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March 21, 2007

VIA ELECTRONIC FILING

Marlene H. Dortch, Secretary
Federal Communications Commission
Office of the Secretary
445 12th Street, SW
Washington, DC 20554

RE: WT Docket No. 96-86 – *Development of Operational Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communications Requirements Through the Year 2010*

WT Docket No. 06-150 – *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands*

WT Docket No. 06-169 – *In the Matter of Former Nextel Communications, Inc. Upper 700 MHz Guard Band Licenses and Revisions to Part 27 of the FCC's Rules*

Dear Ms. Dortch:

Ericsson Inc (“Ericsson”) hereby responds to the *ex parte* letter filed by The Coalition for 4G America (“Coalition”) in the above-referenced dockets on March 6, 2007.¹ In its letter, the Coalition recommends that the Commission take action in these proceedings based on two principles. First, the Coalition urges the Commission to make decisions in a timely manner so that it can adhere to the congressionally-mandated Digital Television Transition (“DTV”) deadline. Second, the Coalition promotes several substantive “Secondary Principles,” including that the Commission adopt the Broadband Optimization Plan (“BOP”), and in particular, adopt 5.5 MHz size channels within its band plan.

Ericsson agrees that the Commission should adhere to the DTV transition timeline. Regulatory certainty is needed to ensure that market participants may move forward with investments, and that a market will develop. Therefore, Ericsson supports expeditious decision-making in these proceedings to prevent any possible auction delay.

However, Ericsson strongly disagrees that the Commission should adopt the BOP, and in particular, a 5.5 MHz channel size within its plan. Using a 5.5 MHz channel is not necessary to allow better performance for next generation (4G) networks. While the characteristics of 4G technologies have not yet been officially defined, a 5.5 MHz channel will not fulfill the expected spectrum requirements for services supported by these technologies. For example, Long Term Evolution (“LTE”), most likely a fundamental building block of 4G

¹ See Letter from Ruth Milkman, Counsel for Access Spectrum, L.L.C., to Marlene H. Dortch, Secretary, FCC, WT Docket Nos. 96-86, 06-150 & 06-169 (Mar. 6, 2007) (“*Letter*”), attaching white paper entitled “The Coalition for 4 G in America – Optimizing the 700 MHz Band for Next Generation Technologies and Networks” (“*White Paper*”).

technology, is flexibly designed to operate in various channel bandwidths, but not in a 5.5 MHz spectrum allocation. Overall changes to the existing regulatory framework will be necessary to support future 4G services and high data rates.

As an alternative, Ericsson offered a Reclamation Band Plan, maintaining a 5 MHz channel size, that creates even greater spectrum efficiencies, encourages public safety broadband deployment in additional ways, and provides more protection from interference, with fewer modifications to the existing band plan.²

The Commission should adopt Ericsson's plan, rather than the BOP, because it:

- Results in an additional 4 MHz of spectrum for public safety;
- Increases public safety's protection from possible interference by adjacent systems and places guardbands under public safety control;
- Incorporates globally harmonized standard 5 MHz channel sizes. Next generation technologies are being developed to take advantage of channel bandwidths in increments of 5 MHz;
- Minimizes the impact to existing band plan allocations for commercial and public safety users;
- Allows for a 1 MHz "talk-around" channel that public safety can use in emergency situations (805-806 MHz); and
- Addresses coordination and interoperability between the Canadian border and public safety entities in the fourteen border states using a similar approach to the BOP.

While Characteristics of Next Generation Broadband Technologies Are Not Officially Defined, a 5.5 MHz Channel Size Will Not Fulfill Expected Spectrum Requirements for These Services

Ericsson strongly disagrees with the Coalition that using 5.5 MHz channels will allow better performance for next generation broadband networks. Primarily, there is no standard definition that describes characteristics of a next generation (4G) network. The International Telecommunications Union (ITU), ITU-R Working Party 8F, has developed a framework for 4G (IMT-Advance).³ Based on this proposed framework, the types of services and the resulting high-data rates for 4G will require much larger bandwidths than traditionally available in current spectrum. Ultimately, the FCC will have to revise its spectrum regulations to allow for these much broader bandwidths. As such, a 10% increase in bandwidth will **not** fulfill the spectrum requirements for these envisioned services.

In fact, "4G" is not just one defined technology or standard, but rather a collection of technologies and protocols to enable the highest throughput, lowest cost wireless network possible. Some industry members are attempting to co-opt the term "4G" to refer to wireless systems that promise performance beyond current 3G systems. However, these systems are largely on par with current technologies like HSPA/HSPA+. In these circumstances, the term "4G" is used largely for marketing purposes.

LTE, an entirely new radio platform technology, is part of the GSM evolutionary path beyond 3G, and is likely a fundamental building block for 4G technology in the context of ITU. LTE systems will coexist with 3G and 2G systems. In particular, multimode devices will function across LTE/3G or even LTE/3G/2G,

² See Ericsson Comments, WT Docket Nos. 96-86 & 06-169 (filed Oct. 23, 2006).

³ See Recommendation ITU-R M.1645, "Framework and Overall Objectives of the Future Development of IMT-2000 and Systems Beyond IMT-2000" at 3 (available at www.ieee802.org/18/Meeting_documents/2007_Jan/R-REC-M.1645-0-200306-I!!MSW-E.doc) (last viewed March 20, 2007).

depending on market circumstances. LTE systems are designed to operate in spectrum allocations of varying sizes, including 1.25 MHz, 5 MHz, 10 MHz, 15 MHz and 20 MHz in both the uplink and downlink duplex direction, **but not in 5.5 MHz.**

**The Commission Should Designate a 5 MHz Block in its Band Plan
to Accommodate Broadband Technologies**

Ericsson disagrees with the Coalition that adopting a 5.5 MHz size channel will allow more capable next generation bandwidth performance, provide greater flexibility in technology implementation and business plans, and better enable public-private partnerships.⁴ In fact, adopting a channel size that is different from the 5 MHz block already used in global and FCC standards and technology will have significant adverse consequences for commercial and public safety broadband deployment. Adopting a different channel size will increase costs, slow deployment, and unnecessarily complicate public-private partnerships.

A 5 MHz block size is now widely used in regulatory and industry standards. Five MHz blocks have been used in global spectrum allocations for broadband services,⁵ the FCC's rules for Advanced Wireless Services,⁶ and technology standards.⁷ If the FCC adopts an alternative spectrum allocation that sends standard-setting bodies and equipment manufacturers back to the drawing board, it will unnecessarily increase costs and create network deployment delays for public safety and commercial providers with no benefit. Also, commercial users will likely deploy broadband technologies in the Upper 700 MHz Band based on the already allocated 5 MHz blocks. Therefore, adopting 5 MHz channel sizes for public safety broadband use will provide more opportunities for public safety users to capitalize on adjacent commercial broadband deployment.

Further, Ericsson does not agree that the Commission must adopt a 5.5 MHz channel to accommodate next generation broadband technologies. For example, in developing a band plan for consultation purposes, Canada's Department of Industry used a 5 MHz block as a basic unit.⁸ Canada adopted the 5 MHz channel size to harmonize bandwidth allocations with the U.S. and other countries, achieve technological neutrality, and facilitate roaming and bilateral coordination.⁹ Additionally, the WiMAX Forum developed Mobile WiMAX profiles that cover 5 and 10 channel bandwidth for licensed worldwide spectrum allocations in the 2.3 GHz, 2.5 GHz, 3.3 GHz, and 3.5 GHz frequency bands.¹⁰

⁴ See *White Paper* at 1.

⁵ See, e.g., Electronic Communications Committee, *ECC Decision of 18 March 2005 on Harmonised Utilization of Spectrum for IMT-2000/UMTS Systems Operating Within the Band 2500-2690 MHz (ECC/DEC/(05)05)*, Annex 1 at 6 (adopting a 5 MHz block size for IMT-2000/UMTS services).

⁶ See *Service Rules for Advanced Wireless Services in the 1.7 GHz and 2.1 GHz Bands*, WT Docket No. 02-353, Report and Order, 18 FCC Rcd 25162 (2003) ("AWS-1 Service Rules Order").

⁷ See, e.g., Perlman, Leon. "What is CDMA?" Focus on CDMA. CellularOnline. (available at <http://www.cellular.co.za/cdma.htm>) (last viewed Mar. 16, 2007) ("We now have cdma2000 and its variants like 1X EV, IXEV-DO, and MC 3X. The[y] refer to variants of usage of a 1.25 MHz channel. 3X uses a 5 MHz channel."); see *id.* ("Worldwide resources are being devoted to roll out third-generation CDMA technology, including Multi-Carrier (cdma2000 1xMC and HDR in 1.25 MHz bandwidth), and 3xMC in 5 MHz bandwidth...").

⁸ See Industry Canada, Spectrum Management and Telecommunications, "Consultation on a Framework to Auction Spectrum in the 2 GHz Range Including Advanced Wireless services," DGTP-002-07 (Feb. 2007), at 25-26 (available at [http://strategis.ic.gc.ca/epic/site/smt-gst.nsf/vwapj/aws-consultation-e.pdf/\\$FILE/aws-consultation-e.pdf](http://strategis.ic.gc.ca/epic/site/smt-gst.nsf/vwapj/aws-consultation-e.pdf/$FILE/aws-consultation-e.pdf)) (last viewed Mar. 16, 2007).

⁹ *Id.*

¹⁰ See WiMAX Forum, "Mobile WiMAX – Part I: A Technical Overview and Performance Evaluation" (Aug. 2006, at 9 (available at http://www.wimaxforum.org/news/downloads/Mobile_WiMAX_Part1_Overview_and_Performance.pdf).

As these examples show, adopting a non-standard 5.5 MHz channel size is certainly not necessary to provide more capable next generation broadband performance.

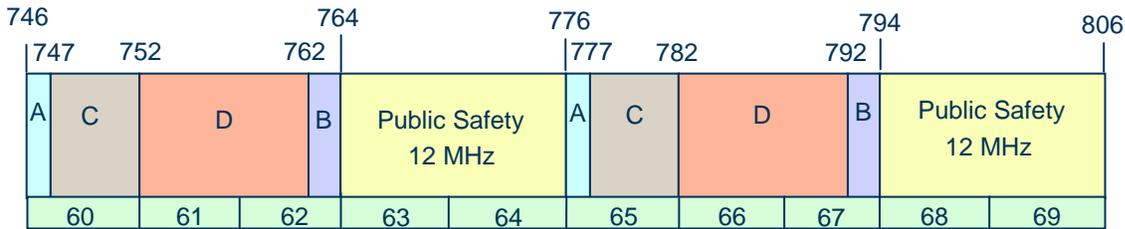
Ericsson's Plan Best Addresses the Commission's Framework for Reevaluating the Upper 700 MHz Band Plan

Overall, Ericsson's plan makes the same types of improvements to the existing band plan as the BOP, including moving narrowband channels to a contiguous location to improve spectrum efficiency, accommodating public safety broadband use, and leveraging commercial deployment to lower public safety's costs. However, Ericsson's plan best achieves the Commission's two main prerequisites in reevaluating its Upper 700 MHz Band Plan: (1) that it move forward with its recovered spectrum auction on time; and (2) that it must ensure, as a primary goal of its band plan, that commercial services will not interfere with public safety operations through harmful interference.¹¹

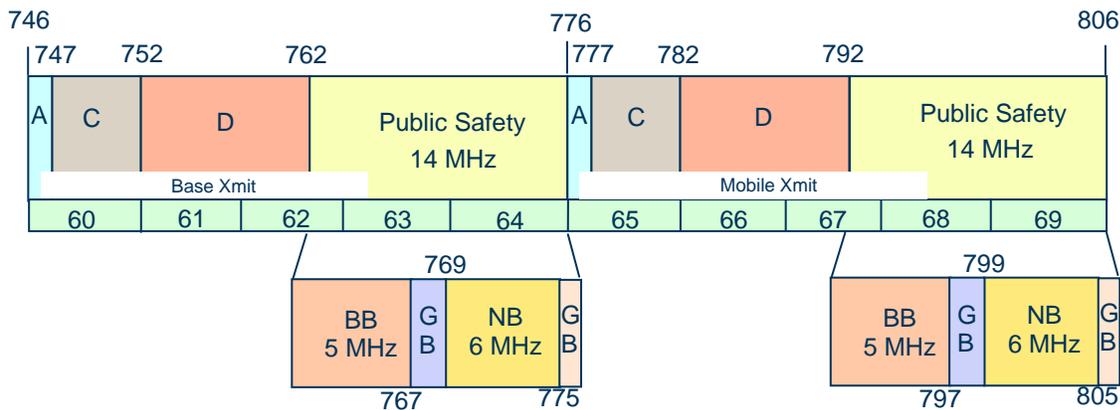
Ericsson's plan **makes fewer changes in the existing band plan to avoid delaying the auction.** It does not shift the C and D Blocks or relocate the A Block like the BOP. Instead, its proposal only impacts the seven B Block licensees. Its plan keeps the Commission's existing band plan largely intact so as not to disrupt the deployment of products and services in the band.

¹¹ See *In the Matter of Former Nextel Communications, Inc. Upper 700 MHz Guard Band Licenses and Revisions to Part 27 of the Commission's Rules, Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communications Requirements Through the Year 2010*, WT Docket Nos. 06-169, 96-86, Notice of Proposed Rulemaking, 21 FCC Rcd 10413 (2006) ("Guard Bands NPRM"), at ¶ 7; see also H. CONF. REP. NO. 105-217, at 12 (1997), reprinted at 1997 U.S.C.C.A.N. 201. The Commission also seeks to promote public policy goals, including broadband deployment and interoperability and maximizing efficient spectrum use.

Current Band Plan (Upper 700)



Reclamation plan (Upper 700)



Ericsson's plan also provides the **greatest interference protection for public safety users**. Ericsson proposed an increase in the size of the guard band at 776-777 MHz, providing an additional 1 MHz at 775-776 MHz. Ericsson shares the concerns of public safety and others that greater intensity of use in the 700 MHz band threatens to cause harmful interference to public safety communications reminiscent of the problems public safety licensees experienced in the 800 MHz band.¹² Also, AT&T and Verizon have both expressed serious concerns about interference risks that may arise particularly when carriers that are licensed in immediately adjacent bands utilize different access technologies, and where certain carriers operate over relatively high power and others over relatively limited power.¹³ Generally, many commenters have urged that narrowband operations must be protected.¹⁴ Ericsson's proposal provides the greatest degree of protection while increasing the amount of public safety spectrum to 28 MHz. This is significant.

Ericsson increased the guard band to 775-777 MHz specifically to address expanded use of the C and D block spectrum, which could cause receiver overload and intermodulation interference. The main carrier from the C block mobile transmitter could interfere with public safety mobile receivers operating in the adjacent 764-776 MHz band.

¹² See, e.g., Sprint Nextel Comments, WT Docket Nos. 01-309, 94-102, 06-150 (filed Sept. 29, 2006), at 3-4.

¹³ See Letter from Robert W. Quinn, Jr., AT&T, to Marlene H. Dortch, Secretary, FCC, WT Docket No. 06-169 (filed Feb. 23, 2007); Letter from Donald C. Brittingham, Verizon Wireless, to Marlene H. Dortch, Secretary, FCC, WT Docket No. 06-169 (filed Feb. 15, 2007), attaching white paper entitled "The 700 MHz Guard Bands Are Essential to Stop Potential Interference To Public Safety and Commercial Licensees".

¹⁴ See e.g., Motorola Comments at ii, 7, 19, WT Docket No. 06-169 (filed Oct. 23, 2006); National Public Safety Telecommunications Council (NPSTC) Comments at 15, WT Docket Nos. 96-86 & 06-169 (filed Oct. 23, 2006); Verizon Wireless Comments at 3, WT Docket Nos. 96-86 & 06-169 (filed Oct. 23, 2006); Region 24 MHz Planning Committee Reply Comments at 5-6, WT Docket Nos. 96-86 & 06-169 (filed Nov. 13, 2006); Access Spectrum/Pegasus Reply Comments at 3-5, WT Docket Nos. 96-86 & 06-169 (filed Nov. 13, 2006).

The possibility of mobile-to-mobile or radio frequency ("RF") overload interference is of great concern, especially where public safety operations are involved. The interference risk should by no means preclude allocation of 700 MHz frequencies to meet the need for additional spectrum. Instead, the FCC should take steps to minimize or mitigate the possibility of mobile-to-mobile interference, recognizing that it may need to take additional steps after installation begins and as the density of deployment increases.

Conclusion

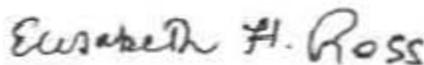
Ericsson urges the FCC not to adopt a 5.5 MHz channel size in its band plan. Existing broadband technologies are designed to use 5 MHz channels. Consequently, adopting a 5 MHz channel size for public safety broadband use will avoid delays and increased costs associated with development of new standards and equipment. While next generation broadband technologies will likely need larger channel bandwidths, they will likely be designed for spectrum allocated in 5 MHz channel increments. Certainly, national and international standards use 5 MHz bandwidth channel sizes and technologies, and these technologies will likely form the basis for development of future 4G systems. Allocating spectrum for 5.5 MHz channels is neither spectrally efficient nor consistent with past Commission decisions and international activities.

The Commission should adopt a sound spectrum framework based on harmonized standard bandwidths, not the BOP. As an alternative, Ericsson's proposed plan accomplishes the same types of improvements to the existing band plan, but with a much sounder foundation. Ericsson's plan increases the amount of interference protection for public safety through additional guardbands. These guardbands would be reallocated from B band spectrum to public safety and thereby increase the amount of spectrum for public safety to 28 MHz. Also, Ericsson's proposed plan supports improved border coordination, "talk-around" and regional interoperability. Most importantly, the Ericsson plan supports broadband for public safety using a globally standardized 5 MHz channel and without encroaching on the surrounding spectrum allocations.

Please direct any questions to the undersigned. Thank you.

Sincerely,

BIRCH, HORTON, BITTNER
AND CHEROT



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