

**Written Testimony of Stephen Spengler
Chief Executive Officer, Intelsat
Before the
United States Senate Committee on Commerce, Science, and Transportation**

**Hearing on
The Commercial Satellite Industry: What's Up and What's on the Horizon
October 25, 2017**

Chairman Thune, Ranking Member Nelson and members of the Committee, thank you for the opportunity to appear before you today. I am Stephen Spengler, Chief Executive Officer of Intelsat and I'm pleased to have this opportunity to speak on behalf of our company, our customers and the many communities around the world that we serve via satellite.

Our Company

Intelsat is the world's leading provider of satellite services. With a fleet of 50 high-speed satellites, and a sophisticated terrestrial infrastructure, we operate the first truly globalized network for video and broadband that covers 99% of the world's populated regions. Our goal is a world with ubiquitous connectivity and no communication boundaries. We have invested more than \$2 billion in high-speed satellite technology to make more efficient use of spectrum, which enables more affordable broadband connections for businesses, machines and people.

Intelsat has the capability to serve citizens and organizations everywhere, from remote, rural regions in the U.S. to the world's mega cities and to emerging regions that have been able to advance education, health services and economic prosperity through increased connectivity.

I have seen first-hand how broadband connectivity and information communications technology can transform and empower communities. Our investments in innovation and new services such as hybrid terrestrial and satellite networks have helped to make this possible. Digital connectivity and inclusiveness is critical to our ability to grow our economy here in the U.S. Satellites play an instrumental role in the infrastructure that enables this connectivity.

We pioneered the satellite communications industry. Intelsat was originally conceived as a multi-country treaty organization at the dawn of the space age. We designed and launched the first commercial communications satellite, Early Bird, in 1965 and "live via satellite" was born. We broadcast the first live international satellite TV production in 1967, which featured the Beatles' first performance of *All You Need Is Love*. We transmitted the pictures of Neil Armstrong's first small steps on the moon. Today, 50 years later, we remain committed to taking the next giant leap for satellite technology – whether that's launching our high-throughput Intelsat Epic^{NG} next generation satellites, preparing for a new era in lower earth orbit satellite constellations or investing in the next generation of smaller, lighter ground antennae that you will soon see appearing on planes, ships and other vehicles.

Intelsat today is a public company listed on the New York Stock Exchange (NYSE: I). We have annual revenue of more than \$2 billion, committed future orders of \$8 billion, and we employ 1,000 employees in the U.S., the majority of whom are based in McLean, VA.

What We Are Doing Today

We are largely a business-to-business company, but Intelsat services enable many aspects of the daily lives of your constituents. Our customers in media, maritime, aviation, enterprise networks, the U.S. military, and emergency services rely on Intelsat to provide broadband, video, secure satellite communications and mobility services.

In media, we distribute video programming for all of the major U.S. broadcasters and programmers including Disney, Fox, Discovery Channel, Turner, HBO and CBS. Hundreds of millions of U.S. citizens experience our services when they watch an HBO movie, the Olympics or the Super Bowl. The cable industry delivers 1,500 channels to 61 million subscribers through 5,000 “headends,” or key points of distribution for cable providers. As a satellite provider, we can deliver HD channels to those 5,000 sites at 99.999 reliability, which ultimately costs the consumer only pennies. No other technology can deliver these economics.

In aviation, WIFI inflight is so important to airline passengers that it’s become more essential than extra legroom. Intelsat has invested in its global fleet to support the global aero and mobility markets. We are a major supplier of broadband connectivity to airlines such as United, Southwest and Delta through infrastructure providers. We have made great strides to support these providers as they develop new services for domestic as well as international air routes. Intelsat also provides aeronautical broadband connections for senior government leadership.

At sea, demand for bandwidth has grown exponentially. Just a few years ago, a cruise-going family might have brought a single laptop and a cell phone aboard ship. Today, cruise companies find that the average family boards a ship with 10 connected devices. And they expect the same performance at sea that they have at home in the U.S. The demand for connectivity aboard a ship is a solution that only satellite can satisfy and Intelsat serves major cruise lines.

Intelsat provides critical network connectivity for many businesses overseas and even here in the U.S., complementing terrestrial networks. Our corporate data network helps the oil and gas industry to operate efficiently in remote geographies and ocean environments. They require satellite services to connect to their rigs, providing not only operational connectivity, but also broadband services that allow the crews to communicate with family members while on location. Whether it is transmitting data from seismic exploration ships, supporting mission-critical drilling operations or employee communications, satellite services are critical to the production of oil and energy in the U.S. and beyond. Retailers use satellite to create customized broadcast networks to educate their employees and for transaction-based services, such as pharmacy and credit card applications.

In rural communities across America, satellite bridges the last mile where cell towers and fiber don’t reach. For example, in rural Alaska, through a partner, we provide connections to enable telemedicine for residents, distance education for K-12 classrooms and virtual field trips for students to places like the Baseball Hall of Fame, zoos and aquariums located in the lower 48.

We are also very proud to partner with the U.S. military to bring the nation’s soldiers, sailors, airmen and marines the critical communications capabilities they need to successfully carry out their mission around the globe and here at home, both in the sky and on the ground. Whether it’s manned or unmanned aerial vehicles, communications on the move, or social and recreational welfare, Intelsat satellites carry the signal for our military and our troops.

Satellite solutions, which offer sustainable connectivity, are unique in their ability to provide near-instant communications networks in areas where disasters have crippled terrestrial infrastructure. When fiber is cut, cell towers washed away, the electricity is out, and other means of communication are down, satellites remain in place in outer space. We provided disaster recovery and emergency services to locations such as Puerto Rico and the U.S. Virgin Islands after the devastating impact of Hurricanes Harvey, Irma and Maria. Intelsat provides the communications that are vital in enabling medical services and simply connecting people to loved ones concerned for their welfare.

This week we announced that in Puerto Rico, Intelsat is working with U.S. antenna manufacturer Kymeta to deliver mobile communications to Liberty Global. Three vehicles, dubbed Liberty 1, 2 and 3 are travelling throughout Puerto Rico for the remainder of the year to deliver necessities and Internet connectivity to residents. Working with Kymeta's roof-mounted, electronically steered flat panel antennas which are installed on the vehicles, this combination delivers high-speed, reliable Internet connectivity to residents, helping the islands and their residents return to normal, day-to-day activities.

What's On the Horizon

The satellite industry is at an exciting inflection point. Given the insatiable demand for affordable connectivity, everywhere, and at all times, satellite is converging with other telecommunications technologies to build one common telecommunications infrastructure. The demand is ubiquitous and satellite is a part of the solution. To that end, Intelsat has been innovating in the design of our satellites and is advancing new antenna technologies. We understand that connectivity is critical to economic growth in the U.S. and around the world and we have invested in innovation that will ultimately improve the lives of citizens and move our society forward.

Intelsat designed and now has in service a high-performance, next generation satellite platform – Intelsat Epic^{NG}, which offers greater efficiency in the use of spectrum and more powerful and affordable services for customers.

We have all read about the connected car and the autonomous car. Intelsat is leading the way with a satellite solution for the future, where software will be as important to our transportation as the latest design feature. For example, luxury cars currently are designed to include over 100 million lines of code — that's about 14 times more than even a Boeing 787 Dreamliner jet. Auto manufacturers are excited about the potential of being able to monitor vehicles and their systems remotely and provide simultaneous software updates to all the owners of a particular model using the point-to-multipoint broadcast feature of satellite. What a game changer to think that the car you buy today will get better and safer as new software features become available. The elimination of the need to bring cars into the dealership for simple code updates will save money and time for manufacturers and drivers.

Satellite will work seamlessly with terrestrial networks in a connected car environment, with some applications — such as nearby traffic problems — running over the wireless network. Other applications, like software and mapping updates, will be assigned to satellite. Not only is the broadcast feature more efficient, reaching millions of drivers with one signal, it is also more secure.

Whereas every wireless connection represents a cyber threat with respect to a network, satellite networks can operate fully separate from the public network, reducing the cyber entry points dramatically, making automated cars safer for all citizens.

Intelsat has invested in our partner Kymeta which is inventing a new type of satellite antenna designed specifically for the connected car and other mobility applications.

Intelsat has also invested in, and partnered with, OneWeb. OneWeb is a start-up low-earth orbit (LEO) satellite company and you will hear from its founder and Executive Chairman, Greg Wyler next. Utilizing the power of a combined, multi-orbit Lower Earth/Geostationary solution will also enhance the worldwide connectivity for mobility, wireless extension and military services.

Finally, we all know that with this ubiquitous connectivity demand comes a relentless demand for access to more spectrum. Spectrum is key to all communication services – satellite included. Intelsat has recently taken a leadership role on an initiative that could bring more reliable and faster broadband services to millions more Americans. In response to a recent FCC proceeding, we have proposed a market-based solution that would pave the way for joint use of C-band radio spectrum. This spectrum is highly prized for both satellite television distribution and 5G wireless services.

Sharing C-band spectrum under traditional circumstances can create significant reliability issues and interference, putting viewing audiences and other users at risk. U.S. media companies depend on C-band for program distribution, whose characteristics allow transmissions of pristine quality. But we recognize that 5G is the next generation of mobile technology and satellite will play an important role in extending 5G services rural and remote communities.

Our creative proposal, developed with Intel, provides a framework for managed, joint-use of the C-band spectrum in the U.S. market that may enable wireless and other service providers to accelerate their deployment of 5G. Unless the joint-use of spectrum is managed in a way that respects the needs of all users, companies that have invested billions of dollars in infrastructure will be at risk. Whether they're watching Monday Night Football or a Nickelodeon cartoon, American television viewers expect – and deserve – high quality images and 100% uptime. Our proposed plan offers a win for everyone. We believe it's time for the satellite operators and others industry participants to embrace this opportunity to create more economic opportunity for themselves, American business and U.S. citizens.

We are now in a productive dialogue with a number of stakeholders to turn this proposal into a reality. We are grateful to the FCC for its openness in considering market-based solutions that will result in the highest and best use of spectrum and accelerate innovation in this country.

Conclusion

We appreciate the Committee's interest in learning more about our evolving industry and the impact the industry has on various customers. At a time where access to secure and reliable communications impacts everything from the economy to national security, Intelsat is pleased to be playing a major role in innovating our nation's infrastructure. Intelsat is dedicated to envisioning the future and enabling connectivity everywhere and anywhere on the planet.