

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C.

In the Matters of

Service Rules for the 698-746, 747-762
and 777-792 MHz Bands

WT Docket No. 06-150

Implementing a Nationwide, Broadband,
Interoperable Public Safety Network in
the 700 MHz Band

PS Docket No. 06-229

**COMMENTS OF TYCO ELECTRONICS ON THE
THIRD FURTHER NOTICE OF PROPOSED RULEMAKING**

Tyco Electronics Wireless Systems (“Tyco Electronics,” formerly known as Tyco Electronics M/A-COM) continues to support the Commission’s efforts to provide fully funded spectrum for public safety communications and opposes proposals to place mandatory fees and cost burdens on public safety agencies.¹ Tyco Electronics cautions the Commission against revising network and performance requirements in a way that would erode the reliability and geographic coverage of a public safety-grade network. Tyco Electronics further cautions the Commission against compromising the viability of public safety narrowband *voice* communications, because such communications remain the lifeblood of public safety agencies nationwide. Tyco Electronics urges the Commission to provide flexibility to public safety regions in implementing any shared wireless broadband networks. Finally, Tyco Electronics

¹ *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands; Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band*, Third Further Notice of Proposed Rulemaking, FCC No. 08-230, WT Docket No. 06-150 and PS Docket No. 06-229 (rel. Sep. 25, 2008) (“*Third FNPRM*”).

suggests that the Commission provide flexibility to public safety users in the choice of equipment and applications that can be run on the proposed Shared Wireless Broadband Network, recognizing that spectrum at 4.9 GHz is also available to public safety users.

Tyco Electronics is a leading technology developer and manufacturer of mission-critical wireless communications for the public safety market.² Tyco Electronics has long been an industry leader in providing advanced two-way land mobile products and systems to the public safety community, including the recent introduction of an Internet Protocol (“IP”)-based 6.25 kHz-equivalent efficient public safety solution, already deployed and in use by first responders today at 700 MHz. Tyco Electronics is a pioneer in the development of IP-based networks for private radio and broadband applications and supplies industry-leading brands such as VIDA Broadband™, EDACS®, OpenSky®, NetworkFirst™, and ProVoice™. Tyco Electronics is an active member of the TR-8 Mobile and Personal Private Radio Committee of the Telecommunications Industry Association.

I. Tyco Electronics Continues to Support the Commission’s Efforts to Provide Fully Funded Spectrum for Public Safety Communications

Tyco Electronics supports the Commission’s goals of providing spectrum for public safety nationwide, interoperable broadband networks, and providing a funded network solution through the re-auction of the D-Block spectrum. Tyco Electronics also encourages the Commission’s search for innovative financial solutions to facilitate a nationwide broadband

² Historically, Tyco Electronics Ltd. has marketed public safety communications systems under the M/A-COM brand. In September 2008, however, the M/A-COM name was sold to Cobham plc in connection with Tyco Electronics Ltd.’s sale of its radiofrequency components and subsystems business, which also used the M/A-COM brand name. *See* Press Release, Tyco Electronics Ltd., Tyco Electronics Completes the Sale of its Radio Frequency Components and Subsystem and Automotive Radar Sensors Businesses (Sept. 29, 2008), <http://newsroom.tycoelectronics.com/index.php?s=43&item=294>. Tyco Electronics Ltd.’s public safety communications systems business is being rebranded as Tyco Electronics Wireless Systems.

network, such as through the development of a D-Block 700 MHz Public/Private Partnership or through legislation to allocate D-Block auction funds for the build out of broadband networks. Notwithstanding difficulties to date with the D-Block auction, Tyco Electronics urges the Commission not to abandon its goal of providing a fully funded spectrum solution for public safety communications.

In this light, Tyco Electronics therefore supports the Commission's tentative conclusion not to require eligible public safety users to subscribe to the Shared Broadband Wireless Network.³ Similarly, Tyco Electronics urges the Commission not to adopt its proposal "that public safety users themselves bear the costs of the bridges and gateways, including installation and maintenance costs," to integrate existing public safety systems with the Shared Wireless Broadband Network.⁴

Public safety communications budgets, already stretched by maintaining and replacing antiquated systems, cannot absorb the additional cost of purchasing bridges and gateways to interconnect with the Shared Wireless Broadband Network. Proposed mandatory user and access fees would add to the burden. Tyco Electronics also urges the Commission to reject tentative proposals to "set a specific service fee" for access to the Shared Wireless Broadband Network or a "standard charge per user" for gateway-based access to the network.⁵ While Tyco Electronics sympathizes with the Commission's desire to cap fees to encourage public safety participation, Tyco Electronics fears that artificially establishing the rate might discourage service and application innovation. By establishing set access fees, the Commission might hinder the more widespread use of the Shared Wireless Broadband Network by cash-strapped

³ See *Third FNPRM* ¶ 10.

⁴ *Id.* ¶ 114.

⁵ *Id.* ¶¶ 114, 392.

public safety agencies. Tyco Electronics believes that the marketplace will better account for regional and usage differences in determining network access rates and will actually increase public safety participation in the network. To stimulate innovative approaches, the Commission should consider open market forces and competitive factors over inflexible government mandates.

II. The Commission Should Ensure that Any Shared Wireless Broadband Network That Uses Spectrum Allocated for Public Safety Use is Truly Public Safety-Grade

The Commission should maintain the public safety-grade capabilities and characteristics of the public safety broadband network for public/private use. The Commission's proposals to ease certain technical and performance requirements would diminish the reliability and geographic coverage below levels required for public safety communications. Thus, while Tyco Electronics supports the Commission's proposals to require 99.6 percent network availability (with a goal of 99.9 percent network availability) and mandatory backup power in "critical" areas,⁶ Tyco Electronics opposes the Commission's tentative conclusion to reduce the population-based performance requirements and to extend the time to reach even those reduced requirements.⁷ The Commission should not permit spectrum allocated for public safety communications by Congress to be used in a manner that would not meet public safety requirements. Public safety broadband networks, like today's mission-critical voice and data networks, must conform to higher standards for resiliency and reliability. It would be contrary to the public interest to create a nationwide public safety broadband network that fails to provide first responders with public safety-grade broadband service during the nation's worst emergencies. A broadband network that is not public safety grade would provide scant

⁶ *Id.* ¶ 117.

⁷ *Id.* ¶ 149.

advantage over currently available commercial wireless broadband networks. Public safety already has access to commercially-provided broadband, and indeed makes use of commercially-provided broadband in certain cases. Only by ensuring public safety's access to a public safety-grade network can the Commission justify using congressionally-allocated 700 MHz public safety spectrum in a shared network. If the D-Block network can not be constructed to performance requirements that are truly public safety-grade, then perhaps the public safety community would be better served by Congress allocating the 700 MHz auction proceeds to fund regional networks on public safety spectrum.⁸

III. The Commission Should Not Compromise the Viability of Public Safety Narrowband Voice Communications

In implementing a shared public safety network, the Commission must support and protect mission-critical voice systems, which provide the majority of public safety communications and are particularly critical during emergencies. The geographic coverage and reliability of today's public safety voice networks are vastly superior to the proposed D-Block network coverage requirements. Accordingly, Tyco Electronics supports the Commission's tentative conclusion to extend the current February 17, 2009 deadline for completing narrowband relocation and the proposal to increase the narrowband relocation cap from \$10 million to \$27 million, but suggests that even this increased amount may be insufficient.⁹

⁸ See, e.g., Deputy Chief Charles F. Dowd, Commanding Officer, NYPD Communications Division, Testimony at the Public Hearing of Public Safety Interoperable Communications - The 700 MHz Band Proceeding (July 30, 2008), <http://www.fcc.gov/realaudio/presentations/2008/073008/dowd.pdf>.

⁹ *Third FNPRM* ¶¶ 436, 445.

IV. The Commission Should Allow Regional Flexibility in Implementing Any Shared Wireless Broadband Network

Tyco Electronics supports the Commission's tentative conclusion that the nationwide public safety network must interoperate with existing public safety networks.¹⁰ Tyco Electronics supports ensuring that the shared network can interoperate with existing systems in VHF, UHF, 700 MHz, and 800 MHz, whether analog or digital, trunked or conventional, by requiring the D-block licensee(s) to publish IP-based specifications to allow access to the shared network via IP-gateways.¹¹ Tyco Electronics likewise supports the Commission's conclusion that the nationwide network, or regional networks, must be IP-based. IP-based gateways can achieve interoperability between existing public safety networks and the Shared Wireless Broadband Network.

Because the network needs of first responders vary with terrain and population density, Tyco Electronics supports the Commission's proposal to auction regional licenses based on the current Regional Planning Committee ("RPC") areas. In the event that a nationwide public safety-grade D-Block network is not viable, Tyco Electronics believes that a regional approach driven by common guidelines and formed around existing RPCs may provide the most flexible solution for public safety.

Tyco Electronics agrees with the Commission that public safety subscribers to the Shared Wireless Broadband Network should have the flexibility to purchase their own subscriber equipment and applications from any vendor they choose, so long as the selected equipment and

¹⁰ As noted in Section I above, the interoperability costs should be not be borne by public safety agencies out of their existing budgets, but should be funded through new broadband access grant programs or provided by the D-Block auction winner(s).

¹¹ See *Third FNPRM* ¶ 114.

applications are IP-based and will permit interoperability with existing public safety systems.¹²

Tyco Electronics also believes that the Public Safety Broadband Licensee (“PSBL”) should establish minimum performance guidelines for equipment and applications that can be used on the Shared Wireless Broadband Network. For instance, Tyco Electronics supports the Commission’s proposal to require the shared network to support a VoIP capability to complement existing voice systems.¹³

However, Tyco Electronics cautions that the Commission’s specific proposal “to retain the rights of the Public Safety Broadband Licensee to determine the public safety equipment and applications that would be used on the network” would be against the interest of public safety users. If the PSBL can dictate equipment and application design, innovation would be thwarted, making it less likely that public safety users would enjoy the same current state-of-the-art technologies and products that their commercial counterparts enjoy.¹⁴ To prevent the PSBL from undertaking an equipment or application certification process to approve individual devices and public safety applications, the Commission should reject this tentative conclusion. Not only is it doubtful that the PSBL will have the resources to engage in timely approval processes on a large scale, but such approval power could lead to wasteful efforts by vendors to “lobby” the PSBL to adopt requirements that only their equipment met. When user flexibility is permitted, innovation has a better chance. Accordingly, to protect the integrity of the Shared Wireless Broadband Network from inappropriate influence, and to encourage innovation, the PSBL should establish performance-based user requirements, but should not dictate specific technology, define permissible applications, or approve specific devices.

¹² *Id.* ¶¶ 106, 310.

¹³ *Id.* ¶ 115.

¹⁴ *Id.* ¶ 310.

V. The Commission Should Consider the Throughput Limitations of the Shared Wireless Broadband Network

The Commission has envisioned the 700 MHz public safety broadband network as a wide-area, mobile broadband data solution.¹⁵ The amount of spectrum available to public safety users (10 MHz absent an emergency)¹⁶ will satisfy many public safety mobile broadband needs. This spectrum may be insufficient, however, to accommodate some of the envisioned uses of the network. For example, as outlined in the SAFECOM Statement of Requirements for Public Safety Wireless Communications and Interoperability, broadband networks are expected to carry surveillance video from fixed surveillance cameras throughout a city to public safety vehicles in the field.¹⁷ Since typical IP surveillance video operates at 500 kbps–1.5 Mbps,¹⁸ the available 5 MHz of public safety uplink spectrum in the 700 MHz band can accommodate only a limited number of cameras per cell before these fixed wireless video applications exhaust the spectrum. The 700 MHz mobile broadband spectrum should be used for the mobile operations—carrying

¹⁵ See *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands; Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band*, Second Further Notice of Proposed Rulemaking, WT Docket No. 06-150 and PS Docket No. 06-229, 23 FCC Rcd 8047, 8070 ¶ 59 (2008) (mandating “[s]pecifications for a broadband technology platform that provides *mobile* voice, video, and data capability that is seamlessly interoperable across agencies, jurisdictions, and geographic areas”) (emphasis added).

¹⁶ *Third FNPRM* ¶¶ 86-87.

¹⁷ See *The SAFECOM Program, Department of Homeland Security, Statement of Requirements for Public Safety Wireless Communications & Interoperability* 48 (Mar. 10, 2004), http://www.safecomprogram.gov/NR/rdonlyres/3FFFBFBA-DC53-440E-B2EF-ABD391F13075/0/SAFECOM_Statement_of_Requirements_v1.pdf (explaining that an incident commander should be able to “access video from private, non-public safety sources, such as schools, banks, area surveillance cameras, news cameras, traffic cameras”).

¹⁸ See Bosch, *Estimating Bandwidth: White Paper*, [http://www.tr.boschsecurity.com/content/language1/downloads/Bandwidth_Calculation\(1\).pdf](http://www.tr.boschsecurity.com/content/language1/downloads/Bandwidth_Calculation(1).pdf); John Honovich, *Convergence Review: Bandwidth Tutorial for IP Video Surveillance Systems*, IP Video Market Info, June 8, 2008, <http://ipvideomarket.info/reviews/show/122>; Cisco Systems, *Cisco Systems IP Network-Centric Video Surveillance*, http://www.cisco.com/en/US/prod/collateral/vpndevc/ps6918/ps6921/ps6938/prod_white_paper0900aecd804a3e89_ps6937_Products_White_Paper.html.

the video to the vehicles in the field. To more fully address the broadband needs of public safety users, the Commission has allocated 50 MHz of spectrum in the 4.9 GHz band that public safety providers can use for many of these fixed applications, such as wide-area fixed video surveillance. The use of the 4.9 GHz spectrum for these applications can complement the 700 MHz network and, thus, Tyco Electronics continues to encourage the Commission to make fixed links in a public safety 4.9 GHz network primary to allow this band to be fully utilized for these applications.¹⁹

As noted above in Section IV, Tyco Electronics believes that the Commission should afford public safety agencies maximum flexibility in the use of the D-Block spectrum. Requirements and usage patterns of both commercial and public safety users, as well as unforeseen communication requirements, will determine the best use of the D-Block spectrum. Obviously, these factors may vary widely by region. Tyco Electronics believes that universally limiting or restricting a particular application may be inappropriate and may result in an inefficient use of spectrum. In addition, Tyco Electronics does not believe that continuous or routine video surveillance is inherently spectrum “inefficient.” Rather, certain applications—which may find critical use in some instances—are more bandwidth “intensive” than others. Nevertheless, even with priority access to the entire 20 MHz D-Block spectrum during emergencies, competition for access to D-block spectrum among commercial and public safety users desiring to deploy various applications with potentially large bandwidth requirements could result in situations where access becomes problematic in congested areas. Fortunately, there are alternatives that can accommodate more bandwidth intensive applications such as continuous video surveillance. The 4.9 GHz band is prime spectrum for supporting such

¹⁹ See Petition for Clarification or, in the Alternative, Petition for Rulemaking of M/A-COM, Inc., WT Docket No. 00-32 (filed July 22, 2005, amended Aug. 23, 2005).

applications. With increasing use of IP networks, the 4.9 GHz band can—where appropriate—complement the 700 MHz band in supporting interoperable, bandwidth-intensive applications.

CONCLUSION

For the reasons stated above, Tyco Electronics continues to support the Commission's pursuit of a fully funded Shared Wireless Broadband Network for public safety communications and opposes proposals to place mandatory fees and cost burdens on public safety agencies. Tyco Electronics cautions the Commission against compromising mission-critical public safety narrowband *voice* communications or easing public safety network and performance requirements in its efforts to facilitate the construction of a broadband network. Finally, Tyco Electronics urges the Commission to provide regional and technical flexibility in implementing any Shared Wireless Broadband Network, as well as flexibility to public safety users in the choice of equipment and applications that can operate on that network.

Respectfully submitted,

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