

China Tried To Blind U.S. Sats With Laser

China has fired high-power lasers at U.S. spy satellites flying over its territory in what ex-perts see as a test of Chinese ability to blind the spacecraft, according to sources.

It remains unclear how many times a ground-based laser was tested against U.S. spacecraft or whether it was successful.

But the combination of China's efforts and advances in Russian satellite-jamming capabilities that illustrate vulnerabilities to the U.S. space network are driving U.S. Air Force plans to develop new space architectures and highly classified systems, according to sources.

The hardware on the space-craft can't be changed after they are launched, but software changes can help them weather attacks.

Lasers of sufficient power could blind electro-optical satellites like the giant Keyhole spacecraft or even interfere with radar satellites like the Lacrosse, experts said. Blinding, one source said, is different than disabling. It requires enormous power to shoot a laser through the dense lower atmosphere and reach a fast-moving satellite in orbit.

Russian jamming systems are publicly known. In 2003, the Air Force destroyed such a system deployed to Iraq to keep American Global Positioning System(GPS)-guided bombs from finding their targets. The site was destroyed by GPS-guided bombs.

Pentagon officials, however, have kept quiet about China's efforts as part of a Bush administration policy to not anger Beijing, which is a leading U.S. trading partner and seen as key to dealing with North Korea and Iran.

Even the Pentagon's recent China report failed to mention Beijing's test. Rather, after a contentious debate, the White House directed the Pentagon to limit its concern to one line. In that one line that acknowledges China has the ability to blind U.S. satellites, thanks to a powerful ground-based laser capable of firing a beam of light at an optical reconnaissance satellite to keep it from taking pictures as it passes overhead.

According to top U.S. official , however, China not only has the capability, but has exercised it. It is not clear when China first used lasers to attack American satellites. Sources would only say that there have been several tests over the past several years.

"The Chinese are very strategically minded and are extremely active in this arena," said one former senior Pentagon official. "They really believe all the stuff written in the 1980s about the high frontier and are looking at symmetrical and asymmetrical means to offset American dominance in space"

China's burgeoning anti-satellite capabilities are further evidence of Beijing's focused military strategy that aims to engage the United States asymmetrically, not directly, said to Andrew Krepinevich of the Center for Strategic and Budgetary Assessments, Washington.

Krepinevich points out that China has outline a set of capabilities it refers to as "Assassin's Mace" to keep U.S. forces in the region at risk and away from China's borders, and tailored to undermine U.S. advantages.

Jamming Predictable

U.S. service official are not expressing alarm at efforts to counter the U.S. space advantage. They say such moves are predictable and understandable. But they are taking it seriously enough to test ground-based lasers against their own spacecraft to determine their efficacy and plan space architectures that resist such attacks.

The problem, according to sources, is that satellites are large, have predictable orbits that are easy to track and have scant defenses against lasers.

The United States operates three large optical reconnaissance satellites of the three –decade-old Keyhole-series by Lockheed Martin. The loss of any would hurt U.S. space capabilities, sources said, which is why they will be replaced by large constellation of spacecraft under the Future Imagery Architecture program being executed by Boeing and Lockheed.

Top U.S. officials, among them Air Force Secretary Michael Wynne, declined to comment on whether China has attempted to blind U.S. satellites.

Chinese officials could not be reached for comment by press time.

Wynne acknowledged that the Air Force's space plans are shaped against potential foes who seek asymmetric means to harm a U.S. space network.

The goal, Wynne said, is to minimize the impact that real-life attacks would have on U.S. space capabilities through a networked architecture that can lose nodes but keep functioning.

Wynne stressed that more is at stake than U.S. military superiority. Signals from Air Force GPS satellites are critical to everything from airline and maritime commerce to car navigation systems.

And unlike the 1980's threat from Soviet anti-satellite plans, future space attacks will be limited in scope, Wynne said.

“At the time, the Soviets were always talking about a bald-faced assault,” he said. Future “asymmetric attacks are going to be local to try to mask out our capabilities in one region. The trick to winning asymmetrical warfare is to make it irrelevant.”

He said a new generation of GPS 3 satellites “will make further assaults and jamming efforts irrelevant.”

Doing “space and ISR through very different means...means asking good questions,” he said. “Do 22,200-mile-high orbits make sense? Does an orbital periodicity that is well known to any adversary have any relevance today? What you really want is assured situational awareness, position location and communications capabilities.”

Skeptics: Budget Limitations

But analysts, executives and even officials in the Pentagon have criticized the Air Force, arguing that the service is talking a good game but falling short on execution – largely for lack of budget.

One veteran space industry executive expressed shock at how limited the debate has been about the need to better secure U.S. spacecraft.

The reason, executives and analysts said, is that such safeguards are complicated and expensive, and become targets when programs go over budget or fall behind schedule.

One source said the Pentagon is so thirsty for more bandwidth to handle burgeoning communications demands that it has been short-changing security, which consumes bandwidth.

“It's a tradeoff,” said one industry source. “And so far, the pressure has been for capacity over security.”

Loren Thompson, an analyst at the Lexington Institute, said the Air Force is making poor investment choices not only in space, but also in intelligence, surveillance and reconnaissance programs.

“The U.S. Air Force's ambitious plan for fielding orbital and airborne reconnaissance systems has begun to come unhinged in the budget process from Space Radar, to missile warning to future radar planes, the whole mission area seems to be melting down,” Thompson said.

Wynne contends that space programs are being restructured to rein in cost increases and schedule slips. Wynne also argues that the F-22 fighter's powerful radar and electronic capabilities allow it to perform the roles of larger existing aircraft like the Joint Surveillance Target Attack Radar System, the Airborne Warning and Control System and the Rivet Joint, allowing the service to forgo investment in aircraft that are vulnerable to a new generation of powerful surface-to-air missiles.

“I’m probably the biggest supporter of the F-22 outside the Air Force, and while it’s the best fighter ever and can do these jobs, but not as well as dedicated assets that have the ability to stay on station far longer,” Thompson said.

“Osama bin Laden is still at large and there are known vulnerabilities to our space systems. In this environment, it’s odd that the Air Force is cutting its orbital, manned and unmanned reconnaissance assets while presenting the F-22 as a reconnaissance platform. The point is, where are we deficient, firepower or finding the enemy?”

As for China specifically, Thompson said the country has a right to defend itself.

“If you keep looking over the fence at you neighbor’s back yard, you’re going to get poked in the eye, so it’s not surprising that China might be worried about U.S. forces stationed on their doorstep,” Thompson said.

“They don’t like it and are figuring out how to poke us in the eye. Now I’m no great admirer of the Chinese leadership, but how would we feel if the Chinese had their aircraft carriers off Long Island. That’s why we have to do a better job of protecting ourselves and I’m afraid that’s not what we’re doing”

The former Pentagon official put it more bluntly.

“The Air Force is trying to put a happy face on this,” he said. “It’s not that they don’t know what do. It’s that they don’t have the money in their space budget. It’s that simple.”

Another factor is requirements growth. For example, the Air Force originally envisioned the National Polar Orbiting Environmental Observation Satellite as a powerful new climate spacecraft.

But departments across the government added their unique payloads, causing integration challenges and cost growth.

The same happens on classified spacecraft as intelligence agencies pile on payloads. Then there is the challenge of ensuring that the technology on the spacecraft is the best possible given it will be in orbit for decade or more.

“Unlike an airplane, once you launch something into space you can’t upgrade it again, so when it comes to technology you are often reworking your system to get the best available in there because you know that it’s going to be around for a long time once it’s in orbit,” the former official said.

“So when people talk about cost, that’s a piece of it. It’s even harder when you’re trying to protect yourself against threats over the next 50 years.”
