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BY THE SUBCOMMITTEE ON STRATEGIC FORCES
UNITED STATES SENATE

DEPARTMENT OF THE AIR FORCE
UNITED STATES SPACE FORCE

PRESENTATION TO THE
SUBCOMMITTEE ON STRATEGIC FORCES
UNITED STATES SENATE

SUBJECT: Fiscal Year 2023 Priorities and Posture of the U.S. Space Force

STATEMENT OF: The Honorable Frank Calvelli
Assistant Secretary of the Air Force
for Space Acquisition and Integration

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INTRODUCTION

Chairman King, Ranking Member Fischer, distinguished members of the subcommittee, thank you for the opportunity to testify on behalf of the Secretary of the Air Force, the Honorable Frank J. Kendall III, the Chief of Space Operations, General John W. "Jay" Raymond, and the Airmen and Guardians tasked with organizing, training and equipping forces to advance American interests in space. In its third year of existence, the Space Force continues to make tremendous progress in addressing national security challenges and threats of the space domain, and in building out the blueprint of a 21st century, mission-focused military service.

Space remains vital to our security and our way of life. U.S. military success in great power competition depends on access and freedom to operate in space. Over the past two decades, the space domain has shifted from a benign to a contested environment. Our adversaries are increasingly disruptive and hostile. To better protect our national interests, in December 2019 the Space Force was established with an explicit mandate to: (1) provide the United States freedom of operation in, from, and to space, and (2) conduct prompt and sustained space operations. Today, and every day, our Guardians accomplish these tasks for the nation ensuring unprecedented space capabilities for warfighters, allies, and civilians.

The Space Force provides the joint force and our allies and partners essential services vital to effective military operations. Unique services such as missile warning; positioning, navigation and timing; communications; and space-enabled tracking and targeting, make our Armed Forces the most flexible and lethal on the planet. These services, also make the United States a valued security partner. The Space Force delivers unmatched capability in these missions today and is developing the next generation of capabilities to meet requirements in the future.

Space Force capabilities and readiness contribute to integrated deterrence, strategic campaigning, and building an enduring advantage. We believe integrated deterrence starts in space. The Space Force must deliver resilient space capabilities and contribute to protecting terrestrial forces from adversary space capabilities that are an increasingly effective element of their combat operations.

Given growing strategic competition, it is imperative that the Space Force has the resources to modernize our forces to ensure freedom of action in, from, and to space. The President's Fiscal Year (FY) 2023 budget request for the Space Force initiates a necessary transformation, beginning with fielding a resilient missile warning and tracking architecture to detect and maintain custody of emergent hypersonic and maneuverable missile technologies, while making survivability under attack a key attribute of the design.

THE SPACE ENVIRONMENT

<u>Foreign Space Threats</u>

Space capabilities underpinning our national security remain threatened by adversary nations. Our competitors enjoy growing access to increasingly affordable space services and technology, multiplying threats beyond traditional space powers. Expanded intelligence *for* space will be vital to staying abreast of current and future threats.

The People's Republic of China (PRC) and Russia continue to improve their military space and counterspace capabilities. Correspondingly, their overarching strategy remains to challenge the U.S. in space. These countries are developing and deploying an array of kinetic and non-kinetic counterspace weapons that threaten U.S. space systems in all orbital regimes and their associated ground systems. They are also developing and deploying space-based Intelligence, Surveillance and Reconnaissance (ISR) systems that will be able to observe U.S. and Allied forces in all domains and all regions of the globe.

The PRC is the pacing challenge in the space domain, possessing on-orbit military capabilities rivaling those of the United States, and is pursuing a diverse counterspace weapons development program. The PRC calls space a critical domain in strategic competition, and they are now a spacefaring superpower who has launched more satellites into orbit than any country other than the United States. The PRC's growing commercial space sector enhances their industrial base and drives foreign dependency on Chinese technology. The People's Liberation Army (PLA) has developed robust and capable space services –ISR, communications, weather, and navigation constellations – that give PLA forces the integrated information needed to threaten U.S. joint operations in all domains. An example of the type of threat we must be able to defeat occurred in the summer of 2021 when the PRC launched a missile that deployed a hypersonic glide vehicle that circled the globe and flew back to hit a target in China. This test effectively demonstrates possession of the technologies needed for an unwarned, maneuvering fractional orbital bombardment system. We are actively working on systems to combat threats like this.

Russia remains dangerous with substantial space capacity, advanced technical and scientific capabilities, and a commitment to develop a broad array of counterspace weaponry. For example, Russia has seven prototypes in orbit that are capable of destroying other satellites. As demonstrated this past November, Russia's ground-based "Nudol" missile is designed to destroy Low Earth Orbit (LEO) satellites. That Nudol test destroyed a defunct Russian satellite, creating more than 1,500 pieces of debris, and threatening the International Space Station and other satellites in LEO.

<u>Standards of Responsible Behavior</u>

All nations share in the benefits, and costs, of human activity in space. Long-standing U.S. space policy promotes the long-term safety, security, stability, and sustainability of the space domain. The United States continues to partner with like-minded spacefaring nations in championing Norms of Responsible Behavior under the leadership of the National Space Council. Recently, Vice President Kamala Harris, who chairs the National Space Council, set a new international standard when she stated the U.S. commits not to conduct destructive direct-ascent anti-satellite

missile testing. Likewise, we must continue to lead and advocate for responsible space behavior while developing systems that protect and counter our adversary's capabilities. The Space Force supports the Assistant Secretary of Defense for Space Policy, U.S. Space Command, and other Department of Defense (DoD) components as they develop guidance regarding the Tenets of Responsible Behavior in Space for DoD operations. The Space Force is also engaging allies and partners on the importance of responsible behavior via initiatives like the Combined Space Operations forum and conducting international space wargames.

SPACE FORCE YEAR THREE

Following the first two years of our existence, where the Space Force first blueprinted the design for a 21st century military service and aggressively built out the multi-year plan in detail, we are delivering on the expectations set by our nation's leaders.

Force Design

The Space Force utilizes the Space Warfighting Analysis Center (SWAC) to develop force design processes to assess the fielding of space systems through the lens of operational need and requirements satisfaction, vulnerability and performance under attack, and cost. This process postures us for the first time to make architecture and programmatic decisions based on a clear understanding of warfighter needs, enabling concepts, budget, threat projections, while accounting for technology constraints and opportunities.

The missile warning/missile tracking mission trailblazed this process and successfully informed our FY23 budget submission. On-going force design efforts include Space Data Transport, Tactical ISR and space-based support to active missile defense, with Positioning, Navigation, and Timing (PNT) and Space Domain Awareness to follow. These activities also serve to build out the analytic base required to support additional force design, and modeling and simulation in support of testing and training.

The SWAC's ability to use a "clean-slate" approach -- without pre-conceived ties to previous acquisition strategies or programs and without any preference to a particular mission set or function within the Space Force, allows the SWAC to act objectively on behalf of the Service, joint warfighters, and the entire national security space enterprise.

Integrator for Joint Space Requirements

Through the SWAC's leadership in the new force design process, the Space Force has laid the foundation to succeed in their role as the DoD lead for integrating joint space requirements. In this role the Space Force engages Combatant Commands (CCMDs), the other Services, Intelligence Community (IC), U.S. Government (USG) agencies, industry, and Allies to understand, document and inform requirements satisfaction (validated through Joint Requirements Oversight Council), programming and budgeting, and acquisition strategies. The Space Force is working with the Joint Staff to fully codify this role and is currently exploring

development of an implementation plan to execute this role that will facilitate consolidation of space requirements from across the Joint Force, identify capability gaps, advocate for DoD space requirements at joint forums and inform budget decisions.

Guardian Training and Education

In August 2021, General Raymond activated the Space Training and Readiness Command (STARCOM) to focus on service responsibilities to recruit, train, educate, and develop ALL Guardians, military and civilian. Space-centered training has been incorporated into all Space Force military accessions training programs and we have created space-focused programs at Air University (AU). These initial steps strive to create independent, space-focused education programs for all Guardians and the Joint Force. In September 2021, the Space Force published the Guardian Ideal, Space Force Values, and the Guardian Commitment. All three are foundational to the new Space Force team-centric culture and will guide how we recruit, train, develop, and employ Guardians as a part of our interconnected high-performing teams.

The Space Force is developing Science, Technology, Engineering, and Mathematics (STEM) focused officer-candidate development and Advanced Academic Degree (AAD) opportunities for all Guardians via the University Partnership Program (UPP). USSF partnerships with select STEM focused universities facilitates Guardian acquisition of technical degrees most needed by the USSF. Guardians pursuing AADs at these schools have the opportunity to conduct research projects mutually beneficial to the school and USSF. In FY21, UPP began with 11 universities that are top suppliers of talent to U.S. aerospace and defense industries. The program will expand to at least 13 schools in FY22. UPP universities have Reserve Officers' Training Corps (ROTC) Detachments that consistently commission the most cadets, and are amongst the top engineering schools in the country.

Space Operational Testing and Training Infrastructure

The National Space Test and Training Complex (NSTTC), a core element of the Space Force's Operational Test and Training Infrastructure (OTTI), is foundational to testing and evaluating space warfighting systems, as well as providing Guardians with a threat-representative training platform.

Currently, there is no national capability for enterprise-level testing and training of our space assets and infrastructure. Consequently, our ability to establish, assess, and maintain readiness in an increasingly contested intellectual and increasingly congested physical space environment is minimal. NSTTC will provide a multi-venue, operationally-relevant environment for the testing, training, and evaluation of both material investments and non-material processes to inform current and emerging warfighting requirements and capabilities.

Space as a Digital Service

For most in the joint force, the space domain is experienced digitally via the data and services provided by space systems. Because of the highly technical nature, the Space Force requires a

workforce that has the digital fluency to rapidly turn data into useful insights to accelerate innovation of operational and business activities. Digital aptitude remains essential to help lead the transformation to becoming an interconnected, innovative, digitally-dominant force in order to deter and defeat threats to space operations. To achieve this goal, the Space Force has provided Digital University access to all Guardians, which incorporates curated digital content designed to establish a foundational level of fluency on modern digital topics.

The Space Force remains on the forefront of digital transformation to meet demand for existing and emerging needs. The President's FY23 budget request reflects this commitment. For example, the Space Force intends to continue building a cadre of organic software coders ("Supracoders") to streamline software development and promote the adoption of software technology that will prove instrumental to Space Force operations, testing, and training. We plan to train 90 in FY23, bringing the total number in the force to more than 200.

Unit/Mission Transfers

In accordance with existing statute and congressional intent, the DoD intends to transfer fully mission-capable space operational units, support equipment, property, and related resources to the Space Force with no mission degradation or adverse personnel actions. Across the FYDP, the Space Force will accept the transfer of 15 global units, 319 military billets, 259 civilian billets, and $2.5 billion in budgetary resources.

Specific to 2022, the Space Force intends to incorporate the Navy Narrowband Satellite System and Army Wideband Payload Operations, upon certification to the defense appropriation committees. To ensure mission continuity, the DoD is offering civilians and military personnel assigned to such units the opportunity to volunteer to transfer with the unit to the Space Force. The Space Force has established a selection board, including service liaisons, to oversee individual personnel transfers.

Looking forward, and in accordance with Title 10, United States Code, Section 9086, the DoD will transfer the Space Development Agency (SDA) no later than October 01 2022. In the coming months, the SDA plans to transfer offices and operations centers in the National Capital Region and other areas around the country, along with 36 military and 67 civilian personnel billets and associated budgetary resources.

Space Force End Strength

Sufficient end strength is critical to implementing the long-term vision of the DoD and consolidating all of the Armed Forces space missions and forces into the Space Force. The FY22 National Defense Authorization Act (NDAA)-authorized military end strength for the Space Force is 8,400 and includes 319 service members projected to be realigned from the Army and Navy units. Prior to FY23, Space Force end strength was included in U.S. Air Force military personnel appropriations. The Space Force will have a separate end strength appropriation starting with the FY23 President's Budget.

SPACE ACQUISITION

The Department of the Air Force, in partnership with the United States Space Force, is forging a new paradigm for how we acquire national security space systems. To realize our vision for space acquisition, we are implementing changes in all aspects of how we conduct business. The Department of the Air Force pursued a unity of effort approach to acquisition with the Secretary of the Air Force instituting the office of Space Acquisition and Integration and the activation of Space Systems Command. These changes realign our structure to lead and advance integrated acquisition efforts. Through that integration role, the Department and the Space Force are pursuing a flexible approach to Space Acquisition. This strategy will enable us to not only meet warfighter requirements, but also meet the pacing challenges required to project global power, and incentivize the civilian space industry. We are utilizing forums such as the Program Integration Council (PIC) and the Space Acquisition Council (SAC), to achieve synergistic efforts, while tapping into emerging technical advancements necessary for us to remain technology leaders and more importantly, maintain U.S. space superiority.

By leveraging the PIC to unite senior leaders from the Space Systems Command (SSC), Space Rapid Capabilities Office, Department of the Air Force Rapid Capabilities Office, Space Development Agency, National Reconnaissance Office, Missile Defense Agency, United States Space Command, Space Operations Center, and the Air Force Research Laboratory, we have improved communication and coordination necessary to align efforts and achieve synergy across the National Security Space enterprise.

The Space Force, in partnership with the Missile Warning/Missile Tracking/Missile Defense Enterprise community, built upon the Overhead Persistent Infrared (OPIR) Enterprise Architecture Strategy delivered to Congress in October 2020 to formalize Missile Warning and Missile Tracking force design and acquisition strategies. This ensures OPIR capabilities meet warfighter needs. New resilient Missile Warning/Missile Tracking space and ground architectures will transform the DoD's legacy missile warning force design. This distributed multi-orbit architecture will address emerging missile threats, and be protected, survivable, and reconstituted. The Department is heavily investing in FY23, requesting $1.029 billion for this mission area.

On January 27 2022, the SAC reviewed the Space Force Chief Strategy and Resourcing Officer's Missile Warning, Tracking, and Defense requirements allocation and associated recommendations for an Integration Plan proposed by Space Systems Command, the Space Development Agency, and Missile Defense Agency. The Integration Plan includes a governance concept with a combined program office that will enable coordinated capability development across the mission areas. In addition, Space Systems Command has the charge to execute system of systems integration to deliver an end-to-end, sensor-to-shooter capability.

The Department is also heavily investing in mission areas such as strategic communications and space domain awareness. For Enhanced Strategic SATCOM, the Space Force is pursuing a competitive acquisition strategy for the space segment through rapid prototyping, which is maturing the industrial base, driving innovationand controlling costs. The Deep Space Advanced Radar Capability provides all-weather, ground-based radars to detect, track, and maintain custody of deep space objects around the clock, and recently was authorized to proceed on Middle Tier Acquisition (MTA) Rapid Prototyping pathway for its first site. FY23 is an important investment year for the design and development for Operational Leave-behind Capability by FY25.

National Security Space Launch (NSSL) has an unprecedented record of mission success, maintaining a 100% mission success track record while continuing to lower the cost of mission assurance. Since 2013, the Department has saved over seven billion dollars in NSSL procurements due to block buys and competitive acquisition strategies, which has allowed reallocation to other capabilities for the warfighter. The FY23 priority is to complete certification of the Vulcan and Falcon Heavy launch systems to ensure we can meet all reference orbits and maintain assured access to space. Additionally, we are meeting Congressional intent to stop using the Russian RD-180. The USSF has four remaining Atlas V launch services that use the RD-180 engines, which are all launching over the next 18 months. That will end our dependency on foreign made engines.

At the same time, we have remained focused on acquisition advances. Space Systems Command continued to improve GPS for the warfighter by awarding contracts for three more GPS IIIF satellites. This new generation provides regional military protection capability, an M-code signal that can be concentrated on a particular region, and provides over 140x times greater anti-jamming measures over legacy signals. These advancements ensure our military personnel can access critical PNT data in contested environments.

We appreciate Congress‘ support in providing authorities needed to deliver capabilities at the speed of relevance for the warfighter. Using MTA authorities, we are rapidly identifying, prototyping, and fielding innovative solutions for some of the most pressing challenges we face. Nine programs currently utilize MTAs, but we are also increasing flexibility through non-traditional approaches, such as the Space Enterprise Consortium (SpEC) Other Transaction Authority (OTA) agreements. Authorities like these are paramount to improving engagement with our commercial partners. A thriving commercial sector presents increased opportunity for the Department to leverage commercial space services, for DoD to provide a demand signal to stimulate commercial sector innovation, and to further build and diversify the industrial base and incubates capabilties that may meet future requirements.

In order to rapidly increase the resiliency and move at the speed of relevance, we are leveraging our partnerships with industry, academia, allies, and our international partners around the globe. These partnerships are essential for ensuring we are harnessing emergent technologies into the space enterprise. SSC‘s Front Door is designed to be a single focal point for strategic commercial partnerships and to establish a diversified and enduring marketplace for the Joint

Force to purchase and receive essential services. Through activities such as Pitch Days, similar to commercial investment pitch competitions, it is now easier for start-ups and other non-traditional companies to bring their commercial solutions to the Department. This is just one innovative example of how the Department of the Air Force will exceed the pace of demand and become increasingly more agile than our nation's adversaries.

We will also be leveraging lessons learned from the Space Development Agency as we begin the formal transfer of that organization into the Space Force at the beginning of Fiscal Year 2023. This transition will enhance the Department's ability to integrate innovative acquisition approaches and deliver new satellites and ground system prototypes into the operational baseline for the Space Force.

Technology and pacing threats are evolving at an ever-increasing rate. Achieving enduring advantages means the Space Force must undergo a transformation from current legacy systems to the architectures needed to be competitive. The Space Force is leveraging technology to deliver game-changing space capabilities and solidify an ecosystem through our University Research Consortium. Quantum technologies, counter-hypersonics, and artificial intelligence/machine learning are several of the emerging technologies that are necessary to integrate into the Space Force architectures to stay ahead of potential adversaries.

CONCLUSION

In conclusion, the Department of the Air Force and United States Space Force stand ready to provide forces and capabilities that protect and defend U.S. interests in space. As General Raymond has stated: "America's Space Force will be Semper Supra, always above. We are moving swiftly to establish a lean, innovative Service and a rapid, agile acquisition process ready to meet the challenges of today and the future. We stand ready to protect and deter, and to fight and win in freedom's high frontier."[1] We would like to thank the Congress for your leadership and support.

[1] John W. "Jay" Raymond, (Gen, SPACE FORCE), Chief of Space Operations, "Chief of Space Operations Planning Guidance," November 2020.