

Written Statement of

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**Before the House Subcommittee on Communications, Technology and the Internet
Committee on Energy and Commerce
United States House of Representatives**

**Hearing on
“A National Interoperable Broadband Network For
Public Safety: Recent Developments”**

September 24, 2009

I. Introduction

Chairman Boucher, Ranking Member Sterns, and distinguished members of the Subcommittee, good morning and thank you for inviting me to discuss the issue of a national interoperable broadband network for public safety. My name is Kostas Liopiros and I am the principal of the Sun Fire Group, an independent technology management consultancy. Prior to establishing Sun Fire, I was with Arthur D. Little, where I managed the firm’s technology and innovation practice. I have also held various positions with federal research centers in the national security and defense areas, as well as in the Office of the Secretary of Defense where I was responsible for communications, command and control policy and requirements. I hold a Ph.D. in Electrical Engineering (Information and Systems Science) from Princeton University.

My testimony today will focus on the ongoing debate about the use of commercial wireless services for public safety and the best uses of the 700 MHz D Block. Sound policy dictates that spectrum should be allocated and assigned in a manner that benefits all Americans. On the basis of my work and research into this issue, it is my conclusion that the approach that best serves consumers and the public safety community would be to auction the D Block solely for commercial use with the proceeds of the auction used to

help fund a nationwide public safety broadband network on the 10 MHz of 700 MHz spectrum that has already been allocated for public safety. This option presents the best opportunity for public safety to develop a state-of the-art interoperable broadband network, while providing sorely needed spectrum for the advanced wireless services that consumers demand.

II. Public safety spectrum requirements

There is a broad consensus that the communication capabilities of America's public safety agencies need to be improved. In general, public safety communications systems are still not fully interoperable, making it difficult for agencies to communicate with one another. Further, public safety systems generally do not provide the wireless broadband capabilities that are increasingly commonplace in the commercial market. Thus, public safety authorities have two main priorities for improving and upgrading their communication systems: interoperability and broadband capability. To that end, the federal government has allocated a great deal of spectrum to improve public safety communications.

The federal government has allocated nearly 100 MHz of spectrum - 99.7 MHz to be precise - in multiple bands, for public safety use. This includes 24 MHz of prime spectrum in the 700 MHz band, of which 10 MHz has been designated for public safety broadband services. Of the nearly 100 MHz total, less than 17 MHz (between 150 and 869 MHz) is used currently to support the majority of public safety communication systems. The remaining spectrum, allocated to public safety since 1996, is still not widely used.

Lack of spectrum is not the key impediment to improving public safety communications. Congress has granted public safety spectrum "for free" but funds to use the spectrum to construct a nationwide broadband network are still lacking. There is no debate that public safety agencies need funding to build and maintain a public safety broadband

network in the 700 MHz band. Parties to the FCC's D Block proceeding widely acknowledge that the goals of building and maintaining any public safety broadband network will not be realized unless funding can be found to support those efforts. Given the current economic crisis and severe resource constraints that confront most local and state governments, public safety agencies face even more acute funding challenges. Without financial support, a nationwide interoperable broadband public safety network will not be possible.

Identifying a dedicated source of funds to help build and maintain a public safety broadband network would be a major step forward. Congress should strongly consider legislation to enable the FCC to auction the 700 MHz D Block for purely commercial use and direct the proceeds of the auction to the public safety community for the construction and maintenance of a public safety broadband network. Although the proceeds from the auction may not be sufficient to fully fund and maintain a nationwide public safety broadband network, they would provide a substantial and very valuable down payment on the network and make the remaining funding challenges more manageable.

III. The existing 10 MHz allocation is sufficient to support a broadband network

The existing 10 MHz of 700 MHz spectrum that has already been allocated to public safety is sufficient to support an interoperable broadband network, especially if the network takes advantage of new, more efficient commercial technologies. Recent efforts to build out broadband public safety networks demonstrate that an interoperable broadband network can be deployed in a spectrum allocation of 10 MHz or less. Since then, more than ten cities and/or states have sought FCC approval to begin construction of broadband networks on the existing 10 MHz of public safety spectrum in the 700 MHz band using long-term-evolution (LTE) technology. A number of public safety organizations and agencies have endorsed the use of Long Term Evolution (LTE) technologies for constructing public safety broadband networks.

This is an excellent choice since the majority of planned commercial 700 MHz broadband networks will utilize LTE technology or a technology that will evolve to LTE (such as high-speed packet access (HSPA). LTE, as standardized by the 3rd Generation Partnership Project (3GPP), will support multiple and scalable channel bandwidths from 1.4 MHz to 20 MHz. Thus LTE can accommodate the two 5 MHz allocations in the 10 MHz public safety broadband band.

By adopting LTE technologies, public safety can leverage the on-going commercial developments in infrastructure and equipment to reduce network deployment and operation costs. Adopting LTE as the standard for public safety broadband will also facilitate public safety use of commercial spectrum, either to support roaming or future growth in requirements.

IV. Future Developments

Public safety communications was based traditionally on the use of narrowband voice communications. Currently, there are separate spectrum allocations for narrowband voice and broadband data apparently under the assumption that the broadband system will be a data-only network and that a separate legacy voice network remains necessary. Maintaining separate dedicated allocations, however, is inefficient.

LTE will support voice-over-IP (VoIP) communications and options for supporting traditional circuit switched voice and data communications are also under development. Thus, in the future, it is possible that some or all of the 14 MHz of 700 MHz spectrum that is dedicated to narrowband voice communications could be transitioned to provide both interoperable voice and broadband data services. This would provide more efficient support of voice communications, while providing a larger swath of broadband spectrum. Eventually, the entire 24 MHz of the 700 MHz public safety band could be used to provide voice and broadband services to public safety entities throughout the country.

V. The need for commercial spectrum

Unlike public safety, the commercial wireless industry does face a spectrum crunch. Growing demands for new advanced wireless broadband services, including wireless broadband, can be met only if sufficient spectrum is available for wireless carriers to provide these services. The need for commercial spectrum capacity will only continue to grow as new broadband applications are developed and consumers increase their use of wireless broadband services. Thus, it is critical to American consumers that wireless service providers have access to sufficient commercial spectrum to provide competitive wireless broadband services.

Wireless carriers in the U.S. have estimated that the wireless industry will need access to at least an additional 200 MHz of commercial spectrum within five years in order to meet growing consumer demand. That's a five year forecast. The International Telecommunications Union (ITU), in studies preparatory to the 2007 World Radio Conference (WRC-07), has estimated that by the year 2020, about one GHz of *additional* spectrum will be needed globally.

The 700 MHz D Block is paired spectrum (5 MHz x 5 MHz), which is ideal for implementation of next generation (4G) advanced wireless broadband services. Auctioning the 700 MHz D Block for solely commercial purposes would enhance the opportunities for the provision of competitive broadband services by existing carriers as well as by new entrants. Of course, 10 MHz of spectrum will not of itself alleviate the projected "commercial spectrum shortage." Clearly, more needs to be done in terms of identifying and allocating spectrum for future commercial use. But it is a good first step and represents the best alternative use for the spectrum as I have discussed.

VI. Conclusion

Thank you for the opportunity to address the use of commercial wireless services for public safety and the best use of the 700 MHz D Block. In ideal circumstances, unrestricted amounts of spectrum would be available to meet the demands of all

commercial carriers and all public safety agencies. However, that is not the case. Instead, lawmakers must focus on the best solution that considers existing conditions and future opportunities. Auctioning the D Block for solely commercial use would facilitate competition in the wireless marketplace while also providing the public safety community with a much needed infusion of funds to build out a nationwide interoperable broadband network. Mr. Chairman, thank you again for the invitation to testify today. I would welcome any questions the Committee may have.