

**Before The
Federal Communications Commission
Washington DC 20554**

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In the Matter Of)	
)	
A National Broadband Plan for Our Future)	GN Docket Nos. 09-47, 09-51, 09-137
)	
Regarding Public Safety,)	PS Docket Nos. 06-229, 07-100, 07-114
)	
Homeland Security, &)	WT Docket No. 06-150
)	
Cybersecurity Elements)	CC Docket No. 94-102
)	
_____)	WC Docket No. 05-196

**COMMENTS OF QUALCOMM INCORPORATED IN RESPONSE TO NBP
PUBLIC NOTICE #8 REGARDING PUBLIC SAFETY, HOMELAND SECURITY
& CYBERSECURITY ELEMENTS OF NATIONAL BROADBAND PLAN**

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SUMMARY

Qualcomm is pleased to respond to NBP Public Notice #8, which seeks comment on the public safety, homeland security, and cybersecurity elements of the National Broadband Plan. For many years now, Qualcomm has argued that our nation's first responders deserve access to commercial mobile broadband technology, devices, applications, and services. More than eight years after September 11th, it is long time for all stakeholders—public and private—to come together to resolve the spectrum, technical, operational, and, above all, financial challenges to ensure that our first responders have the modern mobile broadband capabilities that they need to protect us all.

In these Comments, Qualcomm describes the full panoply of mobile broadband technologies and the vast ecosystem which has grown up around these technologies. That ecosystem creates substantial economies of scale from commercial deployments, devices, and applications, all of which public safety agencies can leverage to drive down costs. The mobile broadband technologies described herein include upgrades to 3G technologies, CDMA2000 and HSPA, which are already deployed across the nation, as well as the LTE technology, which is still in the midst of development. As compared to the 3G technologies, LTE is optimized for wider bandwidths—a minimum of 20 MHz of paired spectrum for initial deployments. In short, there is a broad array of mobile broadband technologies, devices, applications, and services which public safety agencies could use to achieve dramatic improvements in their communications capabilities.

Similarly, with respect to cybersecurity, Qualcomm believes that all stakeholders—again, both public and private— need to work together to share information and experiences and to

develop consensual solutions. As mobile broadband technology continues to proliferate rapidly, cybersecurity will continue to be of paramount importance.

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QUALCOMM Incorporated (“Qualcomm”), by its attorneys, hereby submits these Comments in response to the Commission’s NBP Public Notice #8, DA 09-2100, released September 28, 2009, in which the Commission sought comment on the public safety, homeland security, and cybersecurity elements of the National Broadband Plan. As the Public Notice states in its very first sentence, “[b]roadband offers a variety of potential benefits to emergency responders and other public safety agencies.” NBP Public Notice #8 at 1. In these Comments, Qualcomm provides the Commission with detailed information on mobile broadband technologies, devices, applications, and services, all of which would bring a variety of benefits to emergency responders and other public safety agencies, thereby enhancing public safety and homeland security.

In addition, the Public Notice seeks information on various aspects of cybersecurity. Id. at 3. In these Comments, Qualcomm presents its view that all stakeholders—public and

private—need to work together to share information and to develop robust solutions to ensure America’s cybersecurity.

I. Qualcomm’s Pioneering Work on New Mobile Broadband Technologies, Applications, & Services

Qualcomm is a world leader in developing innovative digital wireless communications technologies and enabling products and services based on the digital wireless communications technologies that it develops. Qualcomm is the pioneer of code division multiple access (“CDMA”) technology, which is utilized in the 3G CDMA family of wireless technologies. These technologies include CDMA2000 and HSPA/WCDMA, which are used in today’s 3G wireless networks and devices to enable tens of millions of Americans, in rural, suburban, and urban areas alike, to enjoy advanced, high speed, and ubiquitous mobile broadband services.

In fiscal 2008 alone, Qualcomm spent \$2.28 billion, or approximately 20% of its revenues on research and development. Since Qualcomm’s inception in 1985, it has invested a total of approximately \$12.2 billion in R & D. These enormous expenditures enabled Qualcomm to invent many of the technologies that are fueling the mobile broadband boom. Today, Qualcomm holds or has applied for approximately 11,000 US patents (3,200 issued and 7,800 pending) and 50,800 foreign patents (17,100 issued and 33,700 pending). Every division and subsidiary of Qualcomm has multiple research and development teams working on projects which will hopefully lead to patentable inventions. This work occurs in many offices and labs around the US and the world. In addition, Qualcomm has a Corporate Research and Development group, which has its own Research Center in San Diego and other offices and labs in the US and abroad.

Qualcomm broadly licenses its technology to over 165 handset and infrastructure manufacturers around the world, who make infrastructure equipment, handsets and other

consumer devices, and develop applications, all based on the CDMA2000 and/or HSPA air interfaces. Qualcomm also licenses its orthogonal frequency division multiple access (“OFDMA”) technology, which will be used in wireless networks based on the so-called Long Term Evolution (“LTE”) air interface.

For over two decades, Qualcomm and its Government Technologies division (“QGOV”) have been at the forefront of developing wireless communication solutions for the government sector, pioneering efforts in cellular standards, microelectronics design, mobile broadband data, encryption, and value-added end-user applications for wireless phones. QGOV, in leveraging Qualcomm’s wireless expertise, innovative technologies, and industry reach, provides solutions that enable government customers to realize significant technology gains and excellence in mission performance. QGOV is considered a trusted partner and advisor to government agencies and can apply substantial research and development resources to help government agencies meet their challenges. QGOV offers products and engineering and advisory services to meet government needs for classified and unclassified solutions in the areas of deployable mobile broadband, information sharing, interoperability, tracking, locating, and situational awareness.

Qualcomm CDMA Technologies (“QCT”), a division of Qualcomm, is the world’s largest provider of wireless chipset technology. QCT’s chipsets provide a high degree of integration and support all the major frequency bands, the full gamut of wide area cellular technologies, Assisted GPS, Bluetooth, Wi-Fi, and many different operating systems, including Android, Windows Mobile, Symbian, and Qualcomm’s Brew Mobile Platform.

Moreover, QCT has helped lead the diversification of mobile broadband into many new types of mobile broadband-enabled devices, ranging from smartphones, mobile broadband PC cards and USB dongles, Mi-Fi devices which provide a 3G mobile broadband connection to up

to five Wi-Fi enabled devices, mobile broadband-embedded laptops and netbooks, and a wide variety of pocketable computing devices with mobile broadband capability. These mobile broadband devices are used today by millions of Americans, and they provide low-cost, mobile Internet access and broadband applications.

Qualcomm Internet Services developed a highly reliable and efficient next-generation push-to-talk (PTT) solution known as QChat. QChat is designed to deliver reliable quick call initiation between individuals or groups at the push of a button and is optimized for high-speed 3G networks. The QChat technology uses voice over internet protocol (VoIP) and calls are set up and managed by the QChat applications servers deployed on a carrier's IP-based 3G network. QChat today delivers instant connectivity within a second over Sprint's CDMA2000 EV-DO Revision A network. A WCDMA variant of QChat is under development.

Other wholly-owned subsidiaries of Qualcomm are working on other technologies and services which will encourage the rapid proliferation of mobile broadband and which could be valuable for public safety agencies. Qualcomm MEMS Technologies, Inc. has developed the world's first MEMS display for mobile devices—a new display technology which offers dramatically lower power consumption and superb viewing quality in a wide range of environmental conditions, including bright sunlight. This display technology is well suited for a new generation of mobile broadband devices which will have far longer battery lives than today's devices. Qualcomm's FLO TV, Incorporated subsidiary operates the world's largest mobile TV network, which currently delivers 15 channels of high quality video content to AT&T and Verizon Wireless subscribers on Channel 55 spectrum licensed to Qualcomm.

Finally, Qualcomm recently formed a joint venture with Verizon Wireless by the name of nPhase. The joint venture will provide machine to machine communications and smart service

offerings across a wide variety of market segments including healthcare, manufacturing, utilities, distribution, and consumer products over 3G mobile broadband networks. Before discussing these and other innovative applications delivered over these 3G mobile broadband networks, Qualcomm presents the Commission with data on such networks themselves and devices used on such networks.

II. The Rapid Proliferation of Innovative Mobile Broadband Networks & Devices

In the United States, as the Commission itself has found in May of this year, 95.6% of the US population is covered by a mobile broadband network (defined as a network based on EV-DO or WCDMA/HSPA), and 99% of the non-rural US population and 82.8% of the rural US population is so covered.¹ Worldwide, there are 578 wireless carriers in 157 countries that have deployed one of the 3G CDMA technologies. Of those 578 carriers around the world, 108 have deployed EV-DO, 70 of whom have deployed EV-DO Revision A. Another 274 of the 578 carriers have deployed HSDPA, 87 of whom have deployed HSUPA. These broad deployments create enormous demand for EV-DO Revision A and HSDPA equipment, thereby creating economies of scale which bring down prices for carriers and ultimately consumers.

¹ See Bringing Broadband to Rural America, Report on a Rural Broadband Strategy, released May 22, 2009, at Pgs. 12-13. In making that finding, the Commission defined networks based on EV-DO and WCDMA/HSPA as constituting mobile broadband. The Commission used the same definition of mobile broadband in its annual reports on the state of competition in the US wireless market in 2009, 2008, and 2007. See Thirteenth Report, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, WT Docket No. 08-27, DA 09-54, released January 16, 2009 at Pgs. 69, 73-74; Twelfth Report, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, WT Docket No, 07-71, released Feb. 4, 2008, at Pgs. 8, 68-69; Eleventh Report, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, WT Docket No, 06-17, released Sept. 29, 2006, at Pg. 54

Currently, approximately 830 million people around the world use a 3G device. By 2013, the number of 3G subscribers is projected to reach approximately 2.4 billion, and at that time, most 3G subscribers will be using an EV-DO or HSPA-based device.² This strong demand creates an ever-expanding market for 3G-based devices, including 3G phones, smartphones, PDAs, consumer electronics devices, and laptops. These devices include more than 646 EV-DO-based devices (118 of which incorporate EV-DO Revision A) and more than 1,910 HSDPA-based devices (305 of which incorporate HSUPA). The number and variety of these devices is increasing every day.

As noted above, Qualcomm licenses its technology to over 165 companies, who manufacture infrastructure and subscriber devices (including phones, smartphones, smartbooks, consumer electronic devices, and the like). These companies span the entire wireless industry. In particular, the number of companies manufacturing devices based on mobile broadband technologies, such as CDMA2000 and HSPA, continues to increase, along with the different types of devices themselves. At last count, 111 companies have manufactured at least one CDMA2000 device, and more than 169 companies have manufactured at least one WCDMA or HSPA device. These devices span all price points—from low end 3G phones to very high end smartphones and other consumer electronics devices.

In particular, eighteen laptop manufacturers now offer at least one laptop model with a form of embedded mobile broadband technology, and more than 400 such laptop models have been brought to market. It is becoming increasingly common for Americans, in urban, suburban, or rural areas, to access the Internet and a plethora of mobile broadband services through these

² The source of the data on subscribers is Wireless Intelligence, a database which collects such information. Wireless Intelligence defines a subscriber (actually a “connections” as a “unique SIM, or where SIM cards do not exist, a unique telephone number, which has access to the network for any purpose (including data-only usage), but excluding telemetric applications.”

mobile broadband-embedded laptops or by using a PC card or USB device with 3G mobile broadband connectivity.

There is fierce competition in the US among the wireless carriers in the provision of mobile broadband services, which has brought substantial benefits to consumers and has spurred the rapid deployment and expansion of these mobile broadband networks across the country. Indeed, American consumers in urban, suburban, and rural areas are enjoying mobile broadband service at ever-increasing penetration rates and data speeds. Moreover, as the Commission found in its annual reports on the US wireless market, carriers have deployed competing mobile broadband technologies, which has only intensified the competition as the carriers seek to differentiate their networks by providing what each claims to be the best and most advanced high speed mobile broadband network and by offering the most robust and compelling mobile broadband services to consumers.³

Accordingly, Verizon Wireless, Sprint, US Cellular, Leap Wireless, and Cellular South, among other carriers, have deployed the CDMA2000 (EV-DO) mobile broadband technology, and their deployments are expanding every day. Overall, according to the Commission's latest report, EV-DO is available in over 1.5 million square miles across the country.⁴

On the other hand, AT&T has deployed the alternative WCDMA/HSDPA technology, and it is expanding the footprint of its WCDMA/HSDPA network at a very rapid rate. AT&T provides mobile broadband across much of the United States. Initially, AT&T deployed HSDPA, and subsequently, AT&T completed deploying HSUPA, thereby supporting higher speed uploads and downloads. For its part, T-Mobile USA has also launched HSPA on its AWS-1 spectrum in major markets around the country and now provides this mobile broadband

³ See Thirteenth Report at Pg. 66.

⁴ Id. at Pg. 73.

service to an ever-increasing footprint. Thus, the mobile broadband networks based on HSPA/WCDMA technology are also expanding rapidly.

Mobile broadband networks based on these technologies are also operated by many smaller carriers. For example, Stelera Wireless provides mobile broadband service via HSPA to rural areas in Texas. Prior to Stelera's launch, these areas either had no broadband service of any kind or very limited service. Earlier this year, Cellular South announced a major expansion of its mobile broadband service, provided via EV-DO, in Mississippi to cover the Mississippi Delta region and as well as counties in Southwest and Eastern Mississippi. Mobile broadband deployment is especially critical in Mississippi, which has the lowest overall broadband penetration among the 50 states.

All told, in January 2009, the Commission found in the Thirteenth Report that approximately 263 million Americans live within a census block in which one carrier provides mobile broadband service, as defined by the FCC to include EV-DO or WCDMA/HSPA; 207 million Americans live in a census block in which two or more carriers provide such mobile broadband; and, 145 million Americans live within a block in which three or more carriers offer mobile broadband. Thirteenth Report at Pg.73. The Commission's May 2009 Rural Broadband Report included a more recent statistic—now, over 95.6% of all Americans, i.e., approximately 272.55 million Americans, now live within a census block in which one carrier provides mobile broadband service as defined by the FCC to include EV-DO or WCDMA/HSPA. These numbers are increasing every day as the carriers constantly expand and enhance their mobile broadband networks.

In addition, the number and variety of devices, including handsets, PDAs, smartphones, and other consumer electronic devices, which incorporate EV-DO or HSPA is also growing by

leaps and bounds every single day. As already noted, these technologies are now embedded in numerous laptop models sold by the major laptop vendors offering consumers another way to access mobile broadband services.

III. The Upgraded 3G Technologies and the New LTE Technology

As operators began deploying the first mobile broadband technologies, EV-DO and HSPA in their initial forms—EV-DO Release 0 and HSDPA—the ecosystem of vendors that develop and support these technologies were simultaneously working on upgrades to the technologies for deployment in existing spectrum, and the new LTE mobile broadband technology, which was designed for deployment in new spectrum and which was optimized for wider bandwidths than the 3G technologies.

Today, as noted supra and as the FCC recently found, Verizon Wireless, Sprint, Leap Wireless and others provide mobile broadband service to areas in which over 95% of Americans live via EV-DO Revision A, which supports peak data speeds of 3.1 Mbps on the downlink and 1.8 Mbps on the uplink. Likewise, AT&T is concluding its network upgrade to HSUPA, which will support peak data speeds of up to 1.8 Mbps to 5.6 Mbps on the uplink, and is already in the midst of upgrading its HSPA network to support peak speeds of 7.2 Mbps. Likewise, T-Mobile USA is moving forward rapidly with its HSPA deployment and will migrate to HSPA+ on its AWS-1 spectrum.

The EV-DO and HSPA technologies are not standing still. Both are being enhanced substantially, and these enhancements will all be backwards compatible. The next upgrades to EV-DO and HSPA will result in dramatically faster data rates. EV-DO Revision B enables the aggregation of three EV-DO carriers in one 5 MHz channel. In its Phase I, EV-DO Rev. B will support downloads at a peak rate of 9.3 Mbps and eventually, in Phase II, at 14.7 Mbps, while

supporting uploads at up to 5.4 Mbps. This technology will undergo an additional upgrade, now known as EV-DO Advanced, which, if implemented with four carriers, will support downloads of up to 34.4 Mbps and uploads of 12.4 Mbps. These upgrades will not require any new infrastructure. The net result of these upgrades to CDMA2000 will be wireless broadband service with data rates that are ten times faster than even today's fastest EV-DO-based networks achieve.

Likewise, there are substantial upgrades for HSPA technology on its roadmap. The initial version of the technology known as HSPA + (also called HSPA Evolved—HSPA Release 7) will support peak downloads of 28 Mbps and uploads of 11 Mbps. Future releases of HSPA, Releases 8 and 9, will increase the peak downlink speeds, first to 42 Mbps and then to 84 Mbps.

Moreover, Qualcomm and many other vendors around the world are working on LTE, an OFDM-based technology. LTE achieves high data rates and is optimized for wider bandwidths— a minimum of 20 MHz of paired spectrum for initial deployments.

IV. New Categories of Mobile Broadband Devices

As noted supra, QCT is the world's largest provider of chipsets for mobile broadband devices. QCT constantly develops new chipsets incorporating more functionality and lower power to drive mobile broadband into an ever increasing variety of devices at all price points. In particular, QCT is in the midst of three important initiatives of interest to public safety agencies that are intended to expand the scope and use of mobile broadband devices by creating new categories of mobile broadband devices. These new new categories of devices are another important factor causing the need for additional licensed spectrum for mobile broadband.

QCT's first mobile broadband initiative is a platform by the name of Snapdragon. Snapdragon, which consists of a single chip with integrated wireless modem, applications

processor, multimedia, GPS and other features, enables a new generation of mobile computing devices with embedded support for mobile broadband. These new mobile broadband computing devices, known as smartbooks, are much smaller, thinner, and less expensive than traditional notebook and mini-notebook PCs and with longer battery life that provides day-long availability.⁵ Smartbooks feature always-on mobile broadband connections similar to mobile phones with everyday computing functionality in sub-compact, ultra-thin, and highly portable devices. (For more information on smartbooks, see www.hellosmartbook.com.)

At present, 15 major manufacturers are developing more than 30 Snapdragon-based mobile broadband devices. The first Snapdragon-based mobile broadband smartphone was introduced in February 2009 by Toshiba, and other Snapdragon-based devices for mobile broadband computing will be introduced throughout this year.

A second QCT mobile broadband initiative consists of a global mobile broadband and GPS embedded solution for notebook computers and other wireless devices. This solution is called Gobi. Gobi-enabled notebooks can operate on mobile broadband networks in the United States and around the world. The original Gobi solution included a Qualcomm chipset, associated software and API, and a reference design for a data module supporting both the EV-DO Revision A and HSPA mobile broadband air interfaces as well as GPS. This solution allowed notebook manufacturers to deliver products that provide mobile broadband connectivity wherever the user may happen to be. Earlier this year, Qualcomm announced its second generation embedded Gobi module. This module, which will launch commercially this year, provides a wide range of enhancements, including support for additional frequencies, increased

⁵ In the territory of the Federal Republic of Germany, the use of the term "smartbook" in connection with portable computers is reserved exclusively to Smartbook AG, Germany.

data speeds, enhanced GPS functionality, and additional operating systems, such as Windows 7 and Linux.

While Gobi was initially deployed in notebooks, it is now being embedded into other devices to provide worldwide mobile broadband connectivity. Just last week, IREX Technologies (“IREX”) announced a new Gobi-embedded touch-screen e-Reader, the IREX DR800SG. This innovative device will enable the wireless downloading of books, newspapers, and magazines around the world via the embedded 3G multi-mode capability provided by the Gobi module. This device is the first eReader to leverage Qualcomm’s technology to support global connectivity. This device, and others like it, will be key growth drivers for the mobile broadband eco-system and will be another important factor in the exponential growth in the usage of mobile broadband networks, which creates the need for substantially more licensed spectrum.

QCT’s third mobile initiative is a platform by the name of inGeo. The inGeo platform provides a complete end-to-end solution for personal location devices and services. It currently uses CDMA2000 and Assisted GPS and is optimized for extremely small form factors and long battery life using Qualcomm’s low duty cycle technology. (A next generation inGeo could be based on WCDMA.) The inGeo solution and associated server control technology provide accurate near real time location data that can be used for wireless tracking, safety and monitoring applications, including many Smart Grid-related applications. At less than 1,000 mm² in area, the inGeo module offers one of the industry’s smallest form factors, and it incorporates a 2.4 GHz ZigBee transceiver and a Bosch SMB380 3-axis accelerometer to limit power consumption and provide short range connectivity.

V. Improvements to the Mobile Broadband User Experience

In addition to developing new technology to enable faster mobile broadband networks and new chips to power new categories of mobile broadband devices, Qualcomm is developing technologies to improve the mobile broadband user experience in several ways, which will also drive far greater mobile broadband use and create additional demand for mobile broadband spectrum. These new technologies range from: improving the displays used on wireless devices so they consume less power and they can be viewed in broad daylight; enabling the wireless charging of multiple devices simultaneously, which will eliminate the need for separate chargers and connectors for every wireless device and, therefore, are much more environmentally friendly than today's wired chargers; and, improving the voice reception of mobile broadband devices so that calls can be heard even in noisy environments.

The Wall Street Journal recently gave Qualcomm's wireless display technology, known as mirasol, its award for 2009 Technology Innovation in Semiconductors. See Michael Totty, "The Wall Street Journal 2009 Technology Innovation Awards," Wall Street Journal, Sept. 14, 2009. This innovative MEMS (micro-electrical-mechanical systems)-based technology reflects light so that specific wavelengths interfere with each other to create color, the same phenomenon which makes a butterfly's wings shimmer. Displays based on mirasol increase the capabilities of the device because the device can be seen in full sunlight, while dramatically reducing the power consumed by the display. Devices using mirasol will have a much improved user experience since they can be used in any environment and need to be charged less often. These enhancements should vastly improve the ability of public safety personnel to use mobile broadband devices.

In addition, the Wall Street Journal recognized another innovative Qualcomm technology which will revolutionize wireless charging. See "The Wall Street Journal 2009 Technology

Innovation Awards,” supra. This technology, known as eZone, provides a universal charging platform that can charge multiple devices simultaneously and wirelessly. eZone eliminates the need for each device to have its own battery charger and its own connector. This technology could be of tremendous benefit to first responders, who today carry and use so many different devices.

Finally, Qualcomm has developed technology to improve vastly the quality of voice reception in wireless devices. Qualcomm’s technology, known as Fluence, uses dual microphone noise cancellation in a handset, which provides higher noise suppression of approximately 25 to 30 dB. Fluence allows a user to hear the other end of a call with great clarity even in the most noisy of environments. In addition, Fluence can be used in conjunction with a new wideband vocoder to provide true high definition voice with unprecedented mobile voice quality. Public safety officers need high quality voice reception from their wireless devices. Fluence delivers just that.

VI. Non-Terrestrial Mobile Broadband

Mobile broadband is not limited to terrestrial wireless networks. Last year, Qualcomm announced that it would develop a satellite-based variant of EV-DO Revision A, known as S-DO, which will be included in the firmware of select Qualcomm multi-mode chips, thereby integrating satellite and cellular technology for use pursuant to the Commission’s ATC (ancillary terrestrial component) rules in the L and S bands. This S-DO technology will be incorporated in chips which also support terrestrial LTE, UMTS, and/or EV-DO. These chips will enable mass market hybrid terrestrial/satellite devices that will work even in areas where cellular coverage is spotty or non-existent. This technology adds yet another dimension to mobile broadband by enabling truly ubiquitous service across the entire United States.

In addition, Qualcomm mobile broadband technology is also used in the air-to-ground (“ATG”) system operated by AirCell to provide wireless internet service for airplane passengers. AirCell’s ATG system uses EV-DO Rev. A base stations and an IP switching platform manufactured by ZTE and aircraft-mounted modems from Qualcomm. While en route, subscriber Wi-Fi traffic within a plane is transmitted to the ground and vice versa via EV-DO Rev A, and the result is a compelling mobile broadband service without any on-board interference issues.

VII. All Stakeholders Must Come Together to Overcome the Spectrum, Technical, Operational, and Financial Challenges to Ensure That Public Safety Agencies Gain Access to Mobile Broadband

Ever since September 11th, Congress, the Commission, national, state, local, and regional public safety agencies, commercial carriers, technology developers, and equipment vendors have all been discussing, debating, and working toward a mobile broadband solution or solutions for public safety. Qualcomm does not pretend to have a ready recipe, but the ingredients are clear: spectrum, technical expertise, operational expertise, and above all a reliable and steady source of financing. The National Broadband Plan offers yet one more opportunity for the Commission to lead the way and to forge a consensus among all stakeholders—public and private—to these vexing problems. It is time to ensure that, once and for all, our first responders have the same mobile broadband technologies, devices, applications, and services which are so prevalent in all other sectors of our nation.

VIII. Working Together to Promote Cybersecurity

The Public Notice asks a number of questions relating to cybersecurity. Public Notice at 3. Cybersecurity includes a series of critically important topics which private sector wireless carriers and public sector agencies are all addressing in various ways. Rather than adopting any

regulatory mandate for the private sector or setting cybersecurity policy solely for the public sector, Qualcomm believes that the public and private sectors must continue to work together to promote cybersecurity. To that end, rather than having government set industry benchmarks or best practices, the public and private sectors should be encouraged to continue to work together to share information and experiences and to develop consensual solutions to enhance cybersecurity.

As mobile broadband technology continues to proliferate so rapidly, new cybersecurity challenges and issues will surely emerge; new public sector and private sector solutions will be developed on a continuous basis, and, cybersecurity will continue to be of paramount importance. The National Broadband Plan should promote constant public and private sector cooperation to enhance cybersecurity.

IX. Conclusion

Wherefore, Qualcomm requests that the Commission act in accordance with these
Comments.

Respectfully submitted,

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