Name) nmon Processing System (CPS) |

Schedule Details

| | St | art | E | nd |
|--|---------|------|---------|------|
| Events by Sub Project | Quarter | Year | Quarter | Year |
| Proj 3360 | | | | |
| CPS TI 20 In Progress Review (IPR) No. 1 | 3 | 2017 | 3 | 2017 |
| CPS TI 20 In Progress Review (IPR) No. 2 | 1 | 2018 | 1 | 2018 |
| CPS TI 20 PDR | 3 | 2018 | 3 | 2018 |
| CPS TI 20 PRR | 4 | 2019 | 4 | 2019 |

| Exhibit R-2A, RDT&E Project Ju | stification: | : PB 2019 N | lavy | | | | | | | Date: Febr | uary 2018 | |
|--|----------------|-------------|---|-----------------|----------------|------------------|---------|---------|---------|------------|---------------------|---------------|
| Appropriation/Budget Activity 1319 / 5 | | | R-1 Program Element (Number/Name) PE 0604574N I Navy Tactical Computer Resources Project (Number/Name) 3361 I Common Display System (CDS) | | | | CDS) | | | | | |
| COST (\$ in Millions) | Prior Years | FY 2017 | FY 2018 | FY 2019 Base | FY 2019 OCO | FY 2019 Total | FY 2020 | FY 2021 | FY 2022 | FY 2023 | Cost To Complete | Total Cost |
| 3361: Common Display System (CDS) | 5.293 | 2.182 | 3.132 | 3.043 | - | 3.043 | 2.577 | 2.516 | 2.570 | 2.622 | Continuing | Continuing |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

The Common Display System (CDS) programs support developing technology insertions in a competitively sourced environment. CDS provide technical replacements for obsolete display and processing equipment (such as AN/UYQ-70) for multiple warfare systems aboard Surface Combatants and Large Deck class ships. CDS provides operator display consoles with a common human machine interface to support the Combat System operations. These upgrades support AEGIS modernization, AEGIS new construction, AEGIS Ashore, DDG-1000, Ship Self Defense System (SSDS) MK 2, Gun Weapon System (GWS), and SEWIP. Funding provides for technical management and Engineering Change Proposals (ECP) development for the common baseline. Procurement and development funds provided by user programs to support program unique requirements.

| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each) | | | FY 2019 | FY 2019 | FY 2019 |
|---|---------|---------|---------|---------|---------|
| | FY 2017 | FY 2018 | Base | oco | Total |
| Title: Common Display System (CDS) | 2.182 | 3.132 | 3.043 | 0.000 | 3.043 |
| Articles: | - | - | - | - | - |
| FY 2018 Plans: | | | | | |
| Continue system engineering support of CDS TI-12 / TI-16 development efforts required to support various | | | | | |
| Combat and Weapon System Configurations. Support Engineering Analysis of issues identified within field | | | | | |
| configuration TI-12 to develop resolution plan to improve reliability, readiness, or reduce operating costs. | | | | | |
| Support System Engineering efforts required to achieve In-Progress Review for TI-20 milestone. FY18 increase | | | | | |
| is due to additional efforts required to support Technology Insertion (TI) MK 6 MOD 1 Equipment Suite CDS | | | | | |
| modifications to support the Critical Design Review (CDR), Test Readiness Review (TRR) and delivery of | | | | | |
| the initial Technical Data Package (TDP) all in FY18. MK 6 MOD 1 includes CDS Capability updates, DMS | | | | | |
| resolution and ACB-20 NCD derived requirement improvements. In addition, initial design work for TI MK 7 CDS will commence in FY18. | | | | | |
| FY 2019 Base Plans: | | | | | |
| Continue system engineering support of CDS TI-12 / TI-16 development efforts required to support various | | | | | |
| Combat and Weapon System Configurations. Support Engineering Analysis of issues identified within field | | | | | |
| configuration TI-12 to develop resolution plan to improve reliability, readiness, or reduce operating costs. | | | | | |
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| Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy | | | Date: February 2018 |
|---|--|-----|--|
| Appropriation/Budget Activity 1319 / 5 | R-1 Program Element (Number/Name) PE 0604574N I Navy Tactical Computer | , , | umber/Name) nmon Display System (CDS) |
| | Resources | | |

| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each) | FY 2017 | FY 2018 | FY 2019 Base | FY 2019 OCO | FY 2019 Total |
|---|---------|---------|-----------------|----------------|------------------|
| Support System Engineering efforts required to achieve Program Readiness Review (PRR) for TI-20 milestone in 4th quarter. | | | | | |
| FY 2019 OCO Plans: N/A | | | | | |
| FY 2018 to FY 2019 Increase/Decrease Statement: Rate/Misc Adjustments. | | | | | |
| Accomplishments/Planned Programs Subtotals | 2.182 | 3.132 | 3.043 | 0.000 | 3.043 |

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

N/A

Remarks

D. Acquisition Strategy

Contracts:

CDS TI-16: Award build to Print IDIQ production contract for FY17-FY21.

E. Performance Metrics

Major Milestones:

Completed CDS TI-20 In Process Review No. 1 third quarter FY17.

CDS TI-20 In Process Review No. 2 first quarter FY18.

PE 0604574N: Navy Tactical Computer Resources

CDS TI-20 Preliminary Design Review third quarter FY18.

CDS TI-20 Production Readiness Review fourth quarter FY19.

| | | | | | | IOLAGO | JII 1LD | | | | | 1 | | | | | | | | |
|--|------------------------------|--|----------------|-------|---------------|---------|---------------|-----------------|---------------|------|---------------|----------------------|---------------------|---------------|--------------------------------|--|--|--|--|--|
| Exhibit R-3, RDT&E | Project C | ost Analysis: PB 2 | 2019 Nav | У | | | | | | | _ | Date: | Date: February 2018 | | | | | | | |
| Appropriation/Budget Activity 1319 / 5 R-1 Program Element (Number/Name) PE 0604574N / Navy Tactical Computer Resources | | | | | | | | | | | (Number | r/Name) Display S | ystem (C | DS) | | | | | | |
| Product Development (\$ in Millions) | | | | FY: | 2017 | FY 2018 | | FY 2019 Base | | | 2019 CO | FY 2019 Total | | | | | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To | Total Cost | Target Value of Contract | | | | | |
| Systems Engineering | WR | NSWC : PHD | 0.212 | 0.106 | Dec 2016 | 0.212 | Dec 2017 | 0.215 | Dec 2018 | - | | 0.215 | Continuing | Continuing | Continuing | | | | | |
| Systems Engineeing | WR | NSWC : Dahlgren | 3.217 | 1.576 | Oct 2016 | 1.785 | Oct 2017 | 1.585 | Oct 2018 | - | | 1.585 | Continuing | Continuing | Continuing | | | | | |
| Systems Engineering | C/CPFF | General Dynamics : Fairfax, VA | 0.461 | 0.154 | Oct 2016 | 0.500 | Oct 2017 | 0.445 | Oct 2018 | - | | 0.445 | 0.000 | 1.560 | - | | | | | |
| Systems Engineering | C/CPIF | DRS Technologies : Gaithersburg, MD | 0.523 | 0.152 | Oct 2016 | 0.500 | Oct 2017 | 0.455 | Dec 2018 | - | | 0.455 | 0.000 | 1.630 | - | | | | | |
| Systems Engineering | C/CPIF | TBD : TBD | 0.697 | 0.100 | Dec 2016 | 0.027 | Dec 2017 | 0.243 | Oct 2018 | - | | 0.243 | 0.000 | 1.067 | - | | | | | |
| | | Subtotal | 5.110 | 2.088 | | 3.024 | | 2.943 | | - | | 2.943 | Continuing | Continuing | N/A | | | | | |
| Management Service | es (\$ in N | lillions) | | FY: | 2017 | FY: | 2018 | | 2019 ase | | 2019 CO | FY 2019 Total | | | | | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To | Total Cost | Target Value of Contract | | | | | |
| Program Management Services | Various | Various : Various | 0.183 | 0.094 | Dec 2016 | 0.108 | Dec 2017 | 0.100 | Oct 2018 | - | | 0.100 | Continuing | Continuing | Continuing | | | | | |
| | | Subtotal | 0.183 | 0.094 | | 0.108 | | 0.100 | | - | | 0.100 | Continuing | Continuing | N/A | | | | | |
| | | | Prior Years | FY: | 2017 | FY: | 2018 | | 2019 ase | | 2019 CO | FY 2019 Total | Cost To | Total Cost | Target Value of Contract | | | | | |

Remarks

PE 0604574N: *Navy Tactical Computer Resources* Navy

Project Cost Totals

5.293

2.182

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3.132

3.043

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3.043 Continuing Continuing

N/A

| Exhibit R-4, RDT&E Schedule Profile: PB 2019 |) Navy | | | | | | | | | | | | | | | Date | : Feb | rua | ry 20 | 18 | | |
|--|--------|---------------|---|-----|---|-------------|---|---|---------|-----|---|------|-----|---|---|---|-------|-----|-------|-----|-----|--|
| Appropriation/Budget Activity 1319 / 5 | | | | | | | | | | | | | | | | (Number/Name) Common Display System (CDS) | | | | | | |
| | FY | FY 2017 FY 20 | | | | 018 FY 2019 | | | FY 2020 | | | FY 2 | | 1 | | FY 2022 | | | F | | 23 | |
| | 1 2 | 2 3 4 | 1 | 2 3 | 4 | 1 2 | 3 | 4 | 1 2 | 2 3 | 4 | 1 2 | 2 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 3 | 3 4 | |
| Proj 3361 | | | | | | | | | | | | | | | | | | | | | | |
| CDS TI 20 IPR No. 1 | | | | | | | | | | | | | | | | | | | | | | |
| CDS TI 20 IPR No. 2 | | | | | | | | | | | | | | | | | | | | | | |
| CDS TI 20 Preliminary Design Review | | | | | | | | | | | | | | | | | | | | | | |
| CDS TI 20 Production Readiness Review | | | | | | | | | | | | | | | | | | | | | | |

| Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy | | | Date: February 2018 |
|--|-----|-----|--|
| 1319 / 5 | , , | , , | umber/Name) nmon Display System (CDS) |

Schedule Details

| | St | art | End | | | |
|---------------------------------------|---------|------|---------|------|--|--|
| Events by Sub Project | Quarter | Year | Quarter | Year | | |
| Proj 3361 | | | | | | |
| CDS TI 20 IPR No. 1 | 3 | 2017 | 3 | 2017 | | |
| CDS TI 20 IPR No. 2 | 1 | 2018 | 1 | 2018 | | |
| CDS TI 20 Preliminary Design Review | 3 | 2018 | 3 | 2018 | | |
| CDS TI 20 Production Readiness Review | 4 | 2019 | 4 | 2019 | | |