



July 6, 2006

Catherine Seidel, Acting Chief  
Wireless Telecommunications Bureau  
Federal Communications Commission  
445 Twelfth Street, S.W.  
Washington, D.C. 20554

Re: WT Docket No. 02-55

Dear Ms. Seidel,

As a leading provider of communications equipment to the public safety community, Motorola is committed to an expeditious implementation of the Commission's decision to help alleviate interference to public safety systems by reconfiguring the 800 MHz band.<sup>1</sup> Motorola has committed significant resources and has worked diligently to adhere to the Commission's three year schedule for rebanding. However, absent aggressive oversight and immediate actions to speed the rebanding process, that goal is in serious jeopardy and our country's first responders will remain exposed to interference risks.

More than 1.2 million public safety radios must be replaced or modified. But, as of today, Motorola, the leading provider of 800 MHz public safety equipment, has yet to ship a single replacement radio or undertake a single software modification. Nor are we aware of any other company undertaking such essential rebanding tasks. The simple fact is that a huge backlog of system modifications is building that cannot be completed in a timely manner if we continue on this present course.

The current rebanding process involves sequential steps in which licensees first negotiate planning funding agreements; then, they negotiate frequency reconfiguration agreements with Sprint Nextel and the 800 MHz Transition Administrator (800 MHz TA); and, then and only then, does the actual rebanding work begin.<sup>2</sup> This serial and staggered process effectively delays the actual work commencing while time consuming negotiations and agreements are occurring.

Motorola believes that this staggered and serial rebanding approach must be simplified and allowed to proceed on parallel rather than sequential steps if the Commission's goals are to be achieved. The Commission should act quickly to endorse a new mechanism that allows rebanding work to progress in parallel with the negotiations. Specifically, Motorola proposes that a process be established

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<sup>1</sup> See *In the Matter of Improving Public Safety Communications in the 800 MHz band*, Report and Order released August 6, 2004.

<sup>2</sup> The 800 MHz TA has recently implemented a process a fast track planning fund process for licensees that meet certain conditions. While Motorola commends this fast track process, we do not believe that it will provide relief for the majority of the larger systems that present the greatest challenge to timely reconfiguration.

to allow mobile and portable radios to be replaced or have upgraded software installed, as appropriate, during the negotiations process.

Motorola, Sprint Nextel and the 800 MHz TA have reached agreement on the exact changes necessary for each model Motorola radio that we believe is currently in operation to implement rebanding. Allowing radios to be replaced or have updated software installed, as appropriate, as early as possible and prior to the conclusion of an agreement between a licensee and Sprint Nextel on the overall system rebanding will ease the burden and logistical impact of rebanding on public safety licensees, manufacturers and radio technicians. It will address one of the biggest potential bottlenecks in the rebanding process and will lower the overall cost of rebanding. Most importantly, it will help achieve the Commission's goals of alleviating interference to public safety as quickly as possible and minimizing the disruption to licensees from reconfiguration. Implementation of Motorola's parallel process proposal will not disrupt negotiations between public safety licensees and Sprint Nextel. Motorola, Sprint Nextel and the 800 MHz TA have jointly agreed to the costs associated with each replacement radio and each software upgrade kit so these costs need not be negotiated by individual licensees.

### **Radio Equipment**

Throughout this proceeding Motorola has provided information regarding the impact that channel reconfiguration would have on various models of radios.<sup>3</sup> Following adoption of the Commission's decision, Motorola expended considerable effort and resources to refine this information and to narrow as much as possible the number of radios that would have to be replaced.<sup>4</sup> In determining the proper approach for each radio model, Motorola sought to maintain reliable public safety communications while minimizing the cost of reconfiguration and providing for the most expeditious and least disruptive transition. Through these efforts, Motorola was able to develop an accurate list of changes necessary for each radio model. In some cases, the only cost-effective and practical solution is replacement. In other cases, radios will require a software upgrade and in others no changes to the equipment will be necessary. Information on the impact for each radio model is included in Attachment 1.

Although it is not possible to determine the exact number of radio units that are currently deployed that require replacement or software upgrade because of a lack of information as to how many units are still in service, it is possible to provide a reasonable estimate. Based on sales over the past 10 years, Motorola estimates that there are approximately 417,000 public safety radios that will require replacement and some 800,000 radios that require software upgrades. Touching each of these units in a compressed timeframe is an enormous logistical impediment to the timely completion of the reconfiguration process and places an undue burden on licensees trying to maintain day to day operations while reconfiguring their system.

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<sup>3</sup> See letter to Messrs Edmond Thomas and John Muleta dated November 3, 2003, filed in WT Docket 02-55. In that letter Motorola provided preliminary analysis about which radio models sold over the past ten years that would be incapable or not cost effective to retune and which would therefore require replacement. At that time Motorola estimated that as many as 30-40 percent of deployed NPSPAC capable radios would need to be replaced.

<sup>4</sup> Certain models of radios are not physically capable of operating under the new band plan or lack the capacity to perform under both the current and revised plan during the transition. In such cases, the only viable solution for these radios is that they be replaced. In other cases, radios will require a software reflash to update the radio software, and in still others, no change to the radio is necessary.

To help alleviate the logistical challenges inherent in replacing or modifying all of these radios, a process must be initiated to begin replacing and reflashing the radios as soon as possible. This will allow the work to be spread over a longer period without negatively impacting the rebanding timeline. Based on past experience working with the public safety community, the physical replacement or software upgrade of radios can be one of the most time consuming parts of any system change or upgrade because of the challenge of scheduling the availability of vehicles or people without disrupting the ongoing public safety mission.

Current conditions indicate that most Frequency Reconfiguration Agreements (FRAs) will not be completed until the latter portion of the negotiating period. This will leave approximately 14 months per wave for the physical reconfiguration, rather than the 21 months originally anticipated. To ensure uninterrupted service to all public safety users on a system, work on subscriber units must be completed prior to initiating work on the system infrastructure. For an individual system, it will take approximately three (3) months to reband and test system infrastructure, leaving approximately 11 months for replacing or upgrading subscribers based on the current schedule. Meeting such an aggressive schedule would place an extraordinary burden on public safety licensees. Consider, for example, a Wave 1 NPSPAC licensee, that has 15,000 radios. Timely completion of rebanding would require this licensee to make available over 68 radios per work day or 1,364 per month.<sup>5</sup> Based on Motorola's experience and customer input, we believe that an extremely aggressive goal would only provide about 36 radio units per day. At that pace, it would take approximately 21 months to replace or upgrade subscribers for this system – well beyond the time allotted in the current schedule. Such users need to begin replacing or modifying their radios now.

This analysis is only worsened when you look at the total number of systems and subscribers that must be rebanded. Based on Motorola's estimate that approximately 1.2 million radios will require service, we will soon be forced into a situation where 3,000 or more radios will have to be replaced or modified each day as rebanding in each of the waves overlaps. This situation will deteriorate even further absent action now to begin this work.

### **A Parallel Process Is Necessary**

The current process for rebanding is serial. For larger systems that require approval of planning funds, a licensee must:

- 1) Prepare a request for planning funding
- 2) Negotiate and reach agreement with Sprint Nextel and the 800 MHz Transition Administrator regarding the planning fund request,
- 3) Prepare the actual plan for reconfiguring the system, and
- 4) Reach agreement with Sprint Nextel and the 800 MHz TA regarding the detailed plan for rebanding the system.

Only after this final agreement is reached and contracts between Sprint Nextel and the licensee are signed and approved by the TA, can the process of physically reconfiguring the system begin. In even the best cases this is a time consuming process that may take six to nine months. There are a number of signs that this process can or is taking longer in some cases.<sup>6</sup>

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<sup>5</sup> Assuming 20 work days per month.

<sup>6</sup> See for example, the Commission's Order, released May 8, 2006, granting an extension of time for parties to negotiate FRAs for certain Wave 1 Stage 1 licensees by as much as five months, FCC 06-63; and the Commission's Order, released May 26, 2006, extending the mandatory negotiation period for Wave 1 NPSPAC licensees by 3 months, FCC 06-76.

Motorola believes that the 800 MHz reconfiguration will be significantly expedited if a process is developed that allows necessary work to progress in parallel with the current negotiation process. Specifically, Motorola proposes that the Commission facilitate development of a process and agreement for the necessary replacement of mobile and portable radios or software upgrades prior to a full agreement for the complete system being reached between a licensee and Sprint Nextel.

**A System Reconfiguration Agreement Between Licensees and Sprint Nextel is not Necessary Prior to Replacing Radios or Upgrading Software**

Motorola has developed a software solution that allows replacement radios, and radios with upgraded software, to operate on either the existing band configuration or the new band configuration. The radio will automatically switch between modes depending on a control signal that it receives from the base station. This allows radios to be replaced or have software installed at any time and transferred to the new configuration without any additional action by the radio user. It also significantly reduces the cost of rebanding by allowing a phased switchover in most cases and eliminating most flash-cut switches that would have required construction of a second system. Accordingly, radios can be replaced or have new software installed at any time and then be transitioned to the new band plan without touching the radio a second time in most cases.<sup>7</sup>

The cost of each replacement radio and each software upgrade kit has already been agreed upon by Sprint Nextel and will not factor into the negotiations between Sprint Nextel and individual licensees. Whether a particular radio model requires replacement or new software has already been determined, so this proposal only impacts the timing of the work, not the cost or nature of the work.

Allowing licensees to begin replacing radios prior to reaching a full agreement has a number of advantages. It will minimize the disruption to public safety by more closely integrating the necessary replacement and software upgrade of radios with the normal maintenance schedule. This will avoid having to retouch radios that have recently been touched as part of the normal maintenance schedule and will seed the base of radios that are fully equipped to operate under the new band configuration. Seeding the base of radios will greatly reduce the amount of time that it will take to perform the physical rebanding for a system following consummation of a full rebanding agreement because much of the most time consuming work will have already been accomplished.

Integrating radio replacement and software upgrades with the normal maintenance cycle will also reduce the overall costs of rebanding because licensees will eliminate or reduce the amount of overtime or additional personnel that would be necessary to do the work under a more compressed schedule. Most importantly, it will help ensure that the Commission's goal of reducing interference to public safety users is realized as quickly as possible and help ensure that a lack of sufficient radio service personnel doesn't impede completion of the reconfiguration process.

Motorola believes that allowing early deployment of replacement radios or software is within the scope of the Commission's decision in this proceeding and can be implemented without further rule

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While there has been no change in the scheduled ultimate date for the end of the reconfiguration, extending the negotiation periods for these large licensees has the effect of compressing the time available to do the physical reconfiguration of the system.

<sup>7</sup> An exception would be for radios that operate in conventional mode where users might inadvertently switch to the old channels post transition unless the old channels are removed from the radio.

making. It is in the public interest because it will help achieve the benefits of rebanding as early as possible. Implementation will, however, require agreement of the 800 MHz TA, Sprint Nextel and any impacted manufacturer. Motorola requests that the Commission expeditiously facilitate development of a process and agreement allowing replacement radios and software to be deployed as quickly as possible.

Regards,

/S/

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## Attachment 1 – Rebanding Actions Per Radio Model

Below is information on the impact of the 800 MHz reconfiguration process on each model Motorola radio that we believe is currently deployed and in use. The impact depends to some extent on the type of user and the channels on which they operate.

### NPSPAC Capable – Subscriber Impact



- ASTRO Spectra (>1995)
- ASTRO Saber (1MB)
- MCS 2000
- MT 1500
- MTS 2000 (512k)
- VRM & PRM (All)
- XTL 5000
- XTL 2500
- XTL 1500
- XTS 1500
- XTS 2500
- XTS 3000
- XTS 5000



- ASTRO Saber (512k)
- ASTRO Spectra (<1996)
- LCS 2000
- LTS 2000
- MaxTrac
- MTS 2000 (256k)
- MTX 820
- Saber SI
- Spectra
- Spectra E
- STX Gemini Plus