

**House Energy & Commerce: Communications and Technology Subcommittee Hearing:
“Global Networks at Risk: Securing the Future of Communications Infrastructure”**

Summary of Testimony of Tom Stroup, Satellite Industry Association

Satellites are foundational to modern life, supporting global communications, navigation, remote sensing, and emergency response. SIA members provide critical, resilient services to Americans and allies worldwide, enabling U.S. leadership in an increasingly interconnected and contested world.

With over 12,000 active satellites and plans for many more, we are in an era of rapid innovation. Satellite services support all 16 critical infrastructure sectors, from emergency communications to precision agriculture and resilience for global telecommunications. Satellites are uniquely positioned to connect unserved populations and serve as a backbone for 5G, IoT, and AI technologies.

They also play a vital role in disaster response. Remote sensing satellites provide real-time damage assessments, and unlike terrestrial systems, satellite networks remain operational during disasters due to their space-based infrastructure.

Multi-orbit services, combining the strengths of low Earth orbit (LEO) and geostationary (GEO) satellites, enhance resiliency and performance. Direct-to-device satellite connectivity is expanding mobile coverage through partnerships with wireless carriers and manufacturers.

The industry is investing in advanced technologies such as high-throughput satellites, flexible software-defined payloads, and AI-powered cybersecurity tools. Declining launch costs further boost responsiveness and innovation.

While the U.S. has long led the space sector, China is closing the gap, with similar investments in space technologies that will challenge our national security community while also undermining democracy around the globe. It is critical for Congress to support continued domestic innovation and avoid regulations that put U.S. providers on an unequal playing field internationally.

SIA and its members have five main priorities for this administration: promote American space innovation through streamlined regulations, lead standards development internationally, enact effective space debris policies and rigorously advocate for adoption of similar policies in other countries and in international fora, streamline space system procurement for greater efficiency in government acquisition, and spur development and investment through access to sufficient spectrum resources.

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Wednesday, April 30, 2025 10:00 AM

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Chairman Hudson, Ranking Member Matsui, and distinguished Members of the Subcommittee, thank you for inviting me to testify before you today. I am Tom Stroup, President of the Satellite Industry Association (SIA).¹ SIA is a U.S.-based trade association that represents leading satellite operators, service providers, manufacturers, launch services providers, space situational awareness companies, and ground equipment suppliers.

Satellites are the backbone of modern society. We rely on them for communications, position, navigation and timing, and remote sensing across the globe. Satellites provide critical services to hundreds of millions of Americans and billions of people around the world every day. The companies represented by SIA are poised to provide resilient services in any situation to

¹ SIA Executive Members include: Amazon; Comtech; DIRECTV; EchoStar Corporation; Eutelsat Group; HawkEye 360; Intelsat S.A.; Iridium Communications Inc.; Kratos Defense & Security Solutions; Ligado Networks; Lockheed Martin Corporation; Planet Labs PBC; SES Americom, Inc.; Spire Global Inc.; and Viasat Inc. SIA Associate Members include: The Aerospace Corporation; Artel, LLC; AST Space Mobile; Astranis Space Technologies Corp.; The Boeing Company; Eutelsat America Corp + OneWeb Technologies; ExoAnalytic Solutions; Integrasys; Kinematics; Kymeta Corporation; Omnispace; Ovzon; Panasonic Avionics Corporation; Skyloom; and Telesat.

empower U.S. leadership and support U.S. citizens and allies in an interconnected and contested world.

We are at a time of tremendous innovation in the space industry, with over 12,000 active satellites on orbit today and plans for tens of thousands more through the end of the decade.² Satellite services support all sixteen critical infrastructure sectors, including through communications for emergency services, positioning, navigation, and timing (PNT) for agriculture, resilience for global telecommunications, and remote sensing data to improve our national security.

Americans have long relied upon satellites to provide direct to home TV, satellite radio, and distribution of programming to cable companies as well as to TV and radio broadcasters. Satellites are the fastest way to connect the unconnected, with multiple American companies providing high-speed internet and more launching in the near future. The satellite industry provides FCC-defined broadband service today across the globe and is ready to bring the nation into an interconnected future as a backbone for 5G, IoT, and AI technologies. Satellites today provide anytime, anywhere global connectivity to consumers, utilities, supply chain logistics providers, the IoT community, cruise and other ships, airlines, and unmanned aerial vehicles.

In addition, satellites play a critical role in preparation, response, and recovery from natural disasters, electrical outages and terrorist attacks. Remote sensing data and analytics can help pinpoint and quantify initial damage assessments in the immediate aftermath of a disaster.

Synthetic aperture radar satellites can see through clouds and allow the mapping of damaged

² BryceTech and Satellite Industry Association, internal research, April 4, 2025.

regions when storms are still overhead. Furthermore, unlike terrestrial communications counterparts, satellite networks are not susceptible to damage from such disasters because the primary repeaters are onboard the spacecraft and not part of the ground infrastructure. Hand-held terminals, portable Very Small Aperture Terminal (VSAT) antennas, and temporary fixed installations can all be rapidly brought into a post-disaster environment to provide support to relief and recovery efforts.

Unfortunately, no technology is able to provide 100% reliability. Fiber and cable systems are subject to cuts, both intentional and accidental, and wireless systems are subject to damage to transmitters during natural disasters as well as the loss of service if terrestrial connections are cut. Satellites provide critical back-up in such circumstances.

In addition to the benefit of having its primary infrastructure in space, many communications satellite operators provide customer connectivity needs through multi-orbit services. These services marry the low-latency of LEO systems with the ability of GEO systems to deliver large amounts of capacity in high-traffic areas. While both GEO and non-GEO systems have the ability to provide large amounts of capacity, the combined solutions offer the best of both systems, enhancing the resiliency and reliability of services.

Another recent development furthering network resiliency is the deployment of direct to device mobile satellite connectivity, led through major partnerships between satellite operators and both wireless carriers and manufacturers, which greatly expand the range of communications available to mobile customers.



Satellite technology is also making American agriculture more efficient and adaptable, providing resilience against international supply chain risks. Satellite broadband, for instance, enables remote farms with livestock sensors, soil monitors, and autonomous farming equipment in rural America, far beyond where terrestrial wireless and wireline can reach or make economic sense to deploy. Precision GPS and Earth observation technologies allow farmers to increase crop yield by optimizing use of fertilizer, pesticides, and herbicides, and applying site-specific treatments to fields. Satellite advances in weather forecasting help farmers prepare for drought, floods, and other adverse weather conditions.

The satellite industry today is investing continuously to ensure it can address the challenges of the future and to make its technologies available to every American. Satellite companies are working to optimize the use of spectrum, by investing in high-throughput satellites and flexible, software defined payloads that allow for instantaneous reallocation of spectrum resources and the mitigation of harmful interference. Costs are dropping for both space and ground systems through the use of modular satellites, digital engineering, intersatellite links, flat panel antennas and cloud-integrated ground stations, which minimize the need for expensive ground architecture. Satellite system operators are continuing to invest in network cybersecurity, including using AI for vulnerability testing. Launch costs have also declined dramatically, providing opportunities for rapid replenishment of satellite constellations.

The U.S. space and satellite industry is continuously gaining momentum, with employment growing to 373,000 jobs in 2023³ and producing an estimated revenue of \$118 billion in 2024.⁴ However, this figure does not reflect revenues generated from businesses which rely on satellite services behind the scenes. Satellites remain a pillar of U.S. infrastructure, enabling the American economy in ways consumers might not be aware, such as supporting smartphone app transactions, to use just one example.

While the U.S. has long led the space sector, China is closing the gap, with similar investments in space technologies that will challenge our national security community while also undermining democracy around the globe. China's GPS rival Beidou provides free military-grade service to some of its allies. Chinese companies, with state support, have deployed remote sensing satellites that match or surpass American satellites in technical capability.⁵ Chinese enterprises have planned multiple LEO broadband constellations of thousands of satellites, of which over seventy have already launched. As these services are offered below market rate or free of charge globally, these capabilities will come with backdoor security risks for China to exploit (as exist today with Huawei). It is critical for Congress to support continued domestic innovation and avoid regulations that put U.S. providers on an unequal playing field internationally.

³ Patrick Georgi and Chris Surfleed, *New and Revised Statistics for the U.S. Space Economy, 2012–2023* (Suitland, MD: Bureau of Economic Analysis, 2025), <https://apps.bea.gov/scb/issues/2025/03-march/0325-space-economy.htm>.

⁴ Satellite Industry Association and BryceTech, internal research, April 10, 2025.

⁵ Kari A. Bingen, David Gauthier, and Madeleine Chang. *Gold Rush: The 2024 Commercial Remote Sensing Global Rankings* (Washington, DC: Center for Strategic and International Studies, 2024), <https://www.csis.org/analysis/gold-rush-2024-commercial-remote-sensing-global-rankings>

Our members are dedicated to advancing national interests, ensuring the competitiveness of satellite companies in the U.S. and globally, and driving progress for the benefit of all Americans. In furtherance of these goals, we have five priorities:

1. Promote American space innovation through streamlined regulations without unnecessary red tape and bureaucracy. Congress and the Administration should embrace policies in regulatory areas such as licensing and export controls that allow the market and consumers, not government regulators and policymakers, to choose “winners” and “losers.”
2. Lead standards development internationally. In particular, strong U.S. leadership at the International Telecommunication Union (ITU) on spectrum matters has been critical to enabling US industry innovation and advancement. Without sustained investment and leadership by the United States in the ITU, others – particularly China – will fill the void, threatening U.S. national and economic security interests.
3. Enact effective space debris policies and rigorously advocate for adoption of similar policies in other countries and in international fora. That would include encouraging responsible behavior by China, which (contrary to industry norms) has been leaving the upper stages of rocket launchers in low Earth orbit. An appropriate pro-investment, stable and transparent regulatory environment for the commercial space industry, among other things, means ensuring that federal policies regarding orbital debris mitigation and remediation enable the U.S. to lead the international



- commercial space industry, protect those operating in space from collisions and debris, and do not have unintended consequences.
4. Streamline space system procurement for greater efficiency in government acquisition. The U.S. government should continue its focus on investing in and procuring cutting-edge satellite capabilities from the commercial space sector, including hardware as well as remote sensing data and analytics, broadband, and other services.
 5. Spur development and investment through access to sufficient spectrum resources. The U.S. should ensure sufficient spectrum allocations are available domestically and internationally to support innovative and rapidly growing commercial satellite operations.

I appreciate the opportunity to appear before you today on behalf of the satellite industry and I am happy to answer any questions.