

**Statement of
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**Before the Armed Services Subcommittee on Strategic Forces
U.S. House of Representatives**

“Sustaining GPS for National Security”

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Good morning Chairman Turner, Ranking Member Sanchez, and Members of the Strategic Forces Subcommittee. My name is Julius Knapp and I am Chief of the Federal Communications Commission’s Office of Engineering and Technology (OET), where I have served as an engineer for 37 years. OET is the Commission’s primary resource for engineering expertise and provides technical support to the Chairman, Commissioners, and the FCC’s Bureaus and Offices. I appreciate this opportunity to testify on behalf of the Commission concerning the process for working with other agencies to resolve spectrum interference issues.

Members of this Subcommittee have expressed concern regarding the potential effect that LightSquared’s planned satellite and terrestrial wireless broadband network could have on GPS operations, particularly those operated by the Department of Defense. I want to make absolutely clear that the Commission will not authorize LightSquared to begin commercial service if its operation would cause harmful interference to GPS. The Commission and its staff would never take – and have never taken – an action that would threaten the safety or security of America’s citizens. Chairman Genachowski has

repeatedly stated that the Commission will enforce the January 26, 2011 *Order's* conditions requiring the resolution of harmful interference issues.

Also, earlier this week, the Commission's International Bureau and Office of Engineering and Technology released a *Public Notice*, which reflects the Commission's determination, in consultation with the National Telecommunications and Information Administration (NTIA), that additional targeted testing is needed to ensure that any potential commercial terrestrial services offered by LightSquared do not cause harmful interference to GPS operations. The *Public Notice* specifically correlates to guidance from the NTIA under our interagency Memorandum of Understanding (MOU) on spectrum coordination activities. The *Public Notice* strongly encourages all parties to work in good faith towards a solution that serves our dual goals of facilitating introduction of wireless broadband services while protecting GPS against harmful interference. The limitations of the Commission's January 26, 2011 *Order* modifying LightSquared's authorization also remain in effect: LightSquared will not be permitted to commence commercial operation if it would result in harmful interference to GPS systems, including Department of Defense systems. I have attached this *Public Notice* and the underlying correspondence from NTIA Administrator Larry Strickling to this testimony, and I formally request that you accept it for the record in this hearing.

Spectrum Management Responsibilities

The FCC has managed America's commercial spectrum since 1934, although our predecessor agencies have operated since 1912. We have nearly 100 years of

accumulated experience in governing the airwaves and ensuring that the cacophony of voices using our nation's valuable spectrum do not cause harmful interference to one another. This work is a central, core mission of the FCC.

As you are aware, the FCC and the NTIA share responsibility for managing the radio spectrum. While the FCC is responsible for use of the spectrum by the commercial sector, as well as state and local governments, the NTIA is responsible for use by the federal government, including DOD. These shared responsibilities require that the FCC and the NTIA coordinate on matters such as the allocation of the radio spectrum for use by various services and preventing and resolving harmful interference. The FCC and the NTIA coordinate activities on spectrum matters of mutual interest under a long-standing MOU.

This coordination occurs in multiple ways and at multiple levels of management. For example, the Chairman of the FCC and the Assistant Secretary for Communications and Information at the Department of Commerce coordinate high-level objectives and conduct spectrum planning. My staff works closely with Karl Nebbia, Chief of the NTIA's Office of Spectrum Management, and his staff, to work through challenging issues concerning the interaction between federal and commercial spectrum. The FCC also participates with NTIA's Interdepartmental Radio Advisory Committee, or IRAC, which includes representatives from the various federal agencies and departments, including DOD. FCC decisions that have implications for federal users of the spectrum are coordinated with the NTIA and the IRAC before the Commission adopts a final order.

The Commission's delegated authority rules permit its staff to handle a wide range of complex spectrum issues. My office in particular must review numerous engineering and interference issues on a routine basis, and we provide essential information to other bureaus as well as the Commissioners concerning potential interference issues. It is standard operating procedure for the Commission's bureaus to review matters under delegated authority and release orders after a 48 hour review period by the Commissioners. The LightSquared matter was decided in the same way as numerous other conditional waivers.

LightSquared Conditional Waiver

Some historical background is important to understanding the current procedural situation involving the LightSquared matter. Spectrum is allocated to Mobile Satellite Services (MSS) in nationwide geographies across three sets of frequency bands. They are designed to provide ubiquitous coverage throughout the United States. As a result, they offer the potential to provide service in rural areas and remote parts of the country that are not served, and may never be served, by terrestrial wireless systems. In 2001, MSS licensees Mobile Satellite Ventures LLC and Ico Global Communications (Holdings) Ltd petitioned the Commission to permit an ancillary terrestrial component that would be integrated with their satellite service to provide broadband coverage by terrestrial base stations in locations where reliable satellite service was challenging, particularly in urban areas. In 2003, the Commission adopted rules permitting MSS licensees to offer ancillary terrestrial service. The rules required licensees to offer an

integrated satellite and terrestrial service. The rules were subsequently modified and reaffirmed in 2005.

In 2009 Skyterra, the successor to MSV, filed a petition to transfer control to Harbinger Capital Partners. As part of that petition, Skyterra sought to modify certain technical conditions of its license. The U.S. GPS Industry Council (GPSIC) raised concerns about the potential for undesired signals from LightSquared's system falling into the GPS frequency band. Skyterra and the GPSIC ultimately resolved these concerns and filed a joint letter stating that the issue had been resolved. In March 2010, the Commission issued an *Order* approving the transfer of control from Skyterra to Harbinger (now LightSquared). The *Order* explained that Harbinger planned to construct a hybrid satellite terrestrial network and noted that the terrestrial component of the network would cover 90 percent of the United States. A second March 2010 *Order* modified the technical standards, including granting Harbinger's request to increase the power level of the planned terrestrial base stations consistent with the Skyterra-GPSIC filing.

In November 2010, LightSquared filed a petition, and the Commission on January 26, 2011 granted a conditional waiver of the integrated service rule. Under this conditional waiver, customers of LightSquared's wholesale MSS/ATC service could themselves offer stand-alone terrestrial service at retail provided that LightSquared itself offers only a fully integrated terrestrial/satellite service. The January 26, 2011 conditional waiver did absolutely nothing to change LightSquared's authority to operate

within its authorized L-Band spectrum, the configuration of its network – such as the number of base stations it operates – or its power levels. In particular, the conditional waiver did not convert this spectrum from a satellite service to a terrestrial service. LightSquared continues to have a strict obligation to provide robust satellite service that is integrated with any terrestrial service offering, consistent with the launch of its new satellite in November 2010.

After LightSquared submitted its request, for the first time, the GPS industry, the NTIA and other federal agencies raised strong concerns that LightSquared's base stations operating adjacent to the GPS band would cause overload interference to GPS receivers. Accordingly, the conditional waiver stipulated that LightSquared could not provide commercial service until the Commission is satisfied that the potential GPS harmful interference concerns have been resolved. The conditional waiver also directed LightSquared to organize and participate in a GPS interference technical working group in which interested parties could work directly with LightSquared to resolve potential GPS harmful interference concerns. .

As a result of the FCC's conditions protecting against harmful interference to GPS, on June 30, 2011, LightSquared filed the final report of the Technical Working Group – which it jointly chaired along with the GPSIC. Based on the results of the working group's testing, LightSquared submitted its recommendations to address the interference problems. LightSquared, recognizing that the upper 10 MHz band significantly interfered with GPS receivers, proposed to operate only on the lower 10

MHz of its spectrum and to coordinate and share the cost of underwriting a workable solution for legacy precision measurement devices that may be at risk. Following the Commission's standard, transparent process, the report – like prior interim reports – was available to the public and the Commission sought comment on LightSquared's modified proposal and the test results, or any alternative proposals to enable these two important services – GPS devices and L-band mobile broadband – to co-exist. The comment period closed on August 15, 2011 and the FCC received over 3,000 comments. The September 13th *Public Notice* requires additional testing to assess the potential for interference to GPS under LightSquared's current technical proposals.

Conclusion

It's important to consider the LightSquared matter in the context of the need to develop additional spectrum resources. The telecommunications and IT sectors represent 9.8 percent of the American economy. In 2010, the U.S. tech sector grew at a pace that was about twice as fast as the U.S. economy overall. The Internet ecosystem alone employs more than three million U.S. workers and sustains more than 20,000 American businesses. As a result of the rapid evolution of technology, we are entering a spectrum crunch. Spectrum is the invisible infrastructure that sustains the wireless ecosystem, and this essential, but finite, national resource is becoming scarcer and more valuable to both commercial and governmental entities. Wherever possible, consistent with other national priorities, we cannot allow spectrum to lie fallow or be put to anything other than its best possible use.

Multiple experts predict that demand for wireless spectrum will increase more than 35 times in the next few years. There are 300 million mobile subscribers in the United States and 90 percent of us keep our mobile device within arms length 24 hours a day. Just this year, Smartphones eclipsed PC sales. A typical smartphone places 24 times as much demand on spectrum as an old feature phone. Tablets, which were introduced about 18 months ago, demand 120 times as much capacity. President Obama's June 2010 Executive Memo directed the Secretary of Commerce, working through the National Telecommunications and Information Administration (NTIA) to collaborate with the FCC to develop a plan to make available 500 megahertz of spectrum over the next 10 years for wireless broadband use.

We remain focused on ensuring that the Commission enables businesses and users to take full advantage of the incredible economic opportunities that underutilized spectrum present. This includes the opportunity presented by LightSquared, which if successfully realized, would result in billions of dollars of new private investment, increased competition, and the creation of thousands of jobs.

At the same time, the Commission will ensure that entities such as LightSquared do not cause harmful interference to GPS systems. We will continue to work closely with the NTIA, DOD and other federal agencies to assess LightSquared's proposal and determine the viability of technical solutions that would enable both services to co-exist. We will certainly keep this committee informed of our progress.

I look forward to answering your questions.