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Space Warfighting Readiness: Policies, Authorities, and Capabilities

STATEMENT OF

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Introduction

Chairman Thornberry, Ranking Member Smith, Members of the Subcommittee, I am pleased to have been invited here today to join Gen Kehler, and Mr Harrison to talk to you about an issue that is critical for the Department of Defense and for our nation—DoD Space Warfighting Readiness. As you are keenly aware, space remains as vital today to our national security as ever. It continues to underpin DoD capabilities worldwide at every level of engagement, from humanitarian assistance, conventional conflict, and nuclear war. And as General Hyten stated in his testimony before the House Armed Services Strategic Forces Subcommittee last week, space capabilities are not just crucial for when we enter the fight, but are indeed a critical supporting element of US deterrent strategy to prevent that fight from starting.

Further, space provides a lifeblood to US economic vitality, serving as an interconnected infrastructure which empowers the lives of our citizens worldwide, and increasingly represents a business area in which the US continues to hold and expand its unqualified advantage. Make no mistake, in all three US space sectors—national security, civil, and commercial—the US continues to lead the world. But, while our leadership in both civil and commercial space is secure, our leadership, and in fact our capabilities, in the national security sector are being actively and aggressively challenged.

Our adversaries are aware that the US military relies on space to empower its operations and to wield an overwhelming military advantage—and they don't like it. That understanding was best summed up by the Chinese strategist Wang Hucheng nearly two decades ago when he wrote that, "…for countries that can never win a war with the United States by using the method

of tanks and planes, attacking the U.S. space system may be an irresistible and most tempting choice."[1] Unfortunately, Hucheng's observation was not just idle speculation—rather, it became a firm basis for China's and Russia's anti-access, area denial strategy, one which they have been working ever since and which they will soon bring to fruition. As Director of National Intelligence Daniel Coats warned in his February 13th Worldwide Threat Assessment, "Russian and Chinese destructive ASAT weapons probably will reach initial operational capability in the next few years."[2] He went on to observe that all US space capabilities are at risk and that both Russia and China would likely target those capabilities if future conflict were to occur. Understanding all this, the question posed in this hearing, "Are US Space Warfighting Forces Ready", becomes particularly pertinent to understand.

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US Space Warfighting Readiness

Unfortunately, the answer is "No"—we are not ready, or more properly, we are not on a firm path to be ready. Before I explain why, let me first make two things perfectly clear: First and most critically, this is absolutely not an indictment of the incredible members of our military armed services and intelligence community charged with this responsibility—they stand ready to maintain US space capabilities in every way humanly possible given the tools at their disposal—it's the tools that are not up to the task. And second, no adversary should mistake that statement

[1] Wang Hucheng, 'The US Military's "Soft Ribs" and Strategic Weaknesses', Liaowang, vol. 27, reprinted in Xinhua Hong Kong Service, 5 July 2000, in FBIS-CHI-2000-0705, 25 July 2000.
[2] Daniel R. Coats, Director of National Intelligence, "Statement for the Record, Worldwide Threat Assessment of the US Intelligence Community", February 13, 2018, pg 13

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as an invitation to attack. The fact of the matter is that US space capabilities are robust and, faced with any attack that could be mounted today, I am fully confident that they will continue to provide the US with sufficient warfighting edge to assure an adversary's defeat. But as we move into the future, as our adversaries begin to close the gap in other warfighting domains, and as they continue to field and expand their counterspace capabilities, that calculus could change. The unfortunate fact of the matter is that our current ability to withstand an adversary attack is based not so much on our space warfighting readiness, but rather their lack of a fully developed and operationalized threat. If that threat did exist; if their forces were at the state of capability and readiness they seek, then I fear the answer would be quite different. In some cases, such as satellite communications (SatCom) jamming, they are already there; and the unwelcome news is that they are working aggressively to make that the case for every mission area. Meanwhile, our dilemma is that we are failing to respond fast enough and robustly enough to prevent that from happening. So, while I am not worried today, I am worried about tomorrow; and I fear tomorrow is not all that far away.

Elements of Readiness

In your invitation to appear here today, you cited several elements that sum to assess our warfighting readiness and importantly, our ability to deter attacks on US space assets. Those elements include policies and authorities, current and future capabilities, integration of allied and commercial capabilities, our organizational structure, and the overall direction of our national

security space enterprise. You also asked what additional policy considerations would be necessary to successfully signal our adversaries and deter conflict in space. You're your indulgence, I'll try to summarize my assessment of each of these elements in the paragraphs below.

Space Deterrence

Before I do, I would like to make sure that we understand a very important fact--deterring space attack cannot be considered in isolation any more than conflict in space can be viewed in isolation. As Gen Hyten, the commander of US Strategic Command, has repeatedly stated in speeches and in testimony, deterrence and war do not occur in isolated domains. Rather it is sum of all our capabilities and all our actions across all warfighting domains that lead to deterrence during peace, and victory during war. But the role that space plays in this equation is key because losing space degrades not only our space capability, but our capability in the three traditional terrestrial land, sea, and air domains as well. So, assuring that our space forces survive assures the ability of those terrestrial forces to succeed, and that then leads to the deterrence effect we seek. On the other hand, we must also realize that no capable adversary will hesitate to exercise their sovereign need to attempt to eliminate the US space advantage. Regardless of how ready our space forces are, that readiness cannot deter a determined attack; therefore, we must make certain that our space forces can withstand such an onslaught.

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Policy and Authorities

US National Space Policy is remarkably clear and is succinctly summed up in the President's most recent National Security Strategy:

> "The United States considers unfettered access to and freedom to operate in space to be a vital interest. Any harmful interference with or an attack upon critical components of our space architecture that directly affects this vital U.S. interest will be met with a deliberate response at a time, place, manner, and domain of our choosing."[3]

Perhaps surprising to some, this policy position has remained almost completely unchanged throughout the history of US space efforts and through both Republican and Democratic administrations at least as far back as the 1960s. So, at the highest level there is no doubt about what the policy of the US is—we consider space to be our vital interest and we will choose to respond to attack should its use be threatened.

As a statement of overall policy, this is a good start. But it's insufficient to guide actions and outcomes that we expect from our space forces. To fill that void, the US's 2010 National Space Policy, and more recently updated 2016 Department of Defense Space Policy both clearly articulate that it is the policy of the US to "Increase [the] assurance and resilience of mission-essential functions…by developing the techniques, measures, relationships, and capabilities necessary to maintain continuity of services…[including] enhancing the protection and resilience of selected spacecraft and supporting infrastructure."[4]

[3] "National Security Strategy of the United States of America", December 2017, pg 31
[4] "National Space Policy of The United States of America", June 2010, pgs 4, 9

… the National Security Strategy's focus on response to attack, along with the National Space Policy's focus on being able to withstand an attack, create the policy essentials for deterrence…I find no fundamental elements missing from their pages. So, it is my opinion that our current policies fully support space warfighting readiness.

Taken together, the National Security Strategy's focus on response to attack, along with the National Space Policy's focus on being able to withstand an attack, create the policy essentials for deterrence and act as bookends to encompass each lower level of policy decision. While some of those lower levels are classified, and therefore prevent me from going into more detail, I find no fundamental elements missing from their pages. So, it is my opinion that our current policies fully support space warfighting readiness.

There continue however to be some questions when it comes to authorities. Authority for US space forces is, in general, centered in the space warfighting combatant command, USSTRATCOM. However, over the history of space activities, that authority has been seen to wax and wane when it comes to decisions to employ active space control measures and in the governance of US space intelligence forces, specifically those of the National Reconnaissance Office (NRO). The establishment of the National Space Defense Center is one notably positive response to this second authorities problem and speaks to the ability of leaders to act when necessary.

So, while the absence of precise top-level decisions on authorities is troublesome, leaders both within and outside the Department have been able to work through these issues and US warfighting effectiveness has not suffered. But that condition fundamentally represents the nature of yesterday's threats which were slow acting and therefore afforded time for

bureaucracies to grind out an answer. In any future great power contest in which war has extended to space, the element of time is unlikely to be on our side and therefore, the questions of authorities become more critical.

I do not want to overstate this concern—I do not see authorities as a fundamental constraint upon our space warfighting readiness—those constraints lie elsewhere as I will soon discuss. But, when and if we address those other issues, the lack of clear authorities could end up being deterministic to our success. I should also hasten to add, that while internal US policy is clear and adequate to support our readiness, there are some international policy decisions that are less robust and would benefit from clear, unambiguous US leadership—I will discuss some of those briefly in the concluding thoughts below.

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Current and Future Capabilities

I stated earlier that the members of our space military and intelligence communities stand ready to make every effort that is humanly possible to maintain our space capabilities with the tools they have—the problem is that they just don't have the right tools. And that's not just my assessment. In a recent statement following another Chinese ASAT test, Gen Hyten said, "We have very old space capabilities too, very effective space capabilities, but they are very old and not built for a contested environment,"[5] This is not new news—it has been stated publicly by every Pentagon and National Security Space witness for the last 5 years. The real problem is, we

[5] Gertz, Bill, The Washington Free Beacon, "China Carries Out Flight Test of Anti-Satellite Missile", August 2, 2017

are failing to address it adequately as we head to the future. Let me be clear—this is not an acquisition issue—it is a planning and strategy issue. It's not about how we will buy something, it's deciding what we need.

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More than anything else, it is this fact that concerns me. The chasm between what our warfighting space commanders will need to win the space war, and the capabilities that we intend to develop and deploy, continues to grow even as the threat becomes more robust and more urgent. Leaders like Gen Hyten and many before him have made it clear that they do not need, in fact they do not want, large, expensive, non-proliferated, non-diversified space architectures. From both the military and civilian defense leadership we continue to hear the same—that they intend to build the resilient and responsive space architectures called for in our National Space Policy and our DoD Space Policy. And yet, as I review the President's 2019 Space Budget I continue to find descriptions that have little in common with those stated desires. For example, the Air Force has made it clear in this year's budget that they intend to replace the aging and non-resilient first-generation Space Based Infra-Red System (SBIRS) with a next generation Overhead Persistent Infra-red (OPIR) System. Yet, as we examine the budget justification document it becomes clear that while this new system may include some better on-board protections than the current system, it is

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still certain to be an expensive, large, and sparsely populated constellation of satellites, the loss of any single one of which would significantly impair US missile warning capabilities. And to be clear, strategically and practically, there is no way to protect a single satellite against the determined attack of an aggressive adversary, especially if that satellite is in a fixed geosynchronous orbit regardless of on-board or off board defensive measures. To make matters worse, according to that same budget documentation, the earliest we're likely to see this evolved system is somewhere in the latter half of the next decade, and this prediction is before the development even begins.[6] History would suggest it will be much later.

Similarly, despite years of statements from defense space leaders espousing the virtues of disaggregation, we find that the 2019 President's budget continues to articulate its intent to field an aggregated Evolved Strategic SATCOM (ESS) System. And like its missile warning counterpart, the system is significantly delayed with Milestone B not occurring until 2022 at the earliest, a nearly 18-month delay from the same program schedule in 2018[7]. So, while China and Russia are driving through generations of ASAT systems every three to five years, it is taking us over a decade to even begin to field a system responsive to their first-generation threat. Stated more clearly, when it comes to strategic missile warning and nuclear command and control, the evolved US response to the ASAT threat we see being deployed today will be ready near the end of

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[6] Air Force FY 19 RDT&E Justification Book, Vol II, pgs 1014 - 1018
[7] Air Force FY 19 RDT&E Justification Book, Vol II, pg 442 versus Air Force FY 18 RDT&E Justification Book, Vol II, pg 328

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This situation stands in stark contrast to the DoD's stated goals in their interim report in response to your Section 1601 direction in which they would aim to reduce development timelines for space systems from "typical eight-year development to three years"[8]. The problem with that goal is that it is unattainable if the item being developed is a large, expensive, space system that is planned to be developed once and produced several times. On the other hand, there are many ways to accomplish that goal, and even more importantly to meet the stated warfighting and policy needs for resilient, defendable architectures, but not by following the normal space development methods that have characterized the last 30 years—and it is there where we find the greatest issues.

These two examples are just the tip of the iceberg of what is lacking in our future space planning and budgeting. A key element of any future space strategy is the ability to operationally test that strategy under real life conditions. The Air Force knows this to be true for Air Operations and is why they created the Red Flag exercises at Nellis AFB following the failures of Vietnam Air Combat. Red Flag training was crucial to the development of air tactics and doctrine and has assured US air dominance ever since, honing not just current airpower skills, but testing future air combat tactics that drive next generation capability. We know that we need this same kind of training for space warfighters—but once again, it is basically absent from the budget. We can blame some of that on the fact that there is not enough budget to go around—yet we fail to embrace elements of any sensible plan that would make that budget go much further. Such is the case for allied and commercial integration.

[8] DoD Interim Report on Organizational and Management Structure for the National Security Space Components of the Department of Defense; March 2018, pg 5

Integration of Allied and Commercial Capabilities

The recently released National Defense Strategy Summary States that,

> "Mutually beneficial alliances and partnerships are crucial to our strategy, providing a durable, asymmetric strategic advantage that no competitor or rival can match. …By working together with allies and partners we amass the greatest possible strength for the long-term advancement of our interests, maintaining favorable balances of power that deter aggression and support the stability that generates economic growth."[9]

Nowhere is this sentiment more apropos than for space. Of the top 21 space faring nations (by number of satellites), 15 are close US allies or partners, and, in general, they are also the most advanced. It has been a central element of our space resilience doctrinal thinking since the release of the 2010 National Space Policy to aggressively pursue these space alliances to face the growing Russian and Chinese threat—and yet for over a decade we have failed to define any substantial allied contribution to our space architecture. Not only is this fiscally indefensible, it is strategically myopic. Today, adversaries need target solely US DoD or Intelligence space assets to effectively eliminate our space advantage, and the advantage those capabilities provide to our allies as well. The lack of integration of Allied space warfighting capabilities into our basic force structure is a serious and inexcusable oversight within the current DoD space budget—it conflicts with our National Defense Strategy, our National and DoD Space Policies, and frankly our approach to cooperative defense in every other domain—plus, it slows us down and costs us money. Similarly, as I mentioned in my

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[9] Summary of the 2018 National Defense Strategy of the United States of America, Jan 2018, pg 8

introduction, the commercial space revolution represents a singular American advantage for the US, and yet other than for launch, our defense space budgets and plans act as if they barely exist.

To be fair, USSTRATCOM and the OSD Space Policy Office have been committed to combined space operations for nearly 6 years under the so called Combined Space Operations (CSpO) initiative and I want to congratulate them for continuing to expand that forum. But those efforts have failed to yield any true cooperation in future capability fielding, an activity under CSpO just as important as combined operations.

None of this results from not understanding the problem—we do. Again, leaders across the space divide espouse in speech after speech the role of allied and commercial space—we just fail to fund it. Your committee has been clear on its desire to address both these issues pushing the DoD to pursue satellite communication pathfinders and multi-global navigation satellite system receivers—yet the DoD continues to drag its feet. As a result, it remains highly doubtful that the next generation of GPS user equipment (GPS M-Code Increment 2) will incorporate the requirement to receive signals from the multitude of allied or foreign sources they could use; and it is also highly likely that the first generation of large low-earth-orbit (LEO) satellite communication constellations from OneWeb, SpaceX, Telesat, and the like will launch without any real input from DoD on our cybersecurity needs, much less our investment to make those needs a reality. And this is where I find our planning most lacking. Through the use of allied and commercial capabilities we

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Organizational Structure

Some will ask how much these problems have to do with organizational structure, a topic that this committee spent much time pursuing last year, versus just normal bureaucratic inefficiencies that we might find across the Department. From my perspective, they are intrinsically linked. The ability of our space leaders to understand the strategy of space deterrence and space warfighting and how to address those issues directly by understanding all the tools at their disposal results from our ability to grow space-smart leaders who can think and act in response to long-term and short-term changes and challenges to the domain.

It is not enough to have two or three senior leaders such as Gen Hyten or Gen Raymond or Gen Kehler who understand the issue. It must be understood at the Captain, Major, Lieutenant Colonel and Colonel level. It must be something the entire force comprehends as they go about their daily job of defining requirements for the next generation system, exercising those capabilities in flag-like exercises, conceiving of the next elements of a resilient architecture, or driving doctrinal alternatives that eventually change the way we fight. It is not something you can learn without committed long term focus on space force development. Unfortunately, that focus is still lacking.

The Air Force continues to avoid defining a true space career path, separate and distinct from its Air-focused pattern, that is responsive to the peculiar needs of space leader development. It's a different path than the path for Air leaders due to the differences inherent in

the domain. For example, no space warrior will ever actually operate in space—rather he will act at a distance. That distance drives a differing level of domain understanding than if he was a pilot in the front seat of a fighter aircraft. You learn about Air doctrine from flying planes. But you do not learn about space doctrine by flying satellites—and yet the Air Force views them as the same. As long as that is so, we will fail to grow the space smart leaders we need in sufficient number to truly effect change.

It is not a given that such career planning requires a separate service—I could argue either side of that issue. But it is clear that it requires a separate career path than that of its parent service. Whether that is under a separate service, a Marine Corps like structure, or an Army Air Corps structure is argumentative and beyond the scope of this particular hearing. But if we are to address the problems discussed above, if we are truly to embrace space warfighting readiness, we must address the personnel issue above all else.

Concluding Thoughts

The issues discussed above do not answer the full question of assuring US Space Warfighting Readiness, but they are a good start. There are hundreds of additional elements to address: The need for a separate Space Unified or sub-unified Command, International policy changes (such as whether the US should seek to ban debris causing weapons), civil space elements (the fate of space traffic management), and advanced technology elements. Each will need to be addressed fully to assure that tomorrow's warfighters are able to expect the same qualitative advantages they get from space, that allow them to dominate our adversaries, as they do today. As I view the current DoD glide slope, I do not find that we are on pace to address these issues and as such, our space capabilities are at risk. We do have time, but that time is quickly being spent. We can close the gap in the short term by embracing elements of the

strategy that we have so far avoided—allied and commercial integration, smaller, proliferated, and disaggregated systems, and investment in exercise and training assets to truly support a Space Flag-like event. But in the long term we must face the fact that to remain ahead over the next half century, we're going to need to grow the kind of space leaders that can think doctrinally, technically, and operationally for space in the same way we grew them in the 1930s and 40s for the Air. That could not have occurred within the constraints of the pre-World War II Army personnel system—nor can it occur within the constraints of our pre-first space war Air Force personnel system.

Today's budget and space planning strategy can be fixed to address the threats of the next decade and I would encourage the Congress and the Department to work to execute those changes by embracing the planning prescriptions discussed above. But for the long-term solution we must look beyond simple budgets and programs—we must look to the people. In 1937, Gen Frank Andrews, a revered Air Force pioneer for whom Andrews Air Force base is named, wrote:

> "I don't believe any balanced plan to provide the nation with an adequate, effective Air Force... can be obtained, within the limitations of the War Department budget, and without providing an organization, individual to the needs of such an Air Force. Legislation to establish such an organization…will continue to appear until this turbulent and vital problem is satisfactorily solved" (emphasis added)[10]

By heeding Gen Andrew's call, and creating the United States Air Force, Congress and the President propelled changes in Air Power that moved the United States Air Force from the equal of its international counterparts, to a modern Air Force that is hands down, the best in the world. The same must be true for space. If we are to assure US space warfighting readiness far

[10] Wolk, Herman S, Planning and Organizing the Post War Air Force 1943-1947, Office of Air Force History, USAF, Wash DC, 1984, pg 1

into the future, against the rising threats we see today, we must establish, either within or outside the Air Force, an *organization individual to those needs*.