DMN Q&A: Capt. Francis Morley, NAVAIR Program Manager, F/A-18E/F Super Hornet and EA-18G Growler

PMA-265 program manager says IRST is on track for the Super Hornet

Written by: Jan Tegler on January 26, 2012

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Capt. Francis "Spanky" Morley, program manager F/A-18E/F Super Hornet and EA-18G Growler. U.S. Navy photo

Capt. Francis Morley, NAVAIR's Program Manager for the F/A-18E/F Super Hornet and EA-18G Growler (PMA-265) says the Navy's infrared search and track system (IRST) is on course for a 2016 debut on the Super Hornet.

A graduate of the Test Pilot School at NAS Patuxent River, Md., with Class 107, he was picked to be one of three original Navy Test Pilots for the beginning of the F/A-18E/F Super Hornet Engineering and Manufacturing Development flight test program.

Morley was assigned as the Navy's performance, propulsion and carrier suitability test pilot for the first two years of the Super Hornet program. In this capacity, he conducted the first ever Super Hornet shipboard landing in January 1997 as part of Initial Sea Trials. He has more than 3,600 flight hours in 35 different aircraft and more than 750 carrier arrested landings. Morley flew the first missions of Operation Southern Watch in August 1992, participated in Operation Desert Fox, led strikes on Iraq in Operation Southern Watch, flew missions over New York City immediately following Sept. 11, 2001 in Operation Noble Eagle, and supported troops on the ground in Afghanistan and Iraq in Operations Enduring Freedom and Iraqi Freedom.

Now in the EMD (engineering and manufacturing development) phase, the IRST system being developed by Lockheed Martin and the USN is exemplary of a renewed interest worldwide in "out-of-band" air to air sensors for modern fighter aircraft. It's a road the Navy first went down with the F-14D, for which the AN/AAS-42 IRST was developed in the 1980s.

An F/A-18F Super Hornet flies with an infrared search and track (IRST) system integrated in the front section of the aircraft's centerline fuel tank during system flight testing. Boeing Company photo

Today, sophisticated EW equipment for threat aircraft has proliferated, and its potential to compromise the effectiveness of RF (radar-based) sensors is significant. Consequently, an increasing number of western fighters, including the Boeing F-15K, Eurofighter Typhoon and Saab JAS 39E/F Gripen have recently adopted IRST systems. Russian MiG and Sukhoi fighters have employed them for nearly two decades.

Because radars are active sensors they are vulnerable to jamming. IRST systems are passive, searching for and detecting heat sources within a field of regard. They emit no RF radiation and are therefore more difficult to detect as out-of-band sensors.

A buy of 150 IRST sensors is planned for the Super Hornet. For an update on the program and insight into its genesis Jan Tegler chatted with Morley.

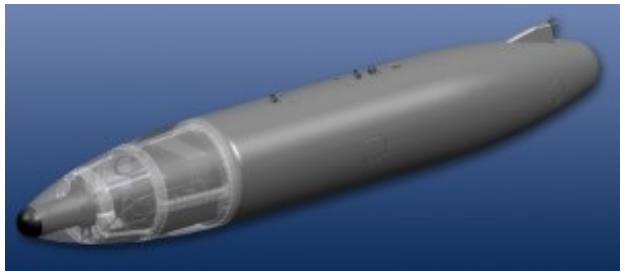
Jan Tegler: I understand that the new IRST system the program is pursuing is based on technology from the AAS-42 IRST on that was carried on F-14Ds. When did this new program get under way and what spurred further development of IRST for the Super Hornet?

Capt. Francis Morley: The program officially got under way in 2008. There had been discussions and analysis of alternatives prior to that. The reason for it is the prevalence of advanced electronic attack and jamming systems today. Everyone is looking for an out-of-

band solution. We've still got to work in the RF bands and certainly radar is still a very powerful tool, but let's increase our options. Knowing that the Super Hornet is here for a long time, the Navy decided to invest in getting an out-of-band air to air targeting solution for the airplane. So that's where the IRST went.

This new IRST sensor is an evolution of the sensor we started using on the F-14D. Lockheed Martin was the manufacturer and invested in improving and updating it over time. An updated version of that original IRST was put into the F-15, the South Korean version. That is the baseline and we're taking the next step with the system for the Super Hornet. It's a new sensor but it has evolved through a couple generations of technology.

New and developing IRST systems seem to be growing in popularity internationally. What are the advantages of this type of system for the Super Hornet and why has IRST found favor of late with our air forces?



The IRST pod being developed for the Super Hornet will take up the first third of a centerline tank, with fuel carried in the remaining portion. Lockheed Martin imagery

There are two drivers of that. The electromagnetic spectrum that we spoke about with advanced threat aircraft equipped with electronic jamming technology is one. That's driving everybody to take a more serious look at alternatives, and IRST is one of them. Couple that with technological progression and our ability to provide not only a sensor but also a passive targeting solution and you can see the why the U.S. would pursue IRST for the Super Hornet.

How will the IRST be fielded on the F/A-18E/F?

The IRST is incorporated in the front one-third of a centerline fuel tank with the remaining two-thirds dedicated to fuel [approximately 2000 pounds] so the lost fuel capacity is fairly small. The podded solution is a low-cost option because it means you don't have to change the mold line of the airplane and it allows you to switch IRSTs from aircraft to aircraft. I suspect that they will get a lot of use. Putting the pod on the tank locates the sensor on the

centerline which is important from a field of view standpoint. You get a symmetrical field of view on both sides of the airplane. It's also far enough forward to have an adequate field of view without blanking from the nose.

A new IRST would seem to be a cost-effective way of keeping the Super Hornet viable into future. If the system is operational by 2016, that would seem to be a great benefit as the fleet awaits the delayed F-35C.

The Navy's air wing of the future, through 2030 and beyond is a Super Hornet, F-35C and EA-18G combination. I think the vision here is to give this additional out-of-band air to air solution to the Super Hornet because of the airplane's longevity. If you want an effective fighter into the future you're probably going to need this capability.

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