Testimony of General B. Chance Saltzman
Chief of Space Operations
United States Space Force

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Hearing on
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Commissioner Kuiken, Commissioner Sims, and distinguished Members of the Commission, thank you for inviting me to testify here today. The space domain plays an increasingly vital role in making the modern American way of life possible, and China's pursuit of its ambitions in the domain could present a powerful destabilizing force to our economy and our national security.

The Space Force was established in December 2019 in recognition of one key fact: space is a warfighting domain. In five short words, that phrase encapsulates a tremendous change that has taken place over the last two decades. When I began my career, space was a benign environment—a sanctuary from which we could

deploy game-changing services like positioning, navigation, and timing; satellite communications; weather monitoring; intelligence collection; and missile warning and tracking, just to name a few. Because launch costs were high, we aggregated capability into small handfuls of exquisite satellites, secure in the knowledge that they were remote and untouchable by adversary action. Over time, we came to depend on those satellites to the extent that most people forgot they were there, but while out of sight might mean out of mind, it does not mean unimportant.

Today, more than half of the 16 sectors of critical national infrastructure depend on satellites. A third of crops are grown using weather data from space. Internet and cellular service rely on satellites for optimization and resiliency. Modern transportation and logistics would be impossible without the Global Positioning System (GPS), and the timing signal it provides serves as the basis for digital finance and e-commerce transactions. Today, if you've checked for rain in the forecast, made a purchase with your credit card, or sent a text message, you have already called upon a satellite to make it happen, whether you knew it or not. Simply put, space matters more and more every single day, and the vast majority of our capability is built, sustained, and operated by the U.S. Space Force.

Undoubtedly, space underpins our nation's economic prosperity, but it also provides the backbone for our national security. Today's Joint Force is built and sized around the assumption that space will be there when needed. Especially since the creation of the Space Force, we have transferred increasing responsibility to military space operations. Setting aside the obvious examples, many of our most powerful weapons depend on GPS guidance to hit their targets, and the rapid collection and flow of data from space is the basis for the way we mass and maneuver fires in support of battlefield objectives.

As the military service responsible for space, the Space Force has a unique vantage point in these matters. Like the Air Force, the Army, or the Navy, our overriding purpose is to achieve domain superiority—to contest and control the space domain so that we preserve freedom of action for our forces while denying the same to our adversaries. Unfortunately, we are not alone in recognizing the incredible strategic advantage offered by space, and we cannot take space superiority for granted.

Over the last two decades, our competitors—China in particular—have invested heavily in counterspace threats: kinetic and non-kinetic weapons that can deny,

degrade, or destroy our satellites at will. In 2007, I stood on the Operations Floor in the Joint Space Operations Center at Vandenberg Air Force Base, and I watched China test an anti-satellite missile for the first time. I monitored the debris as they shattered a defunct weather satellite into thousands of small pieces, many of which we are still actively tracking today. In that moment, I knew that things had irrevocably changed—space was no longer safe.

Since that time, China's emboldened ambitions have only exacerbated matters. Their space program has become a source of pride—a linchpin in facilitating Chairman Xi's "China Dream." From a military perspective, Beijing understands that the space domain is a key enabler of long-range precision strike as well as of information gathering and dissemination, which makes it foundational to the projection of national power. As such, China has worked hard to bolster their own spacepower while developing the capability to defeat that of any nation that would oppose them. Today, China's operational fleet is second in size only to that of our own, and it continues to grow rapidly. In fact, just last October, China published a new Space Development Plan that lays out Beijing's intent to surpass the United States in the space domain and become the world's preeminent space power.

Advancement of China's Spacepower

China has been aggressively pursuing this objective for a decade, now. In 2015, it officially designated space as a new domain of warfare, overseen originally by the Strategic Support Force (SSF). In April 2024, China dissolved the SSF and established the People's Liberation Army (PLA) Aerospace Force, creating just the second independent space force in the world.

In the past ten years, China's on-orbit capability has grown by approximately 620%. As of October 2024, China claimed more than 1015 satellites in active service, and they are fielding more every year. For example, in 2023, China accomplished 66 successful space launches, placing 217 payloads into orbit with more than half performing intelligence, surveillance, and reconnaissance (ISR) missions. This brings the PLA to approximately 510 Earth-observing satellites with optical, multispectral, radar, and radio frequency sensors, vastly enhancing its ability to detect and track U.S. aircraft carriers, expeditionary forces, and air wings. In December 2023, China launched the Yaogan-41 remote sensing satellite into

geosynchronous Earth orbit (GEO), which allows persistent monitoring of U.S. and allied activity in the Pacific region.

Similarly, China has launched 36 G60 communications satellites to low Earth orbit (LEO), providing global internet connectivity and extending their digital reach. This represents the first tranche of a proliferated LEO (pLEO) constellation that will grow to 648 satellites by the end of 2025 and to 14,000 satellites by 2030, allowing it to compete with Western commercial pLEO constellations.

China's third-generation version of GPS, BeiDou-3, provides global, 24-hour, all-weather, high-accuracy positioning, navigation, and timing services. Even now, the PLA uses BeiDou to enable precision force movement and maneuver.

China also has executed three reusable spaceplane missions, all of which released unacknowledged objects. Additionally, in July 2021, it conducted the world's first fractional orbital launch of an intercontinental ballistic missile with a hypersonic glide vehicle, which flew the greatest distance (i.e., ~40,000 km) and for the longest time (i.e., 100+ minutes) of any PLA-developed land attack weapon system ever.

Needless to say, the ability to launch a payload, circularize its orbit, and return it to Earth at a time and place of the PLA's choosing without warning represents a grave threat to U.S. interests at home and abroad.

Taken as a whole, China's potent and expanding arsenal of space-based capabilities multiplies its combat potential many times over. In particular, the full deployment of a space-enabled targeting network means that China can hold U.S. and allied forces at risk with long-range precision weapons, preventing our forces from taking meaningful action before they even reach theater. The consequence of failing to mitigate this threat means military objectives will be tough to meet without unacceptable loss of American lives.

Growth of China's Counterspace Capability

Setting aside China's use of space to enhance their own forces, they have also taken steps to deny our own space-based advantage. Intelligence suggests the PLA likely sees counterspace operations as a means to deter and counter U.S. military intervention in a regional conflict. In particular, PLA academics stress the

importance of negating our ISR and communications satellites as a means to "blinding and deafening" our forces.

The 2007 missile I described before has since evolved into an operational ground-based system intended to target LEO satellites, which the PLA actively trains on today. Additionally, intelligence suggests that China intends to field weapons capable of reaching beyond LEO to destroy satellites in GEO at altitudes of up to 36,000 km. They may already have reached their goal because, in 2013, China launched a ballistic object that peaked at 30,000 km.

Aside from missiles, the PLA has fielded multiple ground-based laser weapons able to disrupt, degrade, or damage satellite sensors. By the mid-to-late 2020s, we expect them to deploy systems high enough in power that they can physically damage satellite structures. Moreover, PLA military exercises regularly incorporate radio frequency jammers against space-based communications, radars, and navigation systems. Intelligence suggests the PLA may be developing jammers to target a greater range of frequencies, including U.S. military protected extremely-high-frequency (EHF) systems.

In addition to terrestrial weapons, China is developing orbital "inspection and repair" satellites with the stated intention of performing on-orbit maintenance and cleaning space debris. In January 2022, we observed their ability to forcibly pull a derelict BeiDou navigation satellite out of position into to a graveyard orbit above GEO. These types of satellites are dual-use and can be counterspace weapons as well as on-orbit servicing tools. What matters is intent, but it's clear that the notion that China has the ability to capture enemy satellites is not science fiction—it is proven reality.

China's counterspace activities are supported by space domain awareness data provided by multiple SJ- and TJS-series experimental satellites. In recent years, we have observed these systems conducting unusual, large, and rapid maneuvers in GEO—tactics that have clear military applications. General Guetlein, the Vice Chief of Space Operations, recently testified about these activities, which we refer to loosely as "dogfighting in space." In other words, we believe this is training—a signal that Beijing is resolved to contest our spacepower through combat operations.

China's advancement in space technology, their stated desire to dominate, and Beijing's disregard for international norms for the responsible use of space make them an incredible danger to U.S. prosperity and security. By virtue of its physics and geography, space is inherently global so even regional conflicts, once they extend into the space domain, have the potential to quickly precipitate worldwide impacts. China's determination to deny U.S. spacepower in the Indo-Pacific could not only degrade of our military space-based capability, but it would threaten the satellites of our allies and commercial partners as well.

The Role of the U.S. Space Force

The consequences of such an outcome would be staggering. Setting aside the incredible harm imposed on governments and civilians, an attack on our satellites would significantly complicate the operations of the Joint Force. There is no good training for a day without space—we are not built for it, and we cannot work effectively around it. Space is an integral platform for force projection, and we must defend it accordingly.

The U.S. Space Force is actively pursuing capabilities to do exactly that. Space is a warfighting domain, and it is our purpose to defend U.S. space assets as well as to defend the Joint and Combined Force from space-enabled attack. As such, we organize, train, equip, and conduct space operations to achieve national military objectives. Our Guardians are uniquely and specifically trained, educated, and experienced in space warfighting, and they will secure our nation's interests in, from, and to space. Even so, with China's growing space capability, we face a monumental task.

First and foremost, our budget is not sufficient to produce the capabilities we need to achieve Space Superiority. Since our establishment, the majority of our budget growth has arisen from absorption of mission from other services, and much of our time and effort is spent on delivering services from orbit. As such, we are critically underfunded in the execution of our newest and most critical mission: Space Control. We need capabilities both to defeat adversary counterspace weapons as well as to deny, degrade, or destroy adversary spacepower—to "blind and deafen" as China describes it. Today, we do not have what we need to fight on our terms, and we cannot shift resources without impacting other missions. In short, new missions require new funding.

Next, we continue to struggle with overly restrictive space policy and outdated ways of thinking. Dating back to when space was a benign environment, much of our guidance and direction continues to frame space as a strategic resource rather than a warfighting domain. As such, we restrain ourselves from doing what is needful to avoid creating improper perceptions of "weaponizing space." In reality, space has been weaponized for at least two decades, and our slowness to absorb that reality has held back our progress. Additionally, we struggle with significant overclassification challenges, which impede us from sharing essential information across the Joint Force, with potential industry partners, and with allies and partners. While we have advocated strongly for increased authorities to reduce classification where reasonable, change has been slow and bureaucratic, with a continued emphasis on "need to know" rather than a more progressive "need to share".

Looking Ahead

Beijing's ambitions in space represent an incredible threat to the rules-based national order. Because of space's strategic importance, it is highly likely that satellites will be some of the first casualties of any conflict between the U.S. and China. Because of space's global nature and its integration into almost every aspect of modern life, the consequences will be immediate and significant.

The Space Force was established to face this challenge, and we will continue to build ourselves into the service our nation needs. But this is not purely a military problem. Diplomacy can help set and communicate norms. We can invest in our space economy, growing commercial capability as a force multiplier and a resilient advantage. We must expand our space domain awareness to ensure our information meets or exceeds the knowledge available to our adversaries. And we in the Space Force will be there to support all of it with military force if necessary.

What is clear to me is that we must better understand, as a nation, the vital role that space plays in our day-to-day activities and to the health and welfare of our nation. And in the face of a competitor with capability to destabilize all of that, we must unify behind a whole-of-government approach that ensures the safety, security, and sustainability of the space domain.

Thank you for the opportunity to speak with you all today and to share my thoughts and concerns on a topic I think will be the generational challenge of our times. I am happy to answer any questions you might have.