Next Generation Jammer Mid-Band (NGJ-MB)

The Next Generation Jammer Mid-Band (NGJ-MB) did not conduct IOT&E in FY23 as planned. In April 2023, the NGJ-MB program conducted an Operational Test Readiness Review (OTRR) and was certified ready for operational test by the Program Executive Office for Tactical Aircraft Programs, but DOT&E did not clear the program to conduct IOT&E due to system immaturity. The Navy has since conducted integrated test events focused on resolving identified deficiencies and collecting data for modeling and simulation (M&S) while demonstrating the system has matured enough to conduct operationally relevant test flights. Hardware reliability issues and a lack of validated or accredited digital models, which are derived from operational test data and are required to supplement NGJ-MB operational flight test evaluation, present a significant risk to NGJ-MB IOT&E.

SYSTEM DESCRIPTION

The NGJ-MB is an airborne electronic attack (EA) system. It consists of two pods, mounted under each EA-18G aircraft wing, which integrate with the AN/ALQ-218 electronic warfare system and function as a radio frequency (RF) receiver and jammer. Each pod contains two active electronically scanned arrays that radiate over a wide frequency band and an internal ram-air turbine that generates electrical power. The NGJ-MB is the first of three programs comprising the planned Next Generation Jammer upgrade that is intended to replace the legacy AN/ALQ-99 Tactical Jammer System family of pods currently fielded on the EA-18G. The NGJ-MB is designed to engage multiple advanced threats at greater standoff ranges than the AN/ALQ-99 Tactical Jammer System.

MISSION

Combatant commanders will employ the NGJ-MB equipped EA-18Gs as an embedded component of carrier air wings and expeditionary forces to provide EA capabilities against a wide variety of RF targets. The NGJ-MB is designed to improve EA-18G capabilities against modern, advanced RF threats, communications, datalinks, and non-traditional RF targets.

The NGJ-MB has four EA mission profiles: standoff, modified escort, penetrating escort, and stand-in jamming. Navy aircrews will primarily fly the standoff and modified escort profiles. The Navy will use the NGJ-MB to deny, degrade, or deceive the enemy's use of the electromagnetic spectrum by employing both reactive and preemptive jamming techniques while enhancing the friendly force's use of the electromagnetic spectrum.

PROGRAM

The NGJ-MB is an Acquisition Category IC program. In May 2021, the Navy approved the NGJ-MB program to move past Milestone C and enter the production and deployment phase by authorizing procurement of low-rate initial production (LRIP) pods. In the FY22 Annual Report, DOT&E reported that LRIP pods were undergoing integrated testing, and operational testing was scheduled to begin in May 2023, but system immaturity delayed operational testing indefinitely.

Using results from the April 2023 OTRR, DOT&E did not approve the program to enter IOT&E due to system deficiencies causing ongoing configuration changes and the lack of an IOT&E test plan. DOT&E conveyed these concerns in a memo to the Navy Operational Test and Evaluation Force, stating that the program needed to correct system deficiencies to ensure NGJ-MB used under test is operationally representative and then conduct a follow-up OTRR to receive approval to begin IOT&E. The program then submitted a combined SCS H18 and NGJ-MB IOT&E test plan in May 2023, but has yet to conduct the follow-up OTRR after addressing deficiency corrections.

Per the DOT&E-approved Test and Evaluation Master Plan, NGJ-MB was originally slated to integrate as part of the Software Configuration Set (SCS) H16 upgrade, which is the currently fielded SCS on EA-18G aircraft. However, delays in the NGJ-MB program caused SCS integration to be deferred to the SCS H18 upgrade. The SCS upgrades, labeled in numeric order, were a separate but parallel flight test for the EA-18 Growler program. In FY23, the program decided to combine EA-18G Growler SCS H18 and NGJ-MB into one operational test plan for fiscal efficiency but has yet to conduct operational test as DOT&E awaits the follow-up OTRR. NGJ-MB will replace the ALQ-99 Tactical Jammer System pods that were developed and fielded in 1971.

» MAJOR CONTRACTORS

- Raytheon, a subsidiary of RTX (formerly Raytheon Technologies) – El Segundo, California
- Boeing Defense, Space & Security – St. Louis, Missouri
- Northrop Grumman Mission Systems – Linthicum, Maryland

TEST ADEQUACY

Due to system immaturity, NGJ-MB did not conduct operational test during FY23 as planned. The lack of validated or accredited digital

models needed to supplement NGJ-MB operational flight testing will reduce the data available to evaluate effectiveness during IOT&E. To address this risk, the Navy implemented a series of flights in an operationally representative environment to ensure sufficient modeling data will be available to supplement operational test flights and generate data necessary for verification, validation, and accreditation of M&S. These integrated test events include large-force exercises in a threat-representative environment and serve as risk-reduction for planned EA-18G H18 SCS test flights with NGJ-MB. In July 2023, NGJ-MB was scheduled to conduct an integrated test event in the operationally representative environment provided by the Nevada Test and Training Range at Nellis AFB. However, the program did not execute the event as scheduled due to system immaturity. Both NGJ-MB hardware and software, along with the EA-18G SCS H18, require significant maturation and removal of high priority problems to support future NGJ-MB operational test.

PERFORMANCE

» EFFECTIVENESS, SUITABILITY, AND SURVIVABILITY

DOT&E will provide an assessment of NGJ-MB operational effectiveness, suitability, and survivability at the conclusion of an approved, adequate IOT&E.

RECOMMENDATIONS

The Navy should:

1. Submit an adequate NGJ-MB IOT&E Test Plan for DOT&E approval.
2. Improve system maturity, stability, availability, and reliability of operational test-ready LRIP pods and EA-18G Growler SCS H18 to support IOT&E as soon as practical.
3. Continue to develop and assess digital models of integrated test events in an operationally representative environment to ensure necessary data are available for M&S verification, validation, and accreditation.
4. Utilize data from NGJ-MB SCS H18 integrated test events to demonstrate system maturity and conduct the follow-up OTRR.