The Next Steps for The Next Generation Program: Interview with Commander Ernest Winston

Commander Ernest Winston is the Airborne Electronic Attack Requirements Officer at the Office of the Chief of Naval Operations. Commissioned in 1996, Commander Winston earned his wings of gold in 1998 and was trained as an Electronic Countermeasures Officer in the EA-6B Prowler. He has flown in support of Operations NORTHERN WATCH, SOUTHERN WATCH, IRAQI FREEDOM, and ENDURING FREEDOM. He has also commanded an EA-18G Growler Squadron. Currently, Commander Winston administers the performance and funding requirements for the Navy's Next Generation Jammer Program.

Ahead of the 10th Annual Military Radar Summit, we spoke with Commander Winston about his participation at the upcoming summit, as well as the path forward with future strategies and requirements.

During our conversation, Commander Winston provided insight into The Next Generation Jammer program, including its technological advancements, lessons learned, and strategies for addressing emerging threats.

Our complete interview with Commander Winston is below.

Can you share some of the work that you're currently doing?

Primarily what I'm working on right now is the Next Generation Jammer Program, and there are actually two programs; one is a mid-band solution and the other is a low-band solution, and both are going to replace our current jamming system. This system has been upgraded along the way, but has reached the technical limits of what the pod can do. The Next Generation Jammer will give us some more power and flexibility in jamming techniques that will allow us to keep up with modern radar systems that are coming out. We're also exploring upgrades to the receiver system: to increase the speed, sensitivity, and capabilities to work with the NGJ.

What are some of the factors that might affect the development of the NGJ?

Testing functionality and performance under a variety of factors, including weather and environment.

When is the Next Generation Jammer expected to be implemented?

We're looking to have NGJ implemented in 2021, when the new Growler will be outfitted and trained with the new jamming pods.

With its technological advancements, will the communication and receiver systems be able to respond to the advanced jammer?

Our tactic is aligning the systems and integrating modernization to maximize operability.

As far as adversary radars and how we anticipate them changing, I think we've already seen the trend – coherency, frequency agility, more processing power to filter out jamming - we just have to find another way to defeat their countermeasures.

As far as radars, are there any new advancements in terms of diversity or implementation?

Everybody is working on their own strategies to defeat cell technology and jamming technology. Whether it's constant upgrading with new processing, or completely new radars coming out. The trend is increased range of the missile system to reach out.

Being able to affect radar from a sanctuary outside of their missile range drives you to a high-powered solution like what we're going towards with the Next Generation Jammer.

What are some of the lessons learned when working with technology to bring the Next Generation Jammer on board?

Really the biggest challenge that we're seeing right now is size, weight, power and cooling (SWaP-C). To be able to fit and generate enough electricity to power a jammer and fit that on a tactical sized aircraft that launches and recovers on an aircraft carrier is a challenge. You could make a jammer with this kind of power easily on a bigger platform, but putting it on a Growler-sized platform is extraordinarily challenging. It's finding the right balance. Part of it is reducing the size – but then how does that affect your antenna design? You have to have the right antenna design and size for the frequency you want to cover.

Are there any innovative solutions or strategies that are being adopted to face emerging threats?

The key is trying to exploit the weaknesses in the system, whether it's kinetic or non-kinetic effects. Interoperability and a system to system type of approach will allow you to gain access to a particular area.

Now there are a whole new set of radars and ISR equipment that we have to defeat to get our carrier close enough. If we have to get our aircraft close enough and it doesn't have the range to do so, then we would need some tanker support. With that requires more support to defeat more radar, or more fighters to defeat their aircraft. We're seeing more and more that we need solutions that need to work to get the entire group closer. I think that's the trend we're going to see now – I don't think there's any one solution. You use one solution to create a gap and then you use other parts of the system to exploit that gap.

"It will come down to who's willing to take more risks and who has superior tactics and training."

If enemies can detect our radar, how do we go undetected?

Systems to systems approach allows for overlap in radar coverage, sensor coverage, missile coverage, and weapons coverage. Trying to fill the gaps of a system's weakness is key. Tactics include longer range weapons, new stealth technology, and new sensor technology.

What technology out there can counter your jammer?

We're seeing a move towards more coherent radar, there are a number of radars out there with coherency. There are a number of jammers out there that can receive the pulse and see what it looks like and then send something back that looks slightly different.

Hear more about the Navy's utilization of open system architecture, enhancement of efficiency and operations, standards and requirements for acquisitions, and more during Commander Winston's presentation:

Next Generation of Radar Jamming Capabilities

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This year's Military Radar Summit brings together key stakeholders that work in the radar and defense communities to collaborate and strategize on future plans and procurement. This year's program will provide you with everything you need to ensure overmatch capabilities through the continued modernization of legacy equipment and discover new technologies.

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