

THE LATEST IN NIGHT EYES: WHITE PHOSPHOR NVGS

News / Business aviation



White phosphor night-vision goggles (**NVG**) provide more detail and cause less eye strain than the traditional green phosphor now dominating the industry, advocates for their use claimed at the recent annual NightCon convention in Dallas.

“Almost 25 years ago the Department of Defense (DOD) predicted the demise of light-amplifying night-vision goggles. That said, their vision was that NVG technology would be outmoded before the end of the 20th century,” said Aviation Systems Unltd. (ASU) president Jim Winkel. “They predicted everything would go to thermal.” But war intervened, beginning with the first Gulf War in the 1990s, and suddenly the military was ordering thousands of units. “That allowed companies to make an investment in NVG technology, which still applies today,” said Winkel.

With military money pouring in, ASU and other NVG makers found new ways to make technological advances, keeping the technology alive over the past 20 years or so. At last year’s NBAA Convention, ASU announced one such innovation: white phosphor displays for night-vision goggles. The white phosphor provides a significant advantage over green, said ASU’s Dr. Joe Estrera: “There’s more information available to the eye with white phosphor than with green,” Estrera explained. “In fact, green is one of the colors embedded in white because white is a combination of all colors. So instead of providing information to the brain through just one set of receptors [green], [white phosphor technology] provides much more information to all the visual receptors in the brain.”

In addition, white phosphor has the same response command as green while providing more

contrast and more visual acuity. And while green phosphor targets just one set of receptors in the eye's complex makeup, white targets all receptors. The result, said Estrera, is much less eye strain. (Most pilots who have flown with night-vision goggles report that just a couple of hours of use will lead to "pink or brown vision," which is what happens when the receptors sensitive to green light have been oversaturated.)

Although the white phosphor NVG technology was introduced nearly a year ago, most aircraft have not yet been approved for their use. Still, Winkel is bullish on the product.

"We've had an overwhelming response to white phosphor," he said. "Seventy percent of those who've seen it want it." In fact, he said, "The first reaction most people have when we demo them is 'Wow!'"

But that is not a universal opinion.

Steven Todd Whaley flies an AS350BA AStar on night missions for the Flagler County Fire Department in Florida. He became a night-vision instructor and expects to achieve Part 135 NVG certification soon.

When he read about the white phosphor innovation, he immediately wanted a first-hand demonstration. He tried the displays and reported, "I couldn't tell a wonderful difference." Whaley's supervisor tried them as well. They compared notes. Together, they decided white phosphor was not for them. The primary driver in the decision was the fact that the devices are not STC'd for the company's aircraft. However, "There were some other things that we think can be improved."

21 SEPTEMBER 2015

SOURCE: AIN

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