

**Written Statement of**

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**Hearing on  
“Space and US National Power”**

**Before the  
Committee on Armed Services  
Subcommittee on Strategic Forces  
United States House of Representatives**

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10:00am**

## Opening

Chairman Everett, Ranking Member Reyes, members of the Committee, on behalf of the Satellite Industry Association (SIA)<sup>1</sup> I would like to thank you for holding this hearing today on Space and US National Power. It is my goal today to provide you with a brief overview of the critical role satellites play in our every day life; highlight the role of satellites in our national and global economy, and discuss briefly the role they play in support of our military and first responders.

The SIA is a U.S.-based trade association which represents the leading satellite operators, service providers, manufacturers, launch services providers, and ground equipment suppliers throughout the world. SIA represents the unified voice of the U.S. satellite industry on policy, regulatory, and legislative issues affecting the satellite business. SIA plays a leadership role in the ongoing dialogue between industry and the Defense Department on satellite security and reliability issues.

Whether broadcasting the FIFA World Cup to fans throughout the world; providing operability to first responders in the Gulf region when all other terrestrial-based communications were unavailable, or enabling the US military to conduct large and small-scale operations across large distances, satellites are there.

Today, the commercial satellite industry offers a wide variety of services and applications to its customers, which among others include: broadcast and cable telecommunications companies, television networks, financial institutions, major retailers, utilities, emergency personnel, first responders, schools, hospitals, Internet service providers (ISPs), consumers, and Federal, state, and local government agencies.

Some of the basic uses of satellite communications are as follows:

- *Voice*: consists of fixed and mobile satellite phones and trunking for telephone service providers;
- *Data*: consists of mobile services such as messaging, paging, and cargo tracking, and fixed high-speed broadband applications such as high-speed Internet access, distance learning, video teleconferencing, government and corporate data networks;
- *Video*: consists of broadcast of television programming (including news and weather) to subscribers, as well as distribution of video content to cable service providers and network affiliates; and,

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<sup>1</sup> SIA Executive Members include: Artel Inc.; The Boeing Company; The DirecTV Group; Globalstar LLC; Hughes Network Systems LLC.; ICO Global Communications; Integral Systems, Inc.; Intelsat, Ltd.; Iridium Satellite LLC; Lockheed Martin Corp.; Loral Space & Communications Ltd.; Mobile Satellite Ventures LP; Northrop Grumman Corporation; PanAmSat Corporation; SES Americom, Inc.; and TerreStar Networks Inc.; and Associate Members; ATK Inc.; EMC Inc.; Eutelsat Inc.; Inmarsat Ltd.; IOT Systems; Marshall Communications Corp.; New Skies Satellites Inc.; Spacecom Corp.; Stratos Global Corp.

- *Radio*: consists of broadcast of radio programming to the public, and distribution of programming to network affiliates as well as satellite radio direct to consumers.

### **Critical to Economy**

Today, satellites permeate our every day lives and contribute over \$90 billion to the global economy. Satellites provide direct to home television and digital audio radio services to over 30 million satellite radio and direct-to-home television subscribers throughout the United States.

Today, commercial satellites support daily activities such as truck fleet management, credit card validations, pay-at-the-pump services, ATM withdrawals, high-speed Internet, traffic and weather reports, and almost all television and radio distribution.

In addition, satellites systems are often exploited for their unique ability to easily access remote locations. These advantages make satellite technology not only a routine element of normal operations, but also an essential component of the overall nationwide and global communications architecture for businesses and governments alike.

In rural areas where terrestrial based communications solutions do not reach all residents -- satellite broadband, satellite television, satellite radio, and a host of other satellite services provide consumers and businesses with a wealth of voice, video, and data services and applications they otherwise would not have access to from terrestrial providers.

Furthermore, in areas where terrestrial services are available, satellite services give consumers all the benefits of competition, including greater diversity of service offerings, incentives for improving service quality, and downward pressure on pricing.

Satellites can also interconnect terrestrial networks in the event that those networks become unavailable or congested, allowing traffic to be re-routed and thereby increasing overall end-to-end communication availability. Satellite systems are flexible and they can quickly and cost-effectively provide surge capacity on demand to our businesses and consumers. Further, innovative integrated satellite-terrestrial systems are planned to be deployed, which will provide fully interoperable, reliable communications services to all Americans.

### **Critical to Homeland Security**

The national and homeland security communities also rely on commercial satellites for critical activities, such as direct or backup communications, emergency response services, continuity of operations (COOP) and continuity of government during emergencies, military support, and intelligence gathering.

Incorporating satellite technology into overall information network architectures for primary or backup communications provides for transmission media diversity, system redundancy, and increased communications resiliency.

Here are a few examples of US Government agencies using commercial satellite communications for either their primary or their backup communications solution.

- *Federal Emergency Management Agency (FEMA)* relies heavily on Fixed Satellite Services (FSS) and Mobile Satellite Services (MSS) for daily use and during emergencies.
- *The Department of State (DOS)* relies heavily on commercial satellites to transmit voice, data, and video communications.
- *White House Communications Agency (WHCA)* uses commercial SATCOM systems extensively to support the President and Vice President.
- *Transportation Security Administration (TSA)* and their Federal Air Marshals use satellite communications while in-flight to communicate with staff on the ground.<sup>2</sup>
- *United States Coast Guard (USCG)* uses commercial SATCOM for ship-to-ship and ship-to-shore communications and for container security and tracking.
- *Nuclear Regulatory Commission (NRC)* uses SATCOM for monitoring of the status of the nuclear assets and voice communications for field personnel.
- *The Department of Health and Human Service (HHS)* is a heavy user of fixed and mobile satellite services. Specifically, the HHS command center uses satellites to back up its data networks.
- *The Federal Bureau of Investigation (FBI)* maintains satellite phones in every field office;

And there are many, many more examples.

As we all know, satellite communications have also played a critical role during the response to each of the natural and man-made disasters in recent years.

Following the terrorist attacks of September 11<sup>th</sup>, 2001, when New York City's terrestrial communications networks were damaged and overloaded, satellite communications services easily maintained connectivity and satellite equipment was quickly deployed to meet urgent needs.

In 2005, satellite communications provided a lifeline for aid workers and victims in the remote islands of the Indian Ocean following the Asian Tsunami and in the earthquake-desolated towns and villages of Pakistan. And most recently during last year's hurricane season, satellite communications once again proved their essential value when all other forms of communication were wiped out in the nation's Gulf region following the devastation caused by Hurricanes Katrina, Rita and Wilma.

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<sup>2</sup> NSTAC Satellite Task Force Report, March 2004

In many of the affected areas, satellites provided the ONLY source of communications in the hours, days, and weeks following hurricanes Katrina and Rita.

Organizations using satellite communications ranged from first responders at the federal, state and local government agencies to individuals, schools, churches and local relief groups. Small businesses such as retail gas stations and convenience stores, and larger businesses such as insurance companies, financial institutions, and news teams also used satellites to communicate when all other means of communications failed.

### **Critical to National Security**

Military forces are perhaps the most dependent upon space-based communications systems to access essential information services to support land, sea, air, and space operations. The DoD currently uses military satellite communications (MILSATCOM) and commercial satellite communications to meet its global deployed telecommunications requirements.

During his tenure, Secretary of Defense Donald Rumsfeld has focused in particular on the role of space assets in his vision for military transformation and the DoD is currently developing an array of new MILSATCOM satellites to fulfill this vision. These new systems include the Wideband Gapfiller Satellites (WGS), the Advanced Extremely High Frequency Satellites, the Transformational Communications Satellite (TSAT), and the Mobile User Objective System (MUOS).

But even as these new military communication satellites are deployed, the U.S. military's need for satellite bandwidth will only continue to expand as new weapons systems are fielded and new bandwidth intensive applications are created.

Unmanned Aerial Vehicles (UAVs), such as the Predator and Global Hawk, are heavy users of commercial satellite bandwidth. Other bandwidth-intensive activities, such as secure video teleconferencing and encrypted command and control operations, will add to the overall increase in bandwidth demand.

The Army's Blue Force Tracking program uses low-cost satellite links to provide battlefield situational awareness directly to soldiers and commanders, improving the effectiveness of distributed teams and greatly reducing the potential for friendly-fire incidents. The Armed Forces Radio and Television Service provides news and morale programming to our troops around the globe via satellite. Telemedicine puts the resources of world-class trauma specialists and surgeons at the disposal of medical teams battling minutes to save lives in the field.

As a result, the DoD has steadily increased its use of commercial satellite bandwidth and services to support a multitude of military operations. DoD estimates that commercial satellite systems provided over 80 percent of the satellite bandwidth supporting the Operation Iraqi Freedom. This is a significant increase from the 20 percent used in Operation Desert Storm.

To provide you with a brief example of the DoD need for satellite communications bandwidth, in 2005 alone, the DoD spent over \$650 million on commercial satellite communications equipment and capacity and is projected to spend over a one billion dollars a year by 2010 on its expanding commercial satellite communications requirements.

## **Vulnerabilities**

Given this reliance on commercial satellite communications, during the last 5 years the satellite industry has spent thousands of hours and millions of dollars working with the federal government to ensure the security and reliability of commercial satellite infrastructure. Although there have been many formal and informal interactions, the primary forums for discussion have been;

- 2004 Satellite Task Force Report,
- DoD-Industry Mission Assurance Working Group (MAWG),
- FCC Network Reliability and Interoperability Council (NRIC), and,
- FCC Media Security and Reliability Council (MSRC).

### 2004 Satellite Task Force Report

In January 2003, the National Security Space Architect requested that the President's National Security Telecommunications Advisory Committee (NSTAC) initiate a study of infrastructure protection measures for commercial satellite communication systems.

The NSTAC established the Satellite Task Force (STF) to review and assess policies, practices, and procedures for the application of infrastructure protection measures to commercial satellite networks used for national security and emergency preparedness (NS/EP) communications.

Specifically, the STF was established to;

1. Review applicable documentation addressing vulnerabilities in the commercial satellite infrastructure,
2. Identify potential policy changes that would bring the infrastructure into conformance with a standard for mitigating those vulnerabilities,
3. Coordinate this response with representatives from the National Communications System (NCS) and others, and
4. Draft a task force report with findings and recommendations.<sup>3</sup>

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<sup>3</sup> NSTAC Satellite Task Force Report, March 2004

In the NSTAC satellite infrastructure vulnerability analysis, the task force found that just as with other telecommunications services, commercial satellite systems are susceptible to intentional and unintentional threats to varying degrees.

Intentional threats include jamming to the uplink and downlink communications signals. An example of uplink jamming occurred in the summer of 2003, when a signal emanating from Cuba jammed a U.S. satellite transmission to Iran on a commercial communications satellite.

Satellites are also vulnerable to phenomena in space. For example, satellites are susceptible to solar flares, solar mass ejections, and physical collision with space debris.

However, the Satellite Task Force Report and the DoD have found that the satellite industry is taking the steps necessary to mitigate these potential vulnerabilities.

While the satellite industry has already taken steps to ensure that the security of its infrastructure adequately protects its customers, the U.S. Government must also work with our industry to ensure their protection requirements are met.

#### Mission Assurance Working Group (MAWG)

For the last three years, satellite operator CEOs have been meeting, on an annual basis, with the Undersecretary of the Air Force and his staff to discuss issues concerning the DoD's use of commercial satellite communications. These activities are coordinated through a Mission Assurance Working Group by the National Security Space Office, US Strategic Command, and the Office of the Secretary of Defense for Networks and Information Integration.

Ongoing activities within the Mission Assurance Working Group include:

- Information Sharing and Analysis
- Jamming/Purposeful Interference
- Development of a common operating procedure with commercial satellite operators with respect to in-orbit "close approach"
- Integration of commercial industry into DoD training and exercises.

The DoD has asked industry to modify its facilities, operations, and hardware, both space- and ground-based, to achieve greater overall security. In response, the satellite operators have stressed the importance of working together to build the "business case for protection."

Industry is willing to comply with these new requirements and in return expects the DoD to adopt commercial best practices such as long term leasing and incorporating commercial satellites into their long term planning and Transformational Communications Architecture or TCA.

Furthermore, as commercial operators and the financial markets gain confidence in the military's long-term commitment to the commercial marketplace, new, military-unique investments to enhance security and performance technologies will be possible.

#### Network Reliability and Interoperability Council (NRIC)

The purpose of the NRIC is to provide recommendations to the FCC and to the communications industry with the goal of assuring optimal reliability and interoperability of wireless, wireline, satellite, cable, and public data networks.

The NRIC makes recommendations that;

- Ensure the security and sustainability of communications networks throughout the United States;
- Ensure the availability of adequate communications capacity during events or periods of exceptional stress due to natural disaster, terrorist attacks or similar occurrences; and,
- Facilitate the rapid restoration of telecommunications services in the event of widespread or major disruptions in the provision of communications services.

#### Media Security and Reliability Council (MSRC)

The MSRC was established to prepare a comprehensive national strategy for securing and sustaining Broadcast and Multi-channel Video and Program Distribution (MVPD) facilities throughout the United States during terrorist attacks, natural disasters and all other threats or attacks nationwide. The Council is responsible for developing strategies that ensure the operation of broadcast and MVPD facilities before, during and after a major event. These recommendations are designed to assure optimal reliability, robustness and security of broadcast and MVPD facilities throughout the United States.

### **Closing -- Satellites Are Part of the Solution**

Commercial satellites systems play a critical role in the economy, national security, emergency preparedness, and disaster response capabilities of the United States. As such, the vulnerabilities of the commercial satellite industrial base as well as the commercial satellite industry's infrastructure must be addressed.

To maintain and expand these capabilities, we recommend that the US Government develop national policies which address the following issues:

- Rely, to the maximum extent possible, on commercial satellite systems to meet the unclassified, non-sensitive communications needs of the US Government;



- Maintain robust satellite technology development programs, such as the Transformational Communication Architecture, that maintain US technology leadership;
- Take maximum advantage of the flexibility of current procurements laws which allow multiyear procurement and the aggregation of government demand to build long-term stable relationships with the commercial industry;
- Rationalize current satellite export control laws and their impact on the US economy and national security;
- Maintain a strong national technological leadership through sponsorship of satellite education programs, career opportunities, and the education of key Government personnel responsible of telecommunications planning and budgeting;
- Preserve and protect satellite spectrum from harmful interference;
- Support the development and deployment of innovative satellite technologies and services.

Improving the partnership between the US Government and industry will help to lower costs, guarantee better service, increase security, ensure availability and help to stabilize the commercial marketplace during difficult economic cycles. Such a partnership is in the long-term interests of our military, our first responders, and our citizens.