| Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Missile Defense Agency | | | | | | | | | | | Date: May 2017 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 4: *Advanced Component Development & Prototypes (ACD&P)* | | | | | R-1 Program Element (Number/Name)<br>PE 1206895C *I Ballistic Missile Defense System Space Programs* | | | | | | | |
| **COST ($ in Millions)** | **Prior Years** | **FY 2016** | **FY 2017** | **FY 2018 Base** | **FY 2018 OCO** | **FY 2018 Total** | **FY 2019** | **FY 2020** | **FY 2021** | **FY 2022** | **Cost To Complete** | **Total Cost** |
| Total Program Element | - | 0.000 | 0.000 | 16.994 | - | 16.994 | 13.348 | 14.395 | 17.278 | 17.726 | Continuing | Continuing |
| MD33: *MD Space Exp Center (MDSEC)* | - | 0.000 | 0.000 | 16.233 | - | 16.233 | 12.706 | 13.726 | 16.444 | 16.878 | Continuing | Continuing |
| MD40: *Program-Wide Support* | - | 0.000 | 0.000 | 0.761 | - | 0.761 | 0.642 | 0.669 | 0.834 | 0.848 | 0 | 3.754 |
| **Program MDAP/MAIS Code:** 362 | | | | | | | | | | | | |

**Note**

In accordance with the 2016 National Defense Authorization Act, Section 1601-Major Force Program and Budget for National Security Space Programs, funding for FY2018 and beyond for PE 0603895C is transferred to PE 1206895C. This move aligns funding to the newly established unified major force program for national security space programs to prioritize national security space activities in accordance with the requirements of the Department of Defense and national security.

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

This program element primarily funds the Spacebased Kill Assessment (SKA) project, a Missile Defense Agency (MDA) experiment to demonstrate kill assessment from space. MDA experience with intercept testing on the Aegis BMD program provided solid understanding of the physics of kill assessment.

Several events set the stage for the kill assessment experiment that later became known as SKA:
- Section 237 in the FY 2014 National Defense Authorization Act directed MDA to improve kill assessment for the GMD program with an initial kill assessment capability by December 31, 2019
- An MDA study called the Space Layer Option Study found that disaggregated systems could provide sensor capabilities at lower costs
- A once in a decade opportunity became available when the commercial sector offered hosted payload services at costs far below what MDA could expect if it used traditional DOD space acquisition models

One feature of the SKA acquisition plays a crucial role in the execution of the experiment: schedule discipline. Since MDA cannot impact the schedule of the commercial host, maintaining schedule pace is priority #1 on the program. If SKA payloads are delivered late to the commercial host, they miss their opportunity to be launched into space.

SKA incorporates Government Accountability Office (GAO) recommendations to examine the operational feasibility of disaggregating large satellites (report number GAO-15-7) and to provide data for the business case for shared or dedicated satellite control, including the ground antenna networks (report number GAO-13-315). The SKA experiment will utilize a network of small IR sensors integrated onto commercial host satellites which, while on orbit, will observe missile defense intercepts and deliver a kill assessment declaration to the BMDS. SKA has the opportunity to change the economics of the defense of the American homeland from enemy ballistic missiles.

| Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Missile Defense Agency | Date: May 2017 |
|---|---|
| **Appropriation/Budget Activity**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 Program Element (Number/Name)**<br>PE 1206895C *I Ballistic Missile Defense System Space Programs* |

This program element also funds engineering trade studies and concept evaluations for current and future space based sensors.

| B. Program Change Summary ($ in Millions) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 0.000 | 0.000 | 0.000 | - | 0.000 |
| Current President's Budget | 0.000 | 0.000 | 16.994 | - | 16.994 |
| Total Adjustments | 0.000 | 0.000 | 16.994 | - | 16.994 |
| • Congressional General Reductions | 0.000 | 0.000 | | | |
| • Congressional Directed Reductions | 0.000 | 0.000 | | | |
| • Congressional Rescissions | 0.000 | 0.000 | | | |
| • Congressional Adds | 0.000 | 0.000 | | | |
| • Congressional Directed Transfers | 0.000 | 0.000 | | | |
| • Reprogrammings | 0.000 | 0.000 | | | |
| • SBIR/STTR Transfer | 0.000 | 0.000 | | | |
| • Other Adjustment | 0.000 | 0.000 | 16.994 | - | 16.994 |

**Change Summary Explanation**

In accordance with the 2016 National Defense Authorization Act, Section 1601-Major Force Program and Budget for National Security Space Programs, funding for FY2018 and beyond for PE 0603895C is transferred to PE 1206895C. This move aligns funding to the newly established unified major force program for national security space programs to prioritize national security space activities in accordance with the requirements of the Department of Defense and national security.

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency | | | Date: May 2017 |
|---|---|---|---|
| Appropriation/Budget Activity<br>0400 / 4 | R-1 Program Element (Number/Name)<br>PE 1206895C / *Ballistic Missile Defense System Space Programs* | Project (Number/Name)<br>MD33 / *MD Space Exp Center (MDSEC)* | |

| COST ($ in Millions) | Prior Years | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total | FY 2019 | FY 2020 | FY 2021 | FY 2022 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MD33: *MD Space Exp Center (MDSEC)* | - | 0.000 | 0.000 | 16.233 | - | 16.233 | 12.706 | 13.726 | 16.444 | 16.878 | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

**Note**

In accordance with the 2016 National Defense Authorization Act, Section 1601-Major Force Program and Budget for National Security Space Programs, funding for FY2018 and beyond for PE 0603895C is transferred to PE 1206895C. This move aligns funding to the newly established unified major force program for national security space programs to prioritize national security space activities in accordance with the requirements of the Department of Defense and national security.

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

The SKA system is composed of two segments: a space segment and a ground segment.
- The space segment is composed of a network of small infrared (IR) sensors (sensors, processor cards and cabling), each mated to a different satellite. The total number of sensors and where they are placed in the network are specifically tailored for the kill assessment mission. The space segment includes key design features to improve its resiliency.
- The ground segment is a small network of desktop computers, servers and routers that monitor the health of the on-orbit sensors, command the sensors to perform the kill assessment mission and analyze the data to make a kill assessment determination for the BMDS. The ground segment also includes the equipment necessary for communications security and information assurance. The Missile Defense Space Center (MDSC) is the communications hub for SKA data, routing SKA data between the commercial payload integrator and the SKA Payload Analysis Center.

The SKA sensors are hosted on satellites that are not developed by MDA, thus schedule performance is the highest priority of the experiment. Since the launch of the host satellites will not wait for hosted payloads that are delivered late, the management of the SKA project focuses on the ability to meet schedule commitments. In the past year, the commercial satellite host and the launch site owner have made small changes to the launch schedule; however, those changes have not affected SKA delivery commitments to the satellite integrator - the SKA project remains on schedule.

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 |
|---|---|---|---|
| ***Title:*** Spacebased Kill Assessment | 0.000 | 0.000 | 16.233 |
| ***Articles:*** | - | - | - |
| ***Description:*** The SKA project is an experimental system designed to demonstrate kill assessment for Homeland Defense. It includes SKA sensor-host satellite integration and testing, launch preparations, on-orbit checkout, experimental operations, and supports engineering trade studies and concept evaluations for current and future space based sensors. Specific accomplishments by year follow. | | | |
| ***FY 2016 Accomplishments:*** | | | |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206895C / *Ballistic Missile Defense System Space Programs* | **Project (Number/Name)**<br>MD33 / *MD Space Exp Center (MDSEC)* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 |
|---|---|---|---|
| N/A<br>***FY 2017 Plans:***<br>In accordance with the 2016 National Defense Authorization Act, Section 1601-Major Force Program and Budget for National Security Space Programs, funding for FY2018 and beyond for PE 0603895C is transferred to PE 1206895C.<br>***FY 2018 Plans:***<br>- Complete on-orbit deployment, checkout, calibration and commissioning of the sensor network<br>- Begin on-orbit operations by experimenting and participating in BMDS flight tests<br>- Analyze operations and test data to inform future decision to add SKA to BMDS operational baseline<br>- Support concept studies and analyses for assessment sensor payload configurations<br>- Begin development of kill assessment algorithms required to add SKA to the operational BMDS<br>- Initiate requirements and design of SKA Payload Analysis Center at the MDSC to continue experimental operations | | | |
| **Accomplishments/Planned Programs Subtotals** | 0.000 | 0.000 | 16.233 |

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

| Line Item | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total | FY 2019 | FY 2020 | FY 2021 | FY 2022 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • 0603882C: *Ballistic Missile Defense Midcourse Defense Segment* | 1,260.480 | 862.080 | 828.097 | - | 828.097 | 630.842 | 651.047 | 567.451 | 551.701 | Continuing | Continuing |
| • 0603884C: *Ballistic Missile Defense Sensors* | 233.020 | 230.077 | 247.345 | - | 247.345 | 247.643 | 362.850 | 401.267 | 497.503 | Continuing | Continuing |
| • 0603892C: *AEGIS BMD* | 804.211 | 959.066 | 852.052 | - | 852.052 | 805.051 | 789.217 | 656.164 | 695.306 | Continuing | Continuing |
| • 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication* | 425.996 | 456.267 | 430.115 | - | 430.115 | 461.275 | 501.956 | 496.411 | 514.139 | Continuing | Continuing |
| • 0603904C: *Missile Defense Integration and Operations Center (MDIOC)* | 46.191 | 54.750 | 53.265 | - | 53.265 | 54.505 | 57.588 | 58.574 | 59.738 | Continuing | Continuing |
| • 0603914C: *Ballistic Missile Defense Test* | 290.267 | 293.441 | 305.791 | - | 305.791 | 295.042 | 351.626 | 336.137 | 334.678 | Continuing | Continuing |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206895C / *Ballistic Missile Defense System Space Programs* | **Project (Number/Name)**<br>MD33 / *MD Space Exp Center (MDSEC)* |

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

| Line Item | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total | FY 2019 | FY 2020 | FY 2021 | FY 2022 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • 0603915C: *Ballistic Missile Defense Targets* | 517.589 | 563.576 | 410.425 | - | 410.425 | 373.203 | 407.909 | 405.458 | 427.508 | Continuing | Continuing |

**Remarks**

**D. Acquisition Strategy**

SKA leverages experience that the Johns Hopkins University Applied Physics Laboratory (JHU/APL) has with its extensive history of performing kill assessment activities and conducting experiments associated with the Aegis BMD program. JHU/APL is the developer of the SKA experiment and its primary subcontractor will be responsible for payload integration and hosting accommodation using a firm fixed price contract to contain costs. The SKA experiment uses a commercial satellite program as the platform host for a DOD payload, taking full advantage of a multi-billion dollar space and ground system that already exists. Since MDA and JHU/APL cannot impact the launch schedule of the commercial satellite host, fiscal stability and commitment is required which is a small tradeoff for the significant cost savings that commercial hosting provides.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206895C / *Ballistic Missile Defense System Space Programs* | **Project (Number/Name)**<br>MD33 / *MD Space Exp Center (MDSEC)* |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2016 Cost | FY 2016 Award Date | FY 2017 Cost | FY 2017 Award Date | FY 2018 Base Cost | FY 2018 Base Award Date | FY 2018 OCO Cost | FY 2018 OCO Award Date | FY 2018 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spacebased Kill Assessment - SKA Contract Support Services (CSS) | C/Various | Various : CO, VA | 0.000 | 0.000 | | 0.000 | | 0.247 | Nov 2017 | - | | 0.247 | Continuing | Continuing | Continuing |
| Spacebased Kill Assessment - SKA FFRDC | FFRDC | Various : CO, AL, MD, VA, CA | 0.000 | 0.000 | | 0.000 | | 0.684 | Nov 2017 | - | | 0.684 | Continuing | Continuing | Continuing |
| Spacebased Kill Assessment - SKA IT User Services | C/CPAF | Northrop Grumman : AK, CA, CO, HI, NM, VA | 0.000 | 0.000 | | 0.000 | | 0.049 | Nov 2017 | - | | 0.049 | Continuing | Continuing | Continuing |
| Spacebased Kill Assessment - SKA MDA Civilian | Allot | MDA : VA | 0.000 | 0.000 | | 0.000 | | 0.212 | Oct 2017 | - | | 0.212 | Continuing | Continuing | Continuing |
| Spacebased Kill Assessment - SKA Program Mission Support | C/Various | Various : CO, AL, MD, VA | 0.000 | 0.000 | | 0.000 | | 0.132 | Nov 2017 | - | | 0.132 | Continuing | Continuing | Continuing |
| | | **Subtotal** | 0.000 | 0.000 | | 0.000 | | 1.324 | | - | | 1.324 | - | - | - |

**Remarks**

All efforts listed above are a continuation of PE 0603895C, MD33

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2016 Cost | FY 2016 Award Date | FY 2017 Cost | FY 2017 Award Date | FY 2018 Base Cost | FY 2018 Base Award Date | FY 2018 OCO Cost | FY 2018 OCO Award Date | FY 2018 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spacebased Kill Assessment - SKA Development and Experimentation | C/CPFF | JHU/APL : Laurel, MD | 0.000 | 0.000 | | 0.000 | | 12.232 | Nov 2017 | - | | 12.232 | Continuing | Continuing | Continuing |
| Spacebased Kill Assessment - SKA Experimental Ops Team | C/TBD | TBD : Schriever AFB, CO | 0.000 | 0.000 | | 0.000 | | 2.677 | Nov 2017 | - | | 2.677 | Continuing | Continuing | Continuing |
| | | **Subtotal** | 0.000 | 0.000 | | 0.000 | | 14.909 | | - | | 14.909 | - | - | - |

| Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency | | | Date: May 2017 |
|---|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206895C / *Ballistic Missile Defense System Space Programs* | **Project (Number/Name)**<br>MD33 / *MD Space Exp Center (MDSEC)* | |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2016 Cost | FY 2016 Award Date | FY 2017 Cost | FY 2017 Award Date | FY 2018 Base Cost | FY 2018 Base Award Date | FY 2018 OCO Cost | FY 2018 OCO Award Date | FY 2018 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Remarks**<br>All efforts listed above are a continuation of PE 0603895C, MD33 | | | | | | | | | | | | | | | |

| | Prior Years | FY 2016 | | FY 2017 | | FY 2018 Base | | FY 2018 OCO | | FY 2018 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 0.000 | 0.000 | | 0.000 | | 16.233 | | - | | 16.233 | - | - | - |

**Remarks**
N/A

| Exhibit R-4, RDT&E Schedule Profile: FY 2018 Missile Defense Agency | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206895C / *Ballistic Missile Defense System Space Programs* | **Project (Number/Name)**<br>MD33 / *MD Space Exp Center (MDSEC)* |

Significant Event Complete ▲ Significant Event Planned △ | Milestone Decision Complete ★ Milestone Decision Planned ☆ | Element Test Complete ◆ Element Test Planned ◇ | System Level Test Complete ● System Level Test Planned ○ | Complete Activity ✦ Planned Activity ✧

| | FY 2016 | | | | FY 2017 | | | | FY 2018 | | | | FY 2019 | | | | FY 2020 | | | | FY 2021 | | | | FY 2022 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FTM-29 (AEGIS 5.1, Intercept Flight Test) | | | | | | | | | △ | | | | | | | | | | | | | | | | | | | |
| SKA Experimentation - 1Q2018-4Q2018 | | | | | | | | | ✧ | ✧ | ✧ | ✧ | | | | | | | | | | | | | | | | |
| SKA Launch Campaign | | | | | | | | | | ✧ | ✧ | ✧ | | | | | | | | | | | | | | | | |
| SKA On-Orbit Check-out | | | | | | | | | | ✧ | ✧ | ✧ | ✧ | | | | | | | | | | | | | | | |
| FT0-03 E1 (OTA, Intercept Flight Test) | | | | | | | | | | | △ | | | | | | | | | | | | | | | | | |
| FTG-11 (IOT&E) (GM, Intercept Flight Test) | | | | | | | | | | | | △ | | | | | | | | | | | | | | | | |
| FTM-31 (AEGIS SBT, Intercept Flight Test) | | | | | | | | | | | | | △ | | | | | | | | | | | | | | | |
| SKA Experimentation - 1Q2019-4Q2019 | | | | | | | | | | | | | ✧ | ✧ | ✧ | ✧ | | | | | | | | | | | | |
| FT0-03 E2 (OTA, Intercept Flight Test) | | | | | | | | | | | | | | △ | | | | | | | | | | | | | | |
| FTP-17 (IBCS Intercept Flight Test) | | | | | | | | | | | | | | △ | | | | | | | | | | | | | | |
| FTP-16 (IBCS Intercept Flight Test) | | | | | | | | | | | | | | △ | | | | | | | | | | | | | | |
| FTM-32 (AEGIS SBT, Intercept Flight Test) | | | | | | | | | | | | | | | △ | | | | | | | | | | | | | |
| FTM-33 (AEGIS SBT, Intercept Flight Test) | | | | | | | | | | | | | | | △ | | | | | | | | | | | | | |
| FEV-02 (FTM-DST 2) (AEGIS 5.0, Intercept Flight Test) | | | | | | | | | | | | | | | | △ | | | | | | | | | | | | |
| SKA Experimentation - 1Q2020-4Q2020 | | | | | | | | | | | | | | | | | ✧ | ✧ | ✧ | ✧ | | | | | | | | |
| FTP-18 (BCS Intercept Flight Test) | | | | | | | | | | | | | | | | | △ | | | | | | | | | | | |
| FTP-19 (BCS Intercept Flight Test) | | | | | | | | | | | | | | | | | △ | | | | | | | | | | | |
| FTP-20 (BCS Intercept Flight Test) | | | | | | | | | | | | | | | | | △ | | | | | | | | | | | |
| FTT-19 (TH, Intercept Flight Test) | | | | | | | | | | | | | | | | | | △ | | | | | | | | | | |
| FTM-24 (AEGIS 5.0, Intercept Flight Test) | | | | | | | | | | | | | | | | | | △ | | | | | | | | | | |
| FTM-30 (AEGIS 5. 1, Intercept Flight Test) | | | | | | | | | | | | | | | | | | | △ | | | | | | | | | |
| FTG-17 (IOT&E) (GM, Intercept Flight Test) | | | | | | | | | | | | | | | | | | | | △ | | | | | | | | |
| SKA Experimentation - 1Q2021-4Q2021 | | | | | | | | | | | | | | | | | | | | ✧ | ✧ | ✧ | ✧ | | | | | |
| FTT-21 (TH, Intercept Flight Test) | | | | | | | | | | | | | | | | | | | | | | | △ | | | | | |

| Exhibit R-4, RDT&E Schedule Profile: FY 2018 Missile Defense Agency | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206895C / *Ballistic Missile Defense System Space Programs* | **Project (Number/Name)**<br>MD33 / *MD Space Exp Center (MDSEC)* |

Significant Event Complete ▲ Significant Event Planned △ | Milestone Decision Complete ★ Milestone Decision Planned ☆ | Element Test Complete ◆ Element Test Planned ◇ | System Level Test Complete ● System Level Test Planned ○ | Complete Activity ✦ Planned Activity ✧

| | FY 2016 | | | | FY 2017 | | | | FY 2018 | | | | FY 2019 | | | | FY 2020 | | | | FY 2021 | | | | FY 2022 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FTG-18 (GM, Intercept Flight Test) | | | | | | | | | | | | | | | | | | | | | | | | | △ | | | |
| SKA Experimentation - 1Q2022-4Q2022 | | | | | | | | | | | | | | | | | | | | | | | | | ✧ | ✧ | ✧ | ✧ |
| FTM-35 (AEGIS 5.1, Intercept Flight Test) | | | | | | | | | | | | | | | | | | | | | | | | | | | △ | |
| FTM-37 (IOT&E) (AEGIS 5.1, Intercept Flight Test) | | | | | | | | | | | | | | | | | | | | | | | | | | | △ | |

| Exhibit R-4A, RDT&E Schedule Details: FY 2018 Missile Defense Agency | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206895C / *Ballistic Missile Defense System Space Programs* | **Project (Number/Name)**<br>MD33 / *MD Space Exp Center (MDSEC)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| FTM-29 (AEGIS 5.1, Intercept Flight Test) | 1 | 2018 | 1 | 2018 |
| SKA Experimentation - 1Q2018-4Q2018 | 1 | 2018 | 4 | 2018 |
| SKA Launch Campaign | 2 | 2018 | 4 | 2018 |
| SKA On-Orbit Check-out | 2 | 2018 | 1 | 2019 |
| FT0-03 E1 (OTA, Intercept Flight Test) | 3 | 2018 | 3 | 2018 |
| FTG-11 (IOT&E) (GM, Intercept Flight Test) | 4 | 2018 | 4 | 2018 |
| FTM-31 (AEGIS SBT, Intercept Flight Test) | 1 | 2019 | 1 | 2019 |
| SKA Experimentation - 1Q2019-4Q2019 | 1 | 2019 | 4 | 2019 |
| FT0-03 E2 (OTA, Intercept Flight Test) | 2 | 2019 | 2 | 2019 |
| FTP-17 (IBCS Intercept Flight Test) | 2 | 2019 | 2 | 2019 |
| FTP-16 (IBCS Intercept Flight Test) | 2 | 2019 | 2 | 2019 |
| FTM-32 (AEGIS SBT, Intercept Flight Test) | 3 | 2019 | 3 | 2019 |
| FTM-33 (AEGIS SBT, Intercept Flight Test) | 3 | 2019 | 3 | 2019 |
| FEV-02 (FTM-DST 2) (AEGIS 5.0, Intercept Flight Test) | 4 | 2019 | 4 | 2019 |
| SKA Experimentation - 1Q2020-4Q2020 | 1 | 2020 | 4 | 2020 |
| FTP-18 (BCS Intercept Flight Test) | 2 | 2020 | 2 | 2020 |
| FTP-19 (BCS Intercept Flight Test) | 2 | 2020 | 2 | 2020 |
| FTP-20 (BCS Intercept Flight Test) | 2 | 2020 | 2 | 2020 |
| FTT-19 (TH, Intercept Flight Test) | 3 | 2020 | 3 | 2020 |
| FTM-24 (AEGIS 5.0, Intercept Flight Test) | 3 | 2020 | 3 | 2020 |
| FTM-30 (AEGIS 5. 1, Intercept Flight Test) | 4 | 2020 | 4 | 2020 |
| FTG-17 (IOT&E) (GM, Intercept Flight Test) | 1 | 2021 | 1 | 2021 |

| Exhibit R-4A, RDT&E Schedule Details: FY 2018 Missile Defense Agency | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206895C / *Ballistic Missile Defense System Space Programs* | **Project (Number/Name)**<br>MD33 / *MD Space Exp Center (MDSEC)* |

| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| SKA Experimentation - 1Q2021-4Q2021 | 1 | 2021 | 4 | 2021 |
| FTT-21 (TH, Intercept Flight Test) | 4 | 2021 | 4 | 2021 |
| FTG-18 (GM, Intercept Flight Test) | 1 | 2022 | 1 | 2022 |
| SKA Experimentation - 1Q2022-4Q2022 | 1 | 2022 | 4 | 2022 |
| FTM-35 (AEGIS 5.1, Intercept Flight Test) | 3 | 2022 | 3 | 2022 |
| FTM-37 (IOT&E) (AEGIS 5.1, Intercept Flight Test) | 3 | 2022 | 3 | 2022 |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency | | | Date: May 2017 |
|---|---|---|---|
| Appropriation/Budget Activity<br>0400 / 4 | R-1 Program Element (Number/Name)<br>PE 1206895C / *Ballistic Missile Defense System Space Programs* | Project (Number/Name)<br>MD40 / *Program-Wide Support* | |

| COST ($ in Millions) | Prior Years | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total | FY 2019 | FY 2020 | FY 2021 | FY 2022 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MD40: *Program-Wide Support* | - | 0.000 | 0.000 | 0.761 | - | 0.761 | 0.642 | 0.669 | 0.834 | 0.848 | 0 | 3.754 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

**Note**

Beginning in FY 2018, Program Wide Support was proportionately reallocated as a result of the Ballistic Missile Defense System Space Program transfer from 0603895C program element.

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

PWS contains non-headquarters management costs in support of MDA functions and activities across the entire BMDS. It Includes Government Civilians, and Contract Support Services. This provides integrity and oversight of the BMDS as well as supports MDA in the development and evaluation of technologies that will respond to the changing threat. Additionally, PWS includes Global Deployment personnel and support performing deployment site preparation and activation and, provides facility capabilities for MDA Executing Agent locations. Other MDA wide costs includes: physical and technical security; civilian drug testing; audit readiness; the Science, Technology, Engineering, and Mathematics (STEM) program; legal services and settlements; travel and agency training; office, equipment, vehicle, and warehouse leases; utilities and base operations; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. PWS is allocated on a pro-rata basis and therefore, fluctuates by year based on the adjusted RDT&E profile (which excludes: 0305103C Cyber Security Initiative, 0603274C Special Programs, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 |
|---|---|---|---|
| ***Title:*** Program Wide Support | 0.000 | 0.000 | 0.761 |
| ***Articles:*** | - | - | - |
| ***Description:*** N/A | | | |
| ***FY 2016 Accomplishments:***<br>N/A | | | |
| ***FY 2017 Plans:***<br>N/A | | | |
| ***FY 2018 Plans:***<br>N/A | | | |
| **Accomplishments/Planned Programs Subtotals** | 0.000 | 0.000 | 0.761 |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Missile Defense Agency | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206895C / *Ballistic Missile Defense System Space Programs* | **Project (Number/Name)**<br>MD40 / *Program-Wide Support* |

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

N/A

**Remarks**

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Missile Defense Agency | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206895C / *Ballistic Missile Defense System Space Programs* | **Project (Number/Name)**<br>MD40 / *Program-Wide Support* |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2016 Cost | FY 2016 Award Date | FY 2017 Cost | FY 2017 Award Date | FY 2018 Base Cost | FY 2018 Base Award Date | FY 2018 OCO Cost | FY 2018 OCO Award Date | FY 2018 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Program Wide Support - Agency Operations Management | C/CPAF | Various : Multi: AL, CA, CO, VA | 0.000 | 0.000 | | 0.000 | | 0.015 | Dec 2017 | - | | 0.015 | Continuing | Continuing | Continuing |
| Program Wide Support - Agency Operations and Support Services | C/CPFF | Various; Multi : AL, CO, VA | 0.000 | 0.000 | | 0.000 | | 0.746 | Dec 2017 | - | | 0.746 | Continuing | Continuing | Continuing |
| | | **Subtotal** | 0.000 | 0.000 | | 0.000 | | 0.761 | | - | | 0.761 | - | - | - |

**Remarks**

N/A

| | Prior Years | FY 2016 | | FY 2017 | | FY 2018 Base | | FY 2018 OCO | | FY 2018 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 0.000 | 0.000 | | 0.000 | | 0.761 | | - | | 0.761 | - | - | - |

**Remarks**

N/A

| Exhibit R-4, RDT&E Schedule Profile: FY 2018 Missile Defense Agency | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206895C / *Ballistic Missile Defense System Space Programs* | **Project (Number/Name)**<br>MD40 / *Program-Wide Support* |

Significant Event Complete ▲ Significant Event Planned △ | Milestone Decision Complete ★ Milestone Decision Planned ☆ | Element Test Complete ◆ Element Test Planned ◇ | System Level Test Complete ● System Level Test Planned ○ | Complete Activity ✦ Planned Activity ✧

| | FY 2016 | | | | FY 2017 | | | | FY 2018 | | | | FY 2019 | | | | FY 2020 | | | | FY 2021 | | | | FY 2022 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MD40 Program-Wide Support | | | | | | | | | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ |

| Exhibit R-4A, RDT&E Schedule Details: FY 2018 Missile Defense Agency | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206895C / *Ballistic Missile Defense System Space Programs* | **Project (Number/Name)**<br>MD40 / *Program-Wide Support* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| MD40 Program-Wide Support | 1 | 2018 | 4 | 2022 |