

## CLEARED AS AMENDED For Open Publication

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Department of Defense
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

# NEXT GENERATION JAMMER MID-BAND (NGJ MID-BAND)

December 2021 Selected Acquisition Report (SAR)



DECEMBER 31, 2021 DEPARTMENT OF THE NAVY

# Contents

| Program Manager  |    |
|--|----|
| Mission and Description                                      | 3  |
| Executive Summary  |    |
| History of Significant Developments Since Program Initiation |    |
| Schedule   |    |
| Schedule Events  |    |
| Schedule Notes:  |    |
| Significant Schedule Risks                                   |    |
| Performance  |    |
| Performance Notes:   | 7  |
| Requirements Source:   |    |
| Acquisition Budget Estimate                                  |    |
| Total Acquisition Cost                                       |    |
| Total End Item Quantity                                      | 8  |
| Budget Notes:  |    |
| Quantity Notes:  |    |
| Risk and Sensitivity Analysis                                | 8  |
| Unit Cost  | 9  |
| Current Baseline Compared with Current Estimate              | 9  |
| Original Baseline Compared with Current Estimate             |    |
| Contracts  |    |
| Technologies and Systems Engineering                         | 13 |
| Significant Technical Risks                                  |    |
| Deliveries and Expenditures                                  |    |
| Low Rate Initial Production                                  |    |
| Operating and Support Costs                                  |    |
| Total Program O&S Cost Compared with Baseline                |    |
| O&S Cost Breakdown   |    |

#### Common Acronyms and Abbreviations

Acq O&M - Acquisition-Related Operations and Maintenance

ACAT - Acquisition Category

ADM - Acquisition Decision Memorandum

APB - Acquisition Program Baseline

APPN - Appropriation

APUC - Average Procurement Unit Cost

\$B - Billions of Dollars

BA - Budget Authority/Budget Activity

Blk - Block

BY - Base Year

CAPE - Cost Assessment and Program Evaluation

CARD - Cost Analysis Requirements Description

CDD - Capability Development Document

CLIN - Contract Line Item Number

CPD - Capability Production Document

CY - Calendar Year

DAB - Defense Acquisition Board

DAE - Defense Acquisition Executive

DAMIR - Defense Acquisition Management Information Retrieval

DoD - Department of Defense

DSN - Defense Switched Network

EMD - Engineering and Manufacturing Development

EVM - Earned Value Management

FOC - Full Operational Capability

FMS - Foreign Military Sales

FRP - Full Rate Production

FY - Fiscal Year

FYDP - Future Years Defense Program

ICE - Independent Cost Estimate

IOC - Initial Operational Capability

Inc - Increment

JROC - Joint Requirements Oversight Council

\$K - Thousands of Dollars

KPP - Key Performance Parameter

LRIP - Low Rate Initial Production

\$M - Millions of Dollars

MDA - Milestone Decision Authority

MDAP - Major Defense Acquisition Program

MILCON - Military Construction

N/A - Not Applicable

O&M - Operations and Maintenance

ORD - Operational Requirements Document

OSD - Office of the Secretary of Defense

O&S - Operating and Support PAUC - Program Acquisition Unit Cost

PB - President's Budget

PE - Program Element

PEO - Program Executive Officer

PM - Program Manager

POE - Program Office Estimate

RDT&E - Research, Development, Test, and Evaluation

SAR - Selected Acquisition Report

SCP - Service Cost Position

TBD - To Be Determined

TY - Then Year

UCR - Unit Cost Reporting

U.S. - United States

USD(A&S) - Under Secretary of Defense (Acquisition and Sustainment)

USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

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# Mission and Description

The Next Generation Jammer Mid-Band (NGJ Mid-Band) program is an electronic attack system that will provide significantly improved Airborne Electronic Attack (AEA) capabilities against advanced threats in the Mid-Band frequency range through enhanced agility and precision within jamming assignments, increased interoperability, and expanded broadband capacity for greater threat coverage against a wide variety of radio frequency (RF) emitters. The Effective Isotropic Radiated Power (EIRP) in the NGJ Mid-Band system will be sufficient to provide robust jamming at standoff distances from Integrated Air Defense Systems (IADS) radars, communications, and data links. The NGJ Mid-Band system will augment and then replace the legacy AN/ALQ-99 Tactical Jamming System (fielded 1971) in the mid-band frequency range for the EA-18G, providing significantly improved radar and communication jamming performance as well as improved reliability and maintainability.

The NGJ Mid-Band system will be required to engage sophisticated IADS and information operations (i.e., other electronic threat systems) in multiple areas of responsibility and across all phases of military operations. Threat operators and systems adapt and exploit available frequency ranges, employing techniques and tactics designed to confuse or otherwise defeat friendly AEA capabilities. In order to defeat these continuously evolving enemy RF threats, the NGJ Mid-Band design must provide for sufficient EIRP to achieve threat systems engagement stand-off distances, support increased capacity (number of jamming assignments) as a result of increased threat density, and support agile employment by operators as well as provide a flexible system architecture that can be upgraded quickly to meet new mission demands.

# **Executive Summary**

#### Significant Accomplishments:

In May 2020, a Next Generation Jammer (NGJ) Production, Sustainment, and Follow-On Development (PSFD) Memorandum of Understanding (MOU) was signed between the United States and Australia, expanding the partnership between the two countries for NGJ.

In CY 2020, NGJ Mid-Band completed over 2,990 hours of Anechoic Chamber Testing at the Air Combat Environment Test and Evaluation Facility/Advanced Systems Integration Laboratory at Naval Air Station (NAS) Patuxent River, MD, and the High-power Electronic Attack Technique Radiation (HEATR) Lab at NAS Point Mugu, CA. Developmental Flight Testing of the NGJ Mid-Band system commenced in August 2020, with the first flight of a NGJ Mid-Band pod on an EA-18G aircraft. The first flight with both pods radiating soon followed in September 2020 at NAS Patuxent River. Mission Systems and Aeromechanical Developmental Test sorties flew 64 hours in 2020.

In September 2020, an instrumented NGJ Mid-Band Aeromechanical Pod was flown on the centerline of a Calspan Gulfstream III test bed aircraft, resulting in the successful validation of the model used to redesign the turbine wheel for the pod's Ram Air Turbine Generator (RATG). This redesign was critical to solve a previously identified failure mode with the previous iteration of the RATG.

The program successfully completed its first Logistics Demonstration in October 2020. For this event, fleet maintenance personnel traveled to NAS Patuxent River to evaluate maintenance procedures and checklists and participate in maintenance evolutions with a NGJ Mid-Band pod.

In late October 2020, the program conducted a Raytheon/Boeing Shared Technical Incentive chamber test event, with all test objectives successfully completed.

In December 2020, the program completed its first System Verification Review and Production Readiness Review leading into Milestone C.

In June 2021, the NGJ Mid-Band program received Milestone C approval to enter LRIP and was authorized to award LRIP contracts of up to 17 ship sets. The Current Total LRIP Quantity is more than 10% of the total production quantity in order to provide production-representative NGJ Mid-Band systems in support of Initial Operational Test and Evaluation. These assets are needed to ensure adequate and efficient manufacturing capability while maintaining the industrial base. The LRIP quantity will permit an orderly increase to ramp up for full rate production and reduce risk. This will posture the current planned NGJ Mid-Band production rate maximum/optimal economic rate of 14 shipsets per year during FRP.

In July 2021, a 38-month sole source Fixed Price Incentive contract was awarded to The Raytheon Company for LRIP, to include the delivery of three Lot I ship sets, associated spares, gold units for operational test program set development, and associated technical data. In December 2021, an option was awarded for LRIP II to include delivery of five additional ship sets, associated spares, gold units for operational test program set development, and associated technical data.

Funding Status: Since the PB21 SAR, the following funding actions have occurred: BDTE

- Small Business Innovative Research (SBIR) realignments of (-\$11.200M) from FY 2020 and (-\$11.771M) from FY 2021
- FY 2021 Congressional marks for historical under execution (-\$29.199M) and trainer early to need (-\$1.329M)
- FY 2022 Congressional mark for test and evaluation delays (-\$8.516M)

#### APN-5

- FY 2021 Congressional mark for other support reduction (-\$12.903M)
- FY 2022 Congressional marks for other support excess growth (-\$3.000M), support equipment previously funded (-\$4.263M) and training equipment previously funded (-\$4.020M)

Flight test continues for both Mission Systems and Aeromechanical properties. Additionally, Anechoic chamber testing is ongoing to supplement flight test, as well as to support integration and reliability growth development.

There are no significant software-related issues with this program at this time.

#### Significant Issues:

The Milestone C changed from March 2021 to June 2021 due to resolution of the ICE, LRIP contract negotiations, and schedule to Operational Test Readiness Review (OTRR) and IOC, and resolution of technical Milestone C entrance criteria.

The largest identified risk is a schedule risk associated with the aeromechanical flight test program required for envelope expansion. With later than expected pod delivery times due to redesign of the Ram Air Turbine Generator and lingering flight test instrumentation maturity and reliability, this portion of the flight test program is the critical path at this point for entry into Initial Operational Test and Evaluation.

History of Significant Developments Since Program Initiation

|          | History of Significant Developments Since Program Initiation  |
|----------|---|
| Date     | Significant Development Description   |
| APR 2016 | The NGJ Mid-Band program received Milestone B approval to enter EMD.  |
| APR 2016 | A 56-month sole source Cost Plus Incentive Fee (CPIF) contract was awarded to The Raytheon Company for the EMD phase. During the performance of this contract, the NGJ Mid-Band program will conduct a Critical Design Review (CDR) and begin delivery of 15 Engineering Development Models that will be used for initial testing.  |
| DEC 2016 | A sole source CPIF contract modification was awarded to The Boeing Company for the integration of the NGJ Mid-Band pod onto the EA-18G aircraft. This effort is in support of the EMD phase of the NGJ Mid-Band program and includes the design and manufacturing of 15 engineering change proposal 6472 A kits, and the integration, demonstration and test of NGJ Mid-Band pods on the EA-18G aircraft. |
| APR 2017 | Program completed CDR.  |
| OCT 2017 | Australia became a cooperative partner for NGJ Mid-Band development.  |
| NOV 2019 | A modification to the EMD contract was awarded to Raytheon for 7 System<br>Demonstration Test Article shipsets (2 pods/shipset).  |
| MAY 2020 | NGJ PSFD MOU signed between United States and Australia, expanding partnership between the two countries on NGJ.  |
| AUG 2020 | First flight of NGJ Mid-Band pod on an EA-18G aircraft starts Developmental Flight Test program.  |
| JUN 2021 | The NGJ Mid-Band program received Milestone C approval to enter LRIP with an authorized End-Item Quantity of 17 for LRIP.   |
| JUL 2021 | A 38-month sole source Fixed Price Incentive contract was awarded to The Raytheon Company for LRIP of the NGJ Mid-Band pods. This contract includes the delivery of three LRIP I ship sets.   |
| DEC 2021 | LRIP II contract option was awarded for delivery of an additional five shipsets.  |

## Schedule

## Schedule Events

| Scriedule Everits |                 |  |
|-------------------|-----------------|--|
|                   | Schedule Events |  |

| Events                                     | Development<br>APB Objective | Proc     | ent APB<br>duction<br>e/Threshold | Current<br>Estimate/Actual | Deviation |
|--|------------------------------|----------|-----------------------------------|----------------------------|-----------|
| Milestone A                                | Jul 2013                     | Jul 2013 | Jan 2014                          | Jul 2013                   |           |
| Preliminary<br>Design Review               | Oct 2015                     | Oct 2015 | Apr 2016                          | Oct 2015                   |           |
| Milestone B                                | Mar 2016                     | Mar 2016 | Sep 2016                          | Apr 2016                   |           |
| Critical Design<br>Review                  | Mar 2017                     | Mar 2017 | Sep 2017                          | Apr 2017                   |           |
| Milestone C                                | Sep 2020                     | Jun 2021 | Jun 2021                          | Jun 2021                   |           |
| Operational Test<br>Readiness<br>Review    | Feb 2022                     | Apr 2023 | Oct 2023                          | Apr 2023                   |           |
| Initial Operational<br>Capability          | Sep 2020                     | Sep 2023 | Mar 2024                          | Sep 2023                   |           |
| Full Rate<br>Production<br>Decision Review | Nov 2022                     | Nov 2023 | May 2024                          | Nov 2023                   |           |

#### Schedule Notes:

Milestone C current estimate changed from September 2020 to June 2021 due to resolution of the ICE, LRIP contract negotiations, path/schedule to Operational Test Readiness Review (OTRR) and IOC, and resolution of Milestone C entrance criteria.

The OTRR estimate changed from February 2022 to April 2023 due to the completion/testing of envelope expansion for the aeromechanical flight test program.

IOC estimate changed from September 2022 to September 2023 due to the completion/testing of envelope expansion for the aeromechanical flight test program.

FRP estimate changed from November 2022 to November 2023 due to the completion/testing of envelope expansion for the aeromechanical flight test program.

# Significant Schedule Risks

# Significant Schedule Risks

## Current Estimate (December 2021)

- If key Raytheon suppliers continue to realize schedule delays for components during System Demonstration Test Article (SDTA) production, then the SDTA pod shipset deliveries may be late and potentially impact entry into Initial Operational Test and Evaluation.
- If test execution and envelope expansion activities are delayed, then Operational Test entry may slide, impacting September 2023 IOC date.

## Performance

|                           | Performance Chara                                | acteristics   |                            |           |
|---------------------------|--|---|----------------------------|-----------|
| Development APB Objective | Current APB<br>Production<br>Objective/Threshold | Demonstrated<br>Performance<br>(include Date of<br>Demonstration) | Current<br>Estimate/Actual | Deviation |

|                           | P     | erformance Chara                     | acteristics   |                            |           |
|---------------------------|-------|--------------------------------------|---|----------------------------|-----------|
| Development APB Objective | Pro   | rent APB<br>oduction<br>ve/Threshold | Demonstrated<br>Performance<br>(include Date of<br>Demonstration) | Current<br>Estimate/Actual | Deviation |
| Material Availability     |       |                                      |   |                            |           |
| ≥.76                      | ≥ .76 | ≥ .69                                |   | ≥ .90                      |           |
| Operational Availability  |       |                                      |   |                            |           |
| ≥ .96                     | ≥ .96 | ≥ .87                                |   | ≥ .91                      |           |

#### Performance Notes:

The Material Availability KPP and the Operational Availability KPP were updated to reflect the NGJ Mid-Band Reliability, Availability, Maintainability and Cost (RAM-C) Rationale Report for Milestone C, dated April 13, 2021. The program is unable to provide values for Demonstrated Performance until operational test assets are delivered. Classified Performance data is available in the Classified Annex.

Requirements Source: CDD Update for Next Generation Jammer, signed November 18, 2020

# Acquisition Budget Estimate

**Total Acquisition Cost** 

|             |              | Development<br>APB  | (Cur                | tion APB<br>rrent)<br>3/2021 | Budget Es<br>PB 20 |        |           |
|-------------|--------------|---------------------|---------------------|------------------------------|--------------------|--------|-----------|
| Category    | Base<br>Year | Objective<br>(BY\$) | Objective<br>(BY\$) | Threshold<br>(BY\$)          | BY\$               | TY\$   | Deviation |
| RDT&E       | 2016         | 3454.1              | 3899.9              | 4289.9                       | 3734.9             | 3954.0 |           |
| Procurement | 2016         | 4002.6              | 3939.5              | 4333.5                       | 3875.7             | 5102.6 |           |
| MILCON      | 2016         | 7.0                 | 7.1                 | 7.8                          | 6.9                | 7.9    |           |
| Acq. O&M    | 2016         | 0.0                 | 0.0                 | 0.0                          | 0.0                | 0.0    |           |
| Total       |              | 7463.7              | 7846.5              | 8631.2                       | 7617.6             | 9064.6 |           |
| PAUC        | 2016         | 55.287              | 58.123              | 63.934                       | 56.427             |        |           |
| APUC        | 2016         | 30.555              | 30.539              | 33.593                       | 30.045             |        |           |

Total End Item Quantity

| Quantity Category | Current APB Quantity | Current Estimate Quantity |
|-------------------|----------------------|---------------------------|
| Development       | 6                    | 6                         |
| Procurement       | 129                  | 129                       |

#### **Budget Notes:**

The PB 2023 RDTE budget increased by \$25M (TY\$) from the PB 2021 submission due to Milestone C cost estimate updates, escalation adjustments, Congressional marks and SBIR reductions. The PB23 Aircraft Procurement, Navy (APN) budget increased by \$254M (TY\$) due to Milestone C cost estimate updates, an additional 2 years of production as a result of lower quantity profile per FY, escalation adjustments and Congressional marks.

# Risk and Sensitivity Analysis

#### Risks and Sensitivity Analysis

#### Current Procurement Cost (December 2021)

 After review of the programmatic and technical baseline at Milestone C, the MDA directed NGJ Mid-Band to use the SCP as the funding requirement. The OSD CAPE performed an ICE, which independently validated the SCP. Despite using different methodologies, both estimates were well within the bounds of estimating error both in total and for each individual phase of the life cycle cost estimate. The production estimate was determined to be highly sensitive to the array cost. The array costs were estimated based on actual data from NGJ Mid-Band using Learn and Rate curves from historical production data.

#### Original Baseline Estimate (April 2016)

1. After review of the programmatic and technical baseline at Milestone B, the MDA directed NGJ Mid-Band to use the Program Life Cycle Cost Estimate (PLCCE) as the funding requirement. The OSD CAPE performed an ICE, which independently validated the PLCCE. Despite using different methodologies, both estimates were well within the bounds of estimating error both in total and for each individual phase of the life cycle cost estimate. The production estimate was determined to be highly sensitive to the technical inputs associated with the array cost. The array costs were estimated based on actual data with program specific adjustments for complexity and then cross checked against several other DoD programs in production that have arrays. The Learn and Rate curves were based on analysis of historical production data for arrays.

#### Revised Original Estimate (N/A)

None

#### Current Baseline Estimate (Month YYYY)

1. None

# **Unit Cost**

Current Baseline Compared with Current Estimate

| Category (\$M)<br>BY 2016 | Current APB | Current Estimate | % Change | NMC Breach |
|---------------------------|-------------|------------------|----------|------------|
| PAUC                      |             |                  |          |            |
| Cost                      | 7846.5      | 7617.6           | -        | -          |
| Quantity                  | 135         | 135              |          | -          |
| Unit Cost                 | 58.123      | 56.427           | -3.0%    |            |
| APUC                      |             |                  |          |            |
| Cost                      | 3939.5      | 3875.7           | -        |            |
| Quantity                  | 129         | 129              |          |            |
| Unit Cost                 | 30.539      | 30.045           | -1.7%    |            |

Original Baseline Compared with Current Estimate

| Category (\$M)<br>BY 2016 | Original APB | Current Estimate   | % Change | NMC Breach |
|---------------------------|--------------|--|----------|------------|
| PAUC                      |              | in the same of the |          |            |
| Cost                      | 7463.7       | 7617.6   | -        |            |
| Quantity                  | 135          | 135  | (4)      | -          |
| Unit Cost                 | 55.287       | 56.427   | 2.1%     |            |
| APUC                      |              |  |          |            |
| Cost                      | 4002.6       | 3875.7   |          | 6          |
| Quantity                  | 131          | 129  | -        | -          |
| Unit Cost                 | 30.555       | 30.045   | -1.7%    |            |

# Contracts

|                              | Contra   | ct Data (\$TY | M)                          |  |
|------------------------------|--|---------------|-----------------------------|--|
| Contract Number              | N00019-16-C-0032   |               |                             |  |
| Effort Number                | 1  |               |                             |  |
| Modification Number          | P00056   |               |                             |  |
| Award Date                   | 04/07/2016   |               |                             |  |
| Definitization Date          | 04/07/2016   |               |                             |  |
| Order Number                 |  |               |                             |  |
| CAGE Code/CAGE Legal<br>Name | 76301 / The Boo  | eing Compar   | у                           |  |
| Contract Title               | NGJ-Mid-Band (Inc 1) Engineering and Manufacturing Developmen<br>Integration |               |                             |  |
| Contract Address             | 6200 James S N   | McDonnell Bo  | oulevard St. Louis MO 63134 |  |
| Con                          | tracts/Effort Price, (   | Quantity, and | Performance (\$M)           |  |
| Initial Target Price         |  | Current Tar   | get Price                   |  |
| 19.9                         |  | 356.88        | 7                           |  |
| Initial Ceiling Price        |  | Current Cei   | ing Price                   |  |
| 0                            |  | 0             |                             |  |
| Contract's EAC               |  | PM's EAC      |                             |  |
| 260.99                       | 1  |               | 260.99                      |  |
| Initial Quantity             | Current Quantity   | у             | Delivered Quantity          |  |
| 0                            | 0  |               | 0                           |  |
| BAC                          | BCWP   |               | ACWP                        |  |
| 330.37                       | 220.64   |               | 190.24                      |  |
| BCWS                         | Cost Variance  |               | Schedule Variance           |  |
| 222.94                       | 11.3   |               | -1.0                        |  |

## Cost Variance:

The favorable net change in cost variance is due to less support needed than originally planned due to flight test delays as well as less program management support needed.

## Schedule Variance:

The unfavorable net change in schedule variance is due to delays with Aircraft mods due to aircraft availability.

|                              | Contr                | act Data (\$T)       | YM)                           |  |
|------------------------------|----------------------|----------------------|-------------------------------|--|
| Contract Number              | N00019-16-C-0        | N00019-16-C-0002     |                               |  |
| Effort Number                | 1                    |                      |                               |  |
| Modification Number          | P00100               |                      |                               |  |
| Award Date                   | 04/13/2016           |                      |                               |  |
| Definitization Date          | 04/13/2016           |                      |                               |  |
| Order Number                 |                      |                      |                               |  |
| CAGE Code/CAGE Legal<br>Name | 4U884 / Raytho       | eon                  |                               |  |
| Contract Title               | NGJ-Mid-Band         | <b>Engineering</b>   | and Manufacturing Development |  |
| Contract Address             | 2000 East El S       | egundo Boul          | evard El Segundo CA 90245     |  |
| Con                          | tracts/Effort Price, | Quantity, and        | d Performance (\$M)           |  |
| Initial Target Price         | 10 10 10 10 10       | Current Target Price |                               |  |
| 977.15                       |                      | 1718.42              | 18.42                         |  |
| Initial Ceiling Price        |                      | Current Ce           | ceiling Price                 |  |
| 0                            |                      | 0                    |                               |  |
| Contract's EAC               |                      | PM's EAC             |                               |  |
| 1734.78                      |                      |                      | 1783.70                       |  |
| Initial Quantity             | Current Quanti       | ity                  | Delivered Quantity            |  |
| 0                            | 6                    |                      | 0                             |  |
| BAC                          | BCWP                 |                      | ACWP                          |  |
| 1500.18                      | 1419.2               |                      | 1470.76                       |  |
| BCWS                         | Cost Variance        |                      | Schedule Variance             |  |
| 1457.06                      | -33.9                |                      | -14.8                         |  |

The overall unfavorable net change in cost and schedule variance is due to inefficiencies primarily in Arrays, Common Electronic Unit (CEU), and Software resulting in delays of EMD and System Demonstration Test Article (SDTA) pod deliveries.

#### Cost Variance:

The unfavorable net change in cost variance is due to EMD and SDTA Arrays continuing to experience several integration and test issues requiring additional rework and resources. Software, CEU, and power generation development also encountered many issues during the year requiring additional effort and resources.

#### Schedule Variance:

The unfavorable net change in schedule variance is mainly due to SDTA efforts, delays in Arrays and CEU builds and assembly, software development and supplier hardware deliveries. EMD pods have been delivered to date while SDTA pods still remain outstanding.

| Annual Control               | Cont   | ract Data (\$T | YM)                 |  |  |
|------------------------------|--|----------------|---------------------|--|--|
| Contract Number              | N00019-21-C-0053                                   |                |                     |  |  |
| Effort Number                | 1  |                |                     |  |  |
| Modification Number          | P0007  |                |                     |  |  |
| Award Date                   | 07/02/2021   |                |                     |  |  |
| Definitization Date          | 07/02/2021   |                |                     |  |  |
| Order Number                 |  |                |                     |  |  |
| CAGE Code/CAGE Legal<br>Name | 4U884 / Raytheon                                   |                |                     |  |  |
| Contract Title               | NGJ Mid-Band LRIP I and LRIP II                    |                |                     |  |  |
| Contract Address             | 2000 East El Segundo Boulevard El Segundo CA 90245 |                |                     |  |  |
| Con                          | tracts/Effort Price                                | , Quantity, an | d Performance (\$M) |  |  |
| Initial Target Price         |  |                | rget Price          |  |  |
| 171.63                       |  | 418.93         |                     |  |  |
| Initial Ceiling Price        |  | Current Ce     | eiling Price        |  |  |
| 179.15                       |  | 436,41         |                     |  |  |
| Contract's EAC               |  | PM's EAC       |                     |  |  |
| 418.17                       |  |                | 418.93              |  |  |
| Initial Quantity             | Current Quantity                                   |                | Delivered Quantity  |  |  |
| 3                            | 8  |                | 0                   |  |  |
| BAC                          | BCWP   |                | ACWP                |  |  |
| 358.89                       | 27.33  |                | 24.07               |  |  |
| BCWS                         | Cost Variance                                      |                | Schedule Variance   |  |  |
| 7.45                         | 19.88  |                | 3.27                |  |  |

#### Cost Variance:

The favorable cumulative cost variance is due to SDTA demand in delaying the onboarding of LRIP resources and claiming attrition associated with the early material.

## Schedule Variance:

The favorable cumulative schedule variance is due to excess materials pegged to LRIP, which is early to need date. The positive schedule variance is expected to decrease as the scheduled tasks approach the baseline dates.

# Technologies and Systems Engineering Significant Technical Risks

## Significant Technical Risks

#### Current Estimate (December 2021)

 In accordance with Section 805(a) of the FY 2022 National Defense Authorization Act, which requires a SAR to be submitted "in unclassified form without any designation relating to dissemination control" this SAR section has omitted information that is Controlled Unclassified Information.

# **Deliveries and Expenditures**

|                                  | Deliver            | ies            |                |                      |
|----------------------------------|--------------------|----------------|----------------|----------------------|
| Delivered to Date                | Planned to<br>Date | Actual to Date | Total Quantity | Percent<br>Delivered |
| Development                      | 0                  | 0              | 6              | 0.00%                |
| Production                       | 0                  | . 0            | 129            | 0.00%                |
| Total Program Quantity Delivered | 0                  | 0              | 0              | 0.00%                |

## Expended and Appropriated (TY \$M)

Total Acquisition Cost: 9073.07 Expended to Date: 3715.74 Percent Expended: 41.0% Total Funding Years: 26 Years Appropriated: 13

Percent Years Appropriated: 50.00% Appropriated to Date: 4388.54 Percent Appropriated: 48.4%

The above data is current as of April 18, 2022.

# Low Rate Initial Production

| Item              | Initial LRIP Decision        | Current Total LRIP              |  |
|-------------------|------------------------------|---------------------------------|--|
| Approval Date     | April 5, 2016                | June 28, 2021                   |  |
| Approved Quantity | 30                           | 17                              |  |
| Reference         | NGJ Mid-Band Milestone B ADM | NGJ Mid-Band Milestone C<br>ADM |  |
| Start Year        |                              |                                 |  |
| End Year          |                              |                                 |  |

### Rationale if Current Total LRIP Quantity exceeds 10% of the total Procurement quantities:

The Current Total LRIP Quantity is more than 10% of the total production quantity in order to provide production-representative NGJ Mid-Band systems in support of Initial Operational Test and Evaluation. These assets are needed to ensure adequate and efficient manufacturing capability while maintaining the industrial base. The LRIP quantity will permit an orderly increase to ramp up for full rate production and reduce risk. This will posture the current planned NGJ Mid-Band production rate maximum/optimal economic rate of 14 shipsets per year during FRP.

# Operating and Support Costs

Total Program O&S Cost Compared with Baseline

|                        | Current APB<br>Objective<br>(BY\$) | Current APB<br>Threshold<br>(BY\$) | Current<br>Estimate<br>(BY\$) | Current<br>Estimate<br>(TY\$) | Deviation |
|------------------------|------------------------------------|------------------------------------|-------------------------------|-------------------------------|-----------|
| Total O&S (\$Millions) | 1431.3                             | 1574.4                             | 1392.6                        | 2155.5                        |           |

## O&S Cost Breakdown

Allocate O&S estimate by each weapon system (or system variants) acquired by the program) into the

CAPE Cost Categories.

| Category (BY\$ Million)          | NGJ Mid-band |
|----------------------------------|--------------|
| Unit-Level Manpower              | 0.000        |
| Unit Operations                  | 0.000        |
| Maintenance                      | 0.442        |
| Sustaining Support               | 0.154        |
| Continued System<br>Improvements | 0.180        |
| Other                            | 0.000        |
| Total O&S                        | 0.776        |

Cost Estimate Source: Component Cost Position (CCP)

#### **O&S Cost Notes:**

- Disposal/Demilitarization Cost Estimate and Source of Estimate: Disposal/Demilitarization costs projected to be \$2.2M CY 2016\$ (\$4.2M TY\$). Source of estimate is CCE.
- b. Sustainment Strategy:
  - Contractor Logistics Support (CLS)/Interim Contractor Support (ICS) covering the total system through the EMD until four (4) years after IOC (Initial).
  - Product Support Strategy will consider Organizational, Intermediate, and Depot level maintenance capabilities; Organic maintenance support (future).
  - Sustainment Strategies for AN/ALQ-249(V)1 will consider Performance Based Agreements (PBAs) for repair support.
  - -Unit of measure (system) is defined as a shipset, which consists of 2 pods.
- c. NGJ Mid-Band planned utilization rates, as described in OPNAV N98 Memo dated April 21, 2020, is a percentage of aircraft inventory planning factors for EA-18G. Percentages were derived from historical averages of ALQ-99 equivalent band capability. CVW: 60%, EXPED: 60%, FRS: 10%, NAWDC: 60%, Test: 55%. For Each Acquired System or System Variant:
  - i. Quantity to Sustain: 135
  - ii. First Operational Fiscal Year: FY 2024
  - iii. Final Operational Fiscal Year: FY 2046
  - iv. Unit Expected Service Life: 20 years
- d. Antecedent System(s) O&S Costs:
  - Antecedent program: ALQ-99 Tactical Jamming System
  - The dataset used in the antecedent costs below are reported FY 2008 costs, which are most representative of steady state prior to de-commissioning EA-6B squadrons.
  - The dataset includes data from the ALQ-99 system, which covers a larger frequency spectrum than the NGJ Mid-Band system, and is not normalized to specific mid-band data.
  - Due to data limitations, the antecedent is represented in dollars per aircraft operating years based on Primary Aircraft Authorization.
  - Data sources: Decision Knowledge Programming for Logistics Analysis and Technical Evaluation, Naval Visibility and Management of Operating and Support Costs database, and

various technical sources, including Naval Air Systems Command AIR 4.2.2, Naval Air Warfare Center Weapons Division Point Mugu, Naval Sea Systems Command Crane, and Center for Naval Aviation Technical Training.

Total O&S Cost for ALQ-99 in CY 2016\$ is \$1409.9M.

Average Annual Cost per System ALQ-99 (Antecedent) is \$0.765M (\$0.060M Unit-Level Manpower, \$0.536M Maintenance, \$0.065M Sustaining Support, \$0.077M Continuing System Improvements, \$0.027M Indirect Support).