F-35 Operational Evaluation May Resume in Mid-2020, Pentagon Tester Says

WASHINGTON – The Pentagon's head of operational test and evaluation said the earliest the F-35 Lightning II strike fighter's Initial Operational Test and Evaluation (IOT&E) could resume is mid-2020, when the Joint Simulation Environment is ready. That evaluation, paused earlier this year, must be completed before full-rate production of the F-35 can be approved.

The full-rate production decision likely will be delayed until early fiscal 2021. The Defense Department is planning for low-rate initial production through Lot 14 of the F-35. Under low-rate production, more than 458 F-35s of all three variants have been fielded so far. The F-35A and F-35B have flown in combat.

"So far the JOTT [Joint Operational Test Team] has conducted 91% of the open air test missions, actual weapons employment, cybersecurity testing, deployments and comparison testing with fourth-generation fighters, including the congressionally directed comparison test of the F-35A and the A-10C," said Robert Behler, the Pentagon's director of operational test and evaluation, testifying Nov. 13 before a joint hearing of the Readiness and Tactical Air and Land Force subcommittees of the House Armed Services Committee. "IOT&E events have assessed the F-35 across a variety of offensive and defensive roles.

"Operational suitability of the F-35 fleet remains below service expectations," Behler said. "In particular, no F-35 variant meets the specified reliability or maintainability metrics. In short, [for] all variants, the aircraft are

breaking more often and are taking longer to fix. However, there are several suitability metrics that are showing signs of improvement this year.

“There are two phases of IOT&E remaining,” he said. “The first is electronic warfare testing against robust surface-to-air threats at the Point Mugu [California] Sea Range. The other is testing against dense surface and air threats in the Joint Simulation Environment [JSE] at the Naval Air Station Patuxent River [Maryland]. I would approve the start of these tests when the necessary test infrastructure is ready.

“The Joint Simulation Environment is essential,” he said. “The JSE is a man-in-the-loop synthetic environment that uses actual [F-35] aircraft software. It is designed to provide scalable, high-fidelity, operationally realistic simulation. I would like to emphasize that the JSE will be the only venue available other than actual combat against peer adversaries. To adequately evaluate the F-35, due to the inherent limitations of open-air testing, these limitations do not permit a full and adequate test of the aircraft against the required types and density of modern threat systems, including weapons, aircraft, and electronic warfare that are currently fielded by our near-peer adversaries. Integrating the F-35 into the JSE is a very complex challenge, but is required to complete IOT&E, which will lead to my final IOTE report.”

The current schedule indicates that the JSE will not be ready to start final phase of operational testing until July [2020], he said.

Behler said that his organization has been closely with the F-35 Joint Program Office and the Naval Air Systems Command at Patuxent River to determine when the JSE will be ready. There are enormous challenges and there are a lot of unknown unknows still out there.

“I do believe the JSE development – the “F-35 in a Box”

integration into JSE – is on track," said Lt. Gen. Eric T. Fick, program executive officer for the F-35, who also testified at the hearing.

The F-35 in a Box is the simulation of the aircraft and its sensors that fits in the JSE.

"To put it in context, we're not only integrating the F-35 in a Box into this environment, we're also integrating all of the blue and red threat vehicles – ground systems, airborne systems, weapons, electronic warfare – and all of the things that you need to bring a full 8-on-8 [aircraft] or greater scenario to life in a synthetic environment," Fick said. "We're trying to come as close to a combat environment without putting iron in the sky."