

**Before the
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554**

In the Matter of	)	
	)	
Public Safety and Homeland Security Bureau	)	PS Docket No. 06-229
Seeks Comment on the Technical and	)	
Operational Feasibility of Enabling Flexible	)	
Use of the 700 MHz Public Safety	)	
Narrowband Allocation and Guard Band for	)	
Broadband Services	)	

To: The Commission

**COMMENTS OF THE
TELECOMMUNICATIONS INDUSTRY ASSOCIATION**

The Telecommunications Industry Association (TIA) hereby submits comments to the Federal Communications Commission (Commission) in the above-captioned proceeding.¹ TIA appreciates the efforts the Commission is taking to speed the deployment of an interoperable public safety broadband network and establish sound regulations that meet the present and long-term communications needs of first responders.

¹ Public Safety and Homeland Security Bureau Seeks Comment on the Technical and Operational Feasibility of Enabling Flexible Use of the 700 MHz Public Safety Narrowband Allocation and Guard Band for Broadband Services, *Public Notice*, PS Docket No. 06-229, DA 10-1877, at 2 (rel. Sept. 28, 2010) (Public Notice).

TIA represents the global information and communications technology (ICT) industry through standards development, advocacy, tradeshow, business opportunities, market intelligence and world-wide environmental regulatory analysis. With roots dating back to 1924, TIA enhances the business environment for broadband, mobile wireless, information technology, networks, cable, satellite and unified communications. Members' products and services empower communications in every industry and market, including healthcare, education, security, public safety, transportation, government, the military, the environment and entertainment. TIA is accredited by the American National Standards Institute (ANSI).

SUMMARY

TIA strongly urges the Commission to recognize the immediate and critical role that the 700 MHz narrowband public safety spectrum allocation plays in mission-critical public safety interoperable communications. In many high-population areas of the country, this allocation is already fully utilized by narrowband operations. Further, full use of the 700 MHz narrowband allocation for narrowband communications is and will be critical for the protection of citizens and first responders for at least another decade. While TIA believes that use of narrowband public safety spectrum for broadband may be technically and economically feasible at a future time, current broadband technology does not provide the capability to meet public safety's voice communications requirements.

The Commission should also note the significant interference realities associated with broadband operations in the 700 MHz public safety narrowband allocation. Such operations will create

interference issues that will degrade both broadband and narrowband capabilities, whether broadband is overlaying or adjacent to 700 MHz narrowband operations.

Lastly, allowance for broadband technology in the 700 MHz narrowband allocation will result in considerable financial harm to public safety stakeholders, who will have to take measures to mitigate interference. In addition, public safety entities that have already committed to investments in 700 MHz broadband public safety broadband networks may find their planned uses hindered or derailed. These projects – some ongoing – by 700 MHz public safety broadband network waiver recipients and Broadband Technology Opportunity Program (BTOP) grantees would incur increased cost to proceed as planned. For these reasons, TIA urges the Commission to continue to limit public safety's 700 MHz narrowband spectrum use to narrowband operations.

DISCUSSION

I. THE FULL USE OF THE 700 MHZ PUBLIC SAFETY NARROWBAND ALLOCATION WILL BE IMPERATIVE TO EFFECTIVE PUBLIC SAFETY COMMUNICATIONS FOR THE NEXT 10-15 YEARS.

a. The Immediate Need for Public Safety Voice Communications in the 700 MHz Band.

Public safety experts across the country have made clear that narrowband voice is the most critical service for first responders. The State of Delaware's Department of Safety and Homeland Security has recently noted to the Commission that:

There are no other frequency bands within the land mobile spectrum [other than 700 MHz narrowband allocations] used by public safety for voice operations where such a wide number of nationwide interoperability channel resources are found. These 700 MHz narrowband voice channels are not only unique, they are critical to the country's homeland security program and the National Emergency Communications Plan (NECP).²

Public Safety Spectrum Trust Chairman Harlin McEwen also drives this point home:

Immediate mission critical voice capabilities are clearly the highest priority today for public safety users and are expected to remain so even after data and video applications are added through broadband deployment. Public safety agencies rely on lifeline mission critical wireless voice operations both during emergencies and during seemingly routine events that could turn into a critical emergency at any time.³

APCO agrees, with their narrowband spectrum expert stating that, “[h]istorically, public safety voice communications have been the predominant mission-critical communications ‘need’ and will be for the foreseeable future.”⁴

Moreover, the current needs of public safety entities for mission-critical voice capabilities require full use of the 700 MHz narrowband allocation. The Commission should recognize the opinions of public safety leaders that use of the 700 MHz narrowband allocation will continue to be of vital importance for mission-critical voice systems to public safety communications in the coming years, particularly in urban areas.⁵ In the majority of highly populated areas, the 700 MHz narrowband allocation has already been fully licensed by Regional Planning Committees

² *Ex Parte* Letter from Mark Grubb, Director, Statewide Interoperability Coordinator, Delaware Department of Safety and Homeland Security to Marlene Dortch, Secretary, Federal Communications Commission, PS Docket No. 06-229, WT Docket Nos. 96-86, 06-150 at 9 (Jul. 15, 2010).

³ See Letter dated October 1, 2009 from Chief Harlin R. McEwen, Chairman of the PSST Corporation to Jennifer A. Manner, Deputy Chief of the FCC Public Safety and Homeland Security Bureau, GN Docket No. 09-51 PS Docket No. 06-229, WT Docket Nos. 06-150 and 96-86 at 1 (PSST Letter).

⁴ Christine Phelps, *Understanding the Basics: What Telecommunicators Should Know About Spectrum*, Public Safety Communications Magazine, June 2009, at 43.

⁵ See, e.g., Comments of National Public Safety Telecommunications Council, PS Docket No. 06-229 at 5 (filed Oct. 16, 2009) (NPSTC 700 MHz Waiver Comments).

(RPCs) or licenses are pending that will soon result in full capacity use.⁶ The 700 MHz public safety narrowband allocation is especially vital to these entities in cases where the 800 MHz allocation is fully utilized.⁷ The Commission itself has noted that it is aware of the concerns of many public safety entities regarding capacity.⁸ Consistently, municipalities illustrate public safety's need for the 700 MHz allocation:

“...there is not...enough available spectrum in the narrowband 700 MHz.... To construct a system that will meet the needs of the City of Houston first responders, we will be using ALL available 700 MHz frequencies allotted to local government users as well as the vast majority of 700 MHz frequencies allocated to the State of Texas. Without the 700MHz frequency band, the City would not be able to construct a modern, interoperable, public safety radio system.”⁹

In addition, the 700 MHz public safety narrowband allocation allows for increased interoperability for public safety entities, especially since at least 50 new public safety entities have begun using the 700 MHz narrowband allocation since the DTV transition.¹⁰ For example, in some areas, separate allocations for police and fire department uses, when both are below the 700 MHz band, may result in vehicles requiring separate radios. However, the use of the 700 MHz narrowband public safety spectrum by the two departments can result in common use of one interoperable radio that can seamlessly link the two departments. This results in better interoperability and reduced device cost.

⁶ See *Ex parte* Letter from Andrew Seybold to Marlene Dortch, Secretary, Federal Communications Commission, WT Docket No. 06-150, PS Docket No. 06-229, GN Docket Nos. 09-47, 09-51, 09-137, RM Docket No. 11592 at 7 (September 10, 2010) (Seybold *Ex parte*).

⁷ See Comments of NPSTC, PS Docket No. 10-168 (filed Sept. 20, 2010).

⁸ See Public Notice at 2.

⁹ Comments of the City of Houston, PS Docket 06-229, WT Docket 06-150 at 1 (filed July 22, 2010).

¹⁰ See NPSTC 700 MHz Waiver Comments at 7-8.

b. Current Broadband Technologies Do Not Yet Meet the Voice Communication Needs of Public Safety.

TIA's members have long been committed to providing public safety innovative interoperable communications devices that have saved the lives of citizens and first responders. They also support increased availability of spectrum for broadband and the ability for public safety and other entities to serve the public by maximizing the use of broadband devices. TIA believes that, once technically and financially feasible, 4G broadband devices will provide first responders with public safety-grade voice along with data service. At that time, TIA will be eager to work with the Commission on examining how to most efficiently utilize the 700 MHz spectrum allocated to public safety for narrowband services. Unfortunately, that time has not come.

Currently, 4G technologies lack the ability to provide "talkaround" communications or one-to-one voice communications when outside of adequate cell site network coverage.¹¹ This key characteristic, which has been noted by the Public Safety Spectrum Trust as likely being an unfeasible option for broadband public safety users for 10 to 15 years,¹² is a primary benefit to 700 MHz public safety narrowband users that 4G broadband service currently lacks.

Additionally, next-generation standards evolutions are driven by large consumer markets that do not share the unique and vital needs of public safety entities. Thus, near future 4G capabilities will likely not include those necessary for public safety voice communications.

¹¹ *Id.* at 8.

¹² *See* PSST Letter at 4.

II. ALLOWING BROADBAND SERVICE OPERATION IN THE SPECTRUM ALLOCATED FOR PUBLIC SAFETY NARROWBAND OPERATIONS WILL RESULT IN SIGNIFICANT INTERFERENCE.

TIA continues its ongoing support of the Commission's efforts to maximize spectrum usage, and believes that licensees should be protected from harmful interference. Should the Commission allow public safety entities to choose to operate broadband services in the 700 MHz narrowband public safety spectrum, users will face interference within a public safety license area. Further, broadband operations in one 700 MHz narrowband license area will result in interference on its edge and in that of an adjacent public safety licensee that is conducting narrowband operations.

A public safety licensee that implements a broadband overlay in its 700 MHz narrowband spectrum while using its remaining 700 MHz narrowband channels within that same geographic area (i.e., adjacent channels/blocks) will experience interference that will degrade the performance of both the broadband and narrowband operations. First responders will find their narrowband voice and broadband data services considerably degraded as a result of transmitter sideband noise,¹³ intermodulation,¹⁴ and receiver overload.¹⁵

While TIA encourages the ability of public safety to operate networks in the manner most effective to individual entity needs, this level of flexibility cannot drive policies that allow

¹³ Transmitter sideband noise occurs when a signal A is weak at a receiver and signal B's transmitter sideband is as strong as or stronger than signal A.

¹⁴ Intermodulation occurs when two or more different carrier frequencies are mixed internally in a transmitter or receiver or externally. This results in significant harmful energy affecting operators' receivers at a co-site.

¹⁵ A narrowband device operator's receiver is often overloaded when receiving signals from a broadband transmitter.

broadband operations in the 700 MHz public safety narrowband allocation. Such flexibility may benefit one jurisdiction while harming operations of a neighboring jurisdiction. Interference can result in several scenarios when a 700 MHz narrowband public safety spectrum licensee operating narrowband services (narrowband operator) in license areas operates adjacent to a 700 MHz narrowband licensee operating broadband services (broadband operator). As detailed in Appendix I,¹⁶ a broadband operator will experience severe interference in a large service area from an inbound narrowband signal. Further, a narrowband operator adjacent to a broadband operator sending or receiving signals will experience significant interference in a large edge service area. In each circumstance, the signal to noise ratio is too low to prevent interference. To mitigate the interference that will result in each of these scenarios, operators will need separate sites. Without such mitigation, the public safety network standard of 95% coverage at the edge for narrowband and broadband services will be impossible to achieve.

III. ALLOWING BROADBAND SERVICE OPERATION IN THE SPECTRUM ALLOCATED FOR PUBLIC SAFETY NARROWBAND OPERATIONS WILL RESULT IN INCREASED COSTS AND THREATEN INVESTMENTS.

TIA also urges the Commission to consider the financial harm that the allowance of broadband services in the 700 MHz narrowband spectrum will have. In addition to forcing narrowband incumbents to customize equipment currently used in this allocation to minimize signal disruptions, many investments made and well as future commitments tied to 700 MHz public safety broadband network waivers and/or BTOP grants may be impacted.

¹⁶ TIA, *Analysis of Inter-Jurisdictional Interference With Broadband and Narrowband Operations in 700 MHz Narrowband Spectrum* (December 3, 2010), appended to TIA Comments.

Public safety licensees will need to pay for expensive equipment customizations to attempt to mitigate the interference resulting from integration of broadband technology into the 700 MHz public safety narrowband allocation as described above. High equipment adaptation costs to allow for dual use and further costs to protect existing narrowband usage from interference-causing broadband operations would add stress to many public safety entities' already-strained budgets burdened with other significant requirements, such as compliance with the looming January 1, 2013 deadline to migrate use below 512 MHz to 12.5 kHz technology.¹⁷

Allowing for broadband technology in the 700 MHz narrowband allocation may add significant costs to public safety entities that are recipients of 700 MHz public safety broadband network waivers, several of which are BTOP grantees. Many 700 MHz public safety broadband network waiver recipients have and continue to make significant investments in their networks.¹⁸

Allowing for broadband use in the 700 MHz narrowband allocation, which will increase interference and require corrective measures to be taken by waiver holders, will require significant resources that could derail the waiver recipients' plans as well as the Commission's efforts to facilitate an effective 700 MHz public safety broadband network.

Furthermore, numerous BTOP grantees are public safety entities that already operate in the 700 MHz narrowband allocation, and have made large financial commitments to their 700 MHz

¹⁷ Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended, *Third Memorandum Opinion and Order, Third Further Notice of Proposed Rule Making and Order*, WT Docket No. 99-87, 19 FCC Rcd 25045 (2004).

¹⁸ See, e.g., Press Release, Motorola, San Francisco Bay Area Selects Motorola for the Nation's First Public Safety 700 MHz LTE Broadband Network (Jul. 29, 2010), available at <http://mediacenter.motorola.com/content/detail.aspx?ReleaseID=13090&NewsAreaId=2>.

public safety broadband networks that could be disrupted. For example, the City of Los Angeles, which also operates a 700 MHz narrowband network and is a current 700 MHz public safety broadband network waiver recipient,¹⁹ has received a \$154.6 million grant to fund deployment of an interoperable wireless public safety broadband network across Los Angeles County to serve more than 80 public safety agencies and up to 34,000 first responders.²⁰ This project aims to enable computer-aided dispatch, rapid law enforcement queries, real-time video streaming, medical telemetry and patient tracking, and other uses. The possibility of interference between narrowband and broadband use in the 700 MHz narrowband allocation would require significant costs and resources to mitigate, and could threaten critical projects such as these.

¹⁹ Requests for Waiver of Various Petitioners to Allow the Establishment of 700 MHz Interoperable Public Safety Wireless Broadband Networks, *Order*, PS Docket 06-229, 25 FCC Rcd 5145 (2010).

²⁰ BroadbandUSA – NTIA, *Broadband Technology Opportunity Program grant information for the Los Angeles Regional Interoperable Communications System Authority (LA-RICS)* <http://www2.ntia.doc.gov/grantee/los-angeles-regional-interoperable-communications-system-authority-la-rics> (visited November 23, 2010).

CONCLUSION

For the foregoing reasons, TIA urges the Commission to adopt policies consistent with the recommendations above.

Respectfully submitted,

TELECOMMUNICATIONS INDUSTRY ASSOCIATION

By: /s/

Danielle Coffey
Vice President,
Government Affairs

Patrick Sullivan
Director,
Technical and Government Affairs

TELECOMMUNICATIONS INDUSTRY ASSOCIATION
10 G Street N.E.
Suite 550
Washington, D.C. 20002
(202) 346-3240

December 3, 2010