

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

In the Matter of)	
)	
Improving Public Safety Communications)	
in the 800 MHz Band)	WT Docket No. 02-55
)	
Consolidating the 900 MHz Industrial/Land)	
Transportation and Business Pool Channels)	

COMMENTS OF AT&T WIRELESS SERVICES, INC.

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Pursuant to the Commission’s Notice of Proposed Rulemaking, AT&T Wireless Services, Inc. (“AWS”) hereby submits its comments in the above-captioned proceeding.^{1/}

INTRODUCTION AND SUMMARY

There is no dispute among any of the parties to this proceeding or the Commission that public safety operators must be able to communicate effectively and without disruption from other licensees. Rather than institute flawed and expensive stop-gap measures that will do little to combat harmful interference, however, the Commission should adopt a long-term solution that fully addresses both the current and future needs of public safety providers. Not only must public safety agencies be able to operate free of disruptions to their communications, they must have sufficient contiguous spectrum to permit interoperability and meet the Nation’s increasing demands for emergency services.

AWS proposes that the Commission adopt a two-part plan that would resolve capacity and interference concerns related to public safety for the long term, while also reducing the disruption faced by public safety licensees in the short term. Specifically, AWS proposes that

the 800 MHz public safety licensees be relocated to the “upper” 700 MHz band and that this relocation be funded via the proceeds from the auction of the 800 MHz spectrum they vacated. Although this relocation cannot occur immediately, there are a number of inexpensive and effective measures that public safety licensees and other 800 MHz providers can take in the meantime to alleviate interference. These include modifications of public safety handsets to include additional filters and adherence by CMRS licensees causing the interference to established best practices guidelines.

Moving public safety licensees out of the 800 MHz band would address concerns about disruption to public safety services by isolating those services from conflicting cellularized technologies. It would also address future public safety operator service needs by providing them with additional contiguous spectrum and allowing them to upgrade their systems and equipment through the use of auction proceeds. In addition, this plan would satisfy the needs of the remaining 800 MHz licensees by providing a fair funding mechanism for the public safety licensee relocation, heading off costly future proceedings to address new problems with public safety service disruption, and allowing more efficient use of the 800 MHz band.

By contrast, the various 800 MHz rebanding proposals filed in this proceeding are adequate neither as interim nor long-term measures. None of the proposed plans address the interference problems that are certain to arise in the near future as the 800 MHz band becomes even more congested and new, conflicting technologies evolve. As a consequence, adoption of any of these plans would undoubtedly entail future proceedings and relocation by public safety or other 800 MHz licensees not once, but twice. Nor is 800 MHz rebanding viable for the short-

^{1/} *Improving Public Safety Communications in the 800 MHz Band; Consolidating the 900 MHz Industrial/Land Transportation and Business Pool Channels*, WT Docket No. 02-55, *Notice of Proposed Rulemaking* (rel. Mar. 15, 2002) (“NPRM”).

term since it may well take as long to implement as AWS's more comprehensive proposal, would impose heavy burdens on 800 MHz licensees and the Commission, and would be of limited effectiveness without handset modifications and the use of spectrally inefficient mechanisms such as guardbands.

Finally, regardless of which plan the Commission adopts, it should reject Nextel's proposal that it be authorized to use mobile satellite service ("MSS") spectrum in the 2 GHz band. Nextel fails to demonstrate any public interest benefit that would warrant grant of this spectrum grab, and the fact that none of the other plans proposes free spectrum for commercial operators indicates that there is none.

I. IMPORTANT PUBLIC SAFETY NEEDS CAN ONLY BE SATISFIED BY EFFECTIVELY ADDRESSING THE TRUE SOURCES OF HARMFUL INTERFERENCE

The importance of the ability of public safety services to operate reliably and predictably has become even more evident following the events of September 11, 2001. Disruptions to these vital services must be addressed effectively on a long-term and comprehensive basis.^{2/} It is certain that interference problems will only increase as the 800 MHz band becomes more congested and new technologies evolve that have the potential to interfere with one another.^{3/} The Commission should therefore identify the primary sources of interference and take this

^{2/} *Id.* ¶ 14 (noting that interference has increased over the past several years); *id.* at 18 (noting that "public safety systems and CMRS systems will grow in concert, potentially exacerbating the current interference problem" and that "[a]bsent some action to remedy the problem of CMRS interference to the public safety systems in terms of the root causes . . . [the Commission is] concerned that the interference will not only continue, but may increase in scope and frequency").

^{3/} *Id.* ¶ 10 (noting growth of interference problems and likelihood of additional increases in interference as higher demands are placed on public safety services and CMRS systems continue to expand).

opportunity to address, in a cohesive, well-considered manner, both the current and the future needs of public safety and other spectrum licensees.

As the Commission explains, the inability of public safety licensees to use their 800 MHz radios in certain instances is caused not by any failure by licensees to comply with relevant regulations, but by the inability of public safety licensees' architecture and equipment to coexist with newer system architectures.^{4/} For the most part, public safety systems use single, very powerful transmitters and highly elevated antennas to transmit signals over a large area.^{5/} This infrastructure requires public safety handsets to be capable of receiving the weak signals that occur when the handsets are used at a significant distance from the tower.^{6/}

Manufacturers have continued to design public safety handsets and networks for “noise-limited” environments^{7/} despite the fact that CMRS carriers in the 800 MHz band have long been deploying more efficient interference-limited systems in close, or even intermingled, spectral proximity to public safety channels. Because public safety handsets and networks were designed to operate only in noise-limited environments, many design considerations, such as improved filters and low noise amplifiers with better third order intercept specifications, which could have

^{4/} *Id.* ¶ 15 (noting that the interference at issue “can occur even though all parties involved may be operating in compliance with the Commission’s rules.”); *Id.* ¶¶ 6-17 (describing the licensing of the 800 MHz band, the evolution of technologies, and current interference problems).

^{5/} *Id.* ¶ 11.

^{6/} *Id.*

^{7/} In essence, the typical public safety radio system uses as few base stations as possible, and relies on sensitive mobile and portable radios to be able to hear the base station signals out to a large distance. This architecture is sometimes referred to as “noise-limited” or as “high-site, high power” design. Generally, the typical “on-the-street” signal strength from a public safety base station is significantly lower than the typical “on-the-street” signal strength of the CMRS systems. *See* 800 MHz Interference Mitigation Technical Discussion, Prepared by Alltel

made the public safety handsets virtually immune to receiver overload from CMRS carriers, were never implemented. While public safety receivers must be able to pick up weak signals, there is no reason for them to be devoid of the adequate filtering and other measures that would allow public safety licensees to coexist successfully with other licensees.

In contrast to noise-limited public safety system architectures, typical cellularized architectures are “interference-limited.”^{8/} Cellularized technology relies on multiple small towers that transmit at lower power over smaller areas.^{9/} To increase capacity on such systems, operators must “split cells,” replacing taller antenna structures transmitting at relatively high power with shorter antenna structures transmitting at lower power. Although this allows CMRS licensees to be much more spectrally efficient,^{10/} the continued construction of additional towers results in more areas in which public safety handsets may overload. Such overload results in intermodulation which can create “dead zones” around CMRS sites in which public safety communications are degraded.^{11/}

Communications, AWS, Cingular Wireless LLC, and Southern LINC, § 2.1.4 (“Working Group Appendix”) (attached hereto as Appendix 1).

^{8/} CMRS operators generally operate capacity-constrained systems. To increase capacity, the operators attempt to deploy as many cells as needed, and to re-use the same frequencies on non-adjacent cells. To mitigate interference between cells, the footprint of each cell is localized as much as possible by a variety of methods, including reducing power, using antennas mounted at lower heights, and/or tilting the base station antennas downward (downtilting). This type of architecture is often referred to as “low-site low-power” design, “cellular-like,” or “interference-limited” architecture. Generally, due to the number of cells and the frequency re-use techniques, the cellular systems often have relatively strong “on-the-street” signal strengths, especially in the vicinity of the base station sites. *See* Working Group Appendix at § 2.1.3.

^{9/} *See NPRM* ¶ 12.

^{10/} *Id.* ¶ 12.

^{11/} *Id.* ¶¶ 10, 14.

However, not all 800 MHz cellular-based systems create the same level of interference to public safety operators. Nextel's SMR communications are far more disruptive to public safety operations than are cellular operations and, indeed, constitute the primary cause of disruption to public safety services. This is true for several reasons. First, all of Nextel's channels fall within the passband of the public safety handsets while only a portion of cellular's channels do so (and with proper public safety handset design even less of the cellular band would be received by public safety handsets). In addition, Nextel base stations transmit voice channels at 100 percent power whether or not the channels are in use by subscribers. Cellular voice channels, by contrast, are not continuously transmitted. Furthermore, the iDEN technology employed by Nextel does not use dynamic power control, a practice which if utilized -- as it is by cellular carriers -- would reduce the average power per base channel to just the amount needed by the portables without compromising the base station's RF coverage.

While CMRS out-of-band emissions specifications already are stringent, Nextel's location in the interleaved band (854.75-861 MHz) directly next to public safety services results in a greater likelihood of Nextel transmitters' out-of-band emissions causing interference to public safety handsets than cellular transmitters. Because out-of-band emissions are at very low levels compared to the fundamental signal, a receiver must be very close to a CMRS transmitter before they become an interference factor. At close distances, however, desensitization and intermodulation could be caused by out-of-band emissions from adjacent channels. The number of channels (70 public safety channels and 80 SMR channels) within the interleaved band could create numerous instances of such interference.

Given these factors, it is clear that Nextel is the primary cause of interference in the 800 MHz band. Cellular licensees, by contrast, have been effective in reducing or eliminating the

small amount of interference caused by their systems on a case-by-case basis.^{12/} In crafting its solution, therefore, the Commission first needs to address the problems caused by Nextel and the inherent difficulties of operating in interleaved channels. AWS believes that a solution based on this simple principle will enable the Commission to craft a long-term strategy for resolving interference to public safety in the 800 MHz band, while minimizing potential disruption and costs on those operators who do not contribute significantly to the problem.

II. THE COMMISSION SHOULD ADOPT A TWO-STEP PLAN TO RELOCATE PUBLIC SAFETY SERVICE LICENSEES TO THE 700 MHZ BAND, COMBINED WITH TECHNICAL REMEDIES TO REDUCE INTERIM INTERFERENCE

As the current situation demonstrates, the increasing congestion of, and demand for, spectrum makes effective and comprehensive long-term planning for both private and public uses essential. Any solution that focuses merely on existing concerns without fully considering users' likely future needs and evolving technologies will almost certainly result in the need to revise channel assignments and relocate incumbents yet again in the not too distant future.

The evolution of the current channel assignments in the 800 MHz band has resulted both in the current interference problems and in unnecessary inefficiency in the use of spectrum (as cellular providers are forced to constrain the operation and expansion of their more efficient systems to avoid interference with older public safety systems).^{13/} Rather than simply rejiggering the pieces of the current puzzle so that the existing licensees are somewhat less likely to interfere with each other for the near-term, the Commission should assess the long-term needs of the various 800 MHz licensees and evaluate how they can best be accommodated consistent

^{12/} See *Six-Month Status Report of the Association of Public Safety Communications Officials ("APCO") Project 39 Committee*, WT Docket No. 02-55 (May 3, 2002) ("APCO Report").

^{13/} See NPRM ¶¶ 6-13.

with the Commission's goal of allowing the market to determine spectrum use to the extent possible. Such a comprehensive approach would not only ensure more efficient spectrum use, it would further substantially the public's interest in reliable and undisrupted public safety operations.

AWS therefore proposes that the Commission allocate the 747-792 MHz frequencies^{14/} in the "upper" 700 MHz band for public safety operators and fund their relocation and new hardware through an auction of the vacated 800 MHz channels.^{15/} This action would resolve public safety interference problems, provide public safety licensees with additional spectrum to satisfy future demands, and give such licensees an opportunity to upgrade their systems and equipment through the use of the 800 MHz auction proceeds. It also would serve the needs of the remaining 800 MHz carriers that are not implicated in or responsible for interference by sparing them the expense of an unnecessary and burdensome relocation and by opening up the former public safety spectrum in the 800 MHz band for new, compatible uses.

AWS recognizes that relocation of public safety licensees to the 700 MHz band cannot be accomplished immediately and, accordingly, the first step of its plan requires the implementation of interference mitigation mechanisms, including interim upgrades to public safety handsets, adherence to best practices guidelines, and localized license swaps. Unlike the various proposals to move licensees around solely within the 800 MHz band or to force the relocation of private

^{14/} These frequencies correspond with TV Channels 60-62 and 65-67 (minus 6 MHz that was recently auctioned for guard bands). Channels 63-64 and 68-69 already have been allocated for public safety.

^{15/} This proposal is more fully described in an *ex parte* submitted to the Commission by the Coalition for Constructive Public Safety Interference Solutions ("Coalition"), *Delay of Auction Nos. 31 and 44 Scheduled for June 19, 2002*, WT Docket No. 99-168, GN Docket No. 01-74, 10, *Ex Parte*, 10 (Apr. 26, 2002) ("Coalition Ex Parte"). AWS is a member of the Coalition and signatory of the *ex parte*.

radio users to new bands, this comprehensive plan would address both the short and long-term needs of all the parties, increase the efficient use of spectrum, and reduce the overall cost and disruption imposed upon 800 MHz providers and the Commission.

A. Relocation of Public Safety Licensees to the 700 MHz Band Would Be an Effective Long-Term Resolution to Interference Problems and Would Provide Numerous Additional Benefits

1. Relocation of Public Safety Licensees to the 700 MHz Band Would Enhance the Quality of Public Safety Services

As the Commission and most carriers recognize, the demands upon public safety services following September 11th are intense and will only increase as weaknesses exposed in those systems are addressed and the population continues to grow.^{16/} Thus, any plan adopted by the Commission must accommodate not only current public safety service needs by reducing existing interference problems, but must ensure that public safety licensees have adequate capacity to meet future demand.

Relocating the public safety service licensees to channels 60-69 of the 700 MHz band would eliminate intermodulation as well as all interference caused by Nextel's SMR operations on channels adjacent to the current channels assigned to public safety in the 800 MHz band.^{17/} Moving public safety from the interleaved and the National Public Safety Planning Advisory Committee ("NPSPAC") bands to contiguous 700 MHz spectrum also would allow the employment of effective passband filters along with other improvements in new public safety handsets, eliminating the possibility of interference from television broadcasters, which are the current adjacent channel licensees in the frequencies below the upper 700 MHz band.

^{16/} NPRM ¶ 18; see *Testimony of Gloria Harris, Vice President of Field Operations, AT&T Wireless Services, Inc.*, Subcommittee on Communications of the U.S. Senate Committee on Commerce, Science, and Transportation (Mar. 6, 2002).

^{17/} While public safety operations at the top of the 700 MHz band will still be adjacent to SMR operations at the bottom of the 800 MHz band, enhanced filtering capabilities on new 700 MHz public safety equipment can alleviate any interference problems.

While not a near-term prospect, such relocation should be able to be accomplished relatively quickly. Legislation ensuring that the broadcasters currently occupying the spectrum to which public safety licensees would be relocated vacate the spectrum by December 31, 2006, or sooner, is being pursued by AWS and other cellular operators.^{18/} Indeed, both the National Emergency Number Association and APCO International strongly support such efforts to open up 700 MHz spectrum for public safety service use. The public safety community recognizes the urgent need for additional, interference-free spectrum and, accordingly, it has urged the Commission and Congress to take the actions necessary to achieve that goal as soon as possible.^{19/}

In addition to alleviating interference problems, the Coalition plan would benefit public safety by increasing the amount of spectrum available for public safety services from 33.5 MHz to 54 MHz and allowing public safety services across the country to operate on the same frequencies. This consolidation has many potential benefits, including facilitating the development of broadband services for public safety, increasing the capacity of public safety systems generally, and improving interoperability between agencies.

The funding of relocation via auction proceeds also would give public safety providers the opportunity to upgrade their handsets, sites, and network architecture. For example, the conversion of public safety services to digital technology (such as APCO 25) as part of their

^{18/} *See generally Coalition Ex Parte.*

^{19/} *See Comments of the National Emergency Number Association, Service Rules for the 746-764 and 776-794 MHz Bands (Television Channels 60-69), WT Docket No. 99-168, GN Docket 01-74, DA 02-260, 02-563, 2-3 (May 1, 2002).* Similarly, APCO International, filed a letter with the Commission noting that the issues raised by the Coalition's proposal, among other things, justified a delay in the auction of the 700 MHz band so that the needs of public safety providers and other licensees could be fully considered. Letter from Glen Nash, President of APCO

relocation to the 700 MHz band would increase further the spectrum capacity and services available to public safety licensees.^{20/} In order to maximize the benefits of relocation, however, the Commission should ensure that manufacturers do not replicate old handsets that are incapable of completely filtering unwanted signals. Similarly, the Commission should prohibit the use of public safety handsets that operate in both the 800 MHz and 700 MHz bands because dual band handsets would continue to suffer from receiver overload problems from 800 MHz CMRS operations even after public safety moves entirely to the 700 MHz channels.

For public safety providers, a long-range plan such as the one described herein is plainly necessary. It would eliminate the current interference problems that are the subject of this proceeding; anticipate and avoid future interference problems by placing public safety licensees in their own spectrum away from other users where other technologies are unlikely to create interference; provide public safety services with the spectrum necessary to improve and expand their networks to meet the country's increasing security and emergency needs; and provide a funding mechanism that would allow relocating public safety licensees to upgrade their systems, thereby increasing their efficient use of spectrum and their ability to serve the public. Such a plan also minimizes the impact on other licensees, who may not be causing any interference at all, but who would still have to relocate (using their own money) under the Nextel proposal.

2. Relocation of the Public Safety Providers to the 700 MHz Band and Auction of the Vacated 800 MHz Spectrum Would Be the Most Equitable and Efficient Solution to Interference Problems

International, to Michael Powell, Chairman of the Federal Communications Commission, WT Docket No 99-168, GN Docket No. 01-74 (May 2, 2002).

^{20/} *Coalition Ex Parte* at 2.

Because interference to public safety operations has resulted despite compliance by other 800 MHz licensees with their license requirements,^{21/} the Commission appropriately emphasizes that any solution to this problem should avoid unduly burdening commercial and private licensees.^{22/} The Coalition's proposal to move public safety operations to the 700 MHz band satisfies this objective. Indeed, not only would it minimize unnecessary disruption and expense to licensees in the 800 MHz band by ensuring that the interference problem is dealt with on a long-term basis rather than through multiple, drawn-out proceedings, it would allow those operators to make more efficient use of their existing spectrum and to obtain new spectrum via auction.

The Commission notes in the NPRM that cellularized technology -- although it conflicts with the older technologies of the public safety service providers -- is far more efficient than that employed by public safety service operators and ensures intensive use of spectrum.^{23/} The presence of public safety services in this spectrum nevertheless imposes artificial constraints upon the ability of cellular providers to utilize fully or expand their systems to meet consumer needs for fear of causing interference. For instance, consistent with the best practices procedures voluntarily agreed to by public safety and the wireless industry to minimize the problems caused by the use of disparate technology platforms, AWS and other carriers have been forced to change site frequencies, decrease transmitter power, and modify antenna azimuths and downtilts, among

^{21/} NPRM ¶ 15.

^{22/} *Id.* ¶ 26 (noting that disruption to 800 MHz licensees should be as minimal as possible consistent with public safety service goals).

^{23/} *Id.* ¶¶ 12-13 (“[C]ellular-type systems make intensive, and therefore efficient, use of their assigned frequencies [the] trend from analog to digital technologies allows CMRS providers to use their licensed spectrum even more efficiently, respond to increased user demand, and provide new services to customers”).

other things. Relocation of public safety licensees to another band would allow CMRS providers to make channel assignments, transmitter power level, and antenna positioning decisions based on subscriber demand and other efficiency considerations rather than on the need to avoid overloading public safety handsets.

In addition, auction of the vacated 800 MHz spectrum would open up that spectrum for more efficient use. As the Commission and Congress have recognized, spectrum auctions not only compensate the American people for use of a valuable public asset, they allow market forces to ensure that spectrum is put to its highest use.^{24/} Accordingly, rather than require private and commercial 800 MHz service providers to fund an extremely expensive and short-term public safety remedy (*i.e.*, the 800 MHz rebanding plans proposed by Nextel and various other parties), an auction would allow those parties who place the most value on obtaining the vacated spectrum to fund the relocation, thereby satisfying their own and the nation's needs.

B. Short-Term Remedies Could Substantially Reduce Interference Concerns During the Transition Period

AWS recognizes that an auction-funded relocation of public safety licensees to the 700 MHz band would require legislation and a delay in the currently scheduled 700 MHz auction (both of which AWS and others are currently seeking), and therefore this solution could not be

^{24/} See, e.g., *Revision of Rules and Policies for the Direct Broadcast Satellite Service*, IB Docket No. 95-168, PP Docket No. 93-253, *Report and Order*, 11 FCC Rcd 9712, ¶ 153 (1995) (noting that “more than any other method” of awarding licenses, “auctions are likely to foster the rapid deployment of new technologies and products by placing spectrum in the hands of those who value it most highly” and “serve Congress’s goal of bringing new services as expeditiously as possible to the public”); H.R. 2264, 103d Cong., 139 Cong. Rec. H3088 (1993) (enacted) (finding that “a carefully designed system to obtain competitive bids from competing qualified applicants can speed delivery of services, promote efficient and intensive use of the electromagnetic spectrum, prevent unjust enrichment and produce revenues and produce revenues to compensate the public for use of the public airwaves”); H.R. Conf. Rep. No. 103-213, at 481 (1993), *reprinted in* 1993 U.S.C.C.A.N. 1088, 1173 (incorporating such findings by reference).

implemented immediately.^{25/} That does not mean, however, that public safety licensees must endure the same level of harmful interference in the meantime. As discussed below, there are a number of effective short-term remedies that can address the existing intermodulation and interference problems until relocation is accomplished. In particular, AWS proposes certain inexpensive modifications of public safety handsets to reduce receiver overload, as well as mandatory adherence by Nextel -- as the primary interferer -- to the current APCO Best Practices Guide ("Guide") and continued voluntary compliance with those guidelines by cellular providers whenever feasible. In particular, AWS strongly endorses localized spectrum swaps as detailed in the Guide.

Handset Modifications. A range of minor handset modifications could reduce harmful interference to public safety systems:

- **Adding external filters.** An external filter could be added in line with the antenna, which would reduce the signal strength of unwanted signals. Lorch Microwave already has designed three small connectorized filters that could be used quite effectively for this purpose, as described more fully in Appendix 2.
- **Adjusting bias current.** Many public safety handsets can be software-controlled to adjust the bias current of the low noise amplifier, which would improve the handset's ability to reject intermodulation products. Improving the third order intercept point would reduce the likelihood of interference to public safety handsets.
- **Use of more robust batteries.** Replacing batteries more frequently or using higher capacity batteries would increase the handset's ability to operate without interference.

Compliance with APCO Best Practices. As discussed more fully above and demonstrated by the APCO interference study submitted to the Commission in this proceeding,

cellular contribution to public safety service disruption is minimal and, accordingly, there is no reason for cellular providers to engage in the widespread frequency coordination procedures outlined in the Guide.^{26/} Once frequency coordination occurs between Nextel and public safety licensees, any disruption that actually is caused by cellular providers should usually disappear.^{27/} As it does today, however, AWS will continue to work closely with the public safety community to address specific interference problems resulting from cellular operations, including modifying power levels, antenna height, orientations and downtilts, and various other technical characteristics. The minimal, if any, benefits to public safety operations that would be achieved through requiring cellular operators to conduct coordination at virtually every one of their cell sites militate strongly against imposing this enormous burden on the cellular industry.

To the extent that interference problems still exist in certain markets, they can be remedied through the narrowly tailored use of the Commission's existing localized license swap mechanism as detailed in the Guide. Rather than requiring numerous licensees, which are creating no interference problems, to bear the costs of relocation -- either of their own facilities or those of public safety -- only those carriers that actually are creating interference to public safety would be required to relocate, and such relocation would only have to occur in areas where a problem actually exists. This will minimize cost and disruption to those not a part of the

^{25/} As indicated above, the Coalition has filed an *ex parte* with the Commission seeking delay of the Commission's scheduled 700 MHz auction so that appropriate legislation may be obtained. *See generally Coalition Ex Parte.*

^{26/} *See generally* APCO Report.

^{27/} Subsequent to frequency coordination, Nextel's operations can still cause public safety receiver overload but the resulting intermodulation products will not interfere with the public safety base channels.

problem. Until a comprehensive long-term solution can be implemented, these mechanisms are the best way to meet the needs of all licensees.

C. 800 MHz Rebanding Would Be an Ineffective Long-Term Solution to Interference Problems and Would Be Prohibitively Expensive as a Short-Term Fix

A number of parties, including Nextel and National Association of Manufacturers, have submitted proposals to resolve public safety interference problems by reconfiguring the 800 MHz band. Nextel's plan also involves the relocation of all private radio operators to either the 700 MHz or 900 MHz frequencies. As a threshold matter, it is important to recognize that while reconfiguring the 800 MHz band alone, as these parties propose, would resolve the adjacent channel interference Nextel causes public safety, it would not resolve the problem of public safety receiver overload. As explained previously, intermodulation is a primary interference mechanism at work in the 800 MHz band, and that, in turn is due in great part to public safety receiver characteristics. So long as public safety operators continue to use handsets that are incapable of completely filtering unwanted signals, moving them or their fellow licensees around the 800 MHz band will have little effect on receiver overload-caused intermodulation and desensitization.

Although AWS acknowledges that some of the 800 MHz rebanding proposals -- the ones that actually provide a sufficient guard band between CMRS (SMR and cellular) and public safety operators -- likely would help reduce intermodulation if used in conjunction with the handset modifications discussed above, they do not provide an acceptable long-term or interim solution to the 800 MHz licensees' needs.

First, these plans fail as a long-term solution because they do not address the future needs and evolving technologies of commercial, private, and public safety 800 MHz licensees.^{28/} As public safety and other licensees expand their services or upgrade technology to meet growing

demands, interference problems will reemerge as the congested 800 MHz band becomes even more crowded, likely requiring yet another relocation of, and disruption to, public safety licensees in the near future. This failure to take a long view ultimately will also result in wasted spectrum through reliance on guardbands and unnecessary restrictions on more efficient cellular technologies. Rather than simply reacting to the near-term interference problems presented, the Commission should take this opportunity to formulate and apply the sort of well-considered, long-range policy that it has recognized is necessary to maximize the public interest in light of the ever-increasing demands on spectrum.

Second, the costly and time-consuming nature of these plans deny them the ease of implementation that would justify their use even as an interim measure to reduce interference. These proposals would impose substantial burdens on a wide array of service providers and their customers, without regard to whether those providers are actually causing interference. For instance, all of the plans would require retuning of public safety, SMR, or private radio equipment, or all three. In addition, after retuning, all 800 MHz licensees would have to engage in additional and protracted coordination efforts with their new neighbors. Some licensees also would have to purchase and deploy new hardware.

Moreover, 800 MHz rebanding is unlikely to provide a substantially faster solution than the Coalition's 700 MHz plan since viable plans that would be useful in combating interference would appear to take years to implement. Indeed, these plans could take longer to implement than the Coalition's.^{29/} Prior to the adoption of any rebanding plan, the Commission would have to commence a rulemaking proceeding, allow comment, and issue a band plan -- a process that

^{28/} See the Working Group Technical Appendix for a more detailed discussion of the weaknesses of the proposed plans.

would probably take more than a year. Licensees affected by new plan would then have to begin the time consuming and expensive process of moving their operations, including retuning their equipment, purchasing and deploying new hardware (such as new filters, combiners, and radios), obtaining funding for these changes, and engaging in lengthy negotiations with surrounding licensees in order to comply effectively with the Commission's interference rules. This will put an enormous burden on all licensees, regardless of whether they cause interference or not. These burdens will fall especially heavily on public safety agencies; tying up personnel resources for years, and forcing the agencies to find funding to relocate their radio systems not once, but twice. This would seem to be an enormously inefficient use of personnel and a waste of taxpayer monies.

III. NEXTEL'S REQUEST FOR FREE SPECTRUM IN THE 2 GHZ BAND SHOULD BE REJECTED AS A BLATANT SPECTRUM GRAB

As part of its "public safety solution," Nextel throws in a self-interested proposal to have the Commission grant it, free of charge, 10 MHz of spectrum in the 2 GHz MSS band. This aspect of Nextel's plan does not relate in any way to the interference problems confronting public safety in the 800 MHz band or the need to use spectrum efficiently.^{30/} Rather, it appears to be Nextel's estimation of the compensation it should be due for agreeing to move to move more valuable contiguous spectrum in the 800 MHz band.

The Commission owes nothing to Nextel. While none of the 800 MHz plans submitted present an appropriate long-term public safety solution, Nextel's is by far the most blatantly self-serving. Not only does Nextel propose to move private radio operations out of the 800 MHz

^{29/} *Coalition Ex Parte* at 10.

^{30/} Indeed, as discussed above, Nextel's proposal to relocate private radio operators outside the 800 MHz band requires the creation of a guard band.

band without a thought as to where they should go or how their move should be funded, it proposes to reward itself with free spectrum in an entirely unrelated band. The fact that none of the other 800 MHz proposals requires the assignment of MSS or other the spectrum to commercial operators without payment underscores the lack of need for or public benefit to be gained by Nextel's solution. By contrast, the Coalition's plan makes more spectrum available to all parties, but requires commercial and private radio operators to compete at auction to obtain the licenses.

In any event, the proper use of the 2 GHz spectrum should be addressed in the Commission's pending proceedings addressing the use of those frequencies for 3G use and various requests to use MSS spectrum for terrestrial wireless service.^{31/} Those proceedings have been ongoing for more than a year and the issue of how the MSS channels should be allocated and assigned has been the topic of numerous *ex parte* submissions and meetings, initial comments, reply comments, and technical comments -- a level of detail and analysis that cannot, and should not, be replicated in the instant proceeding. To the extent the Commission finds any merit to Nextel's 800 MHz rebanding plan, its request for free MSS spectrum should be firmly rejected.

^{31/} See *Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, Including Third Generation Wireless Systems*, ET Docket No. 00-258, *Memorandum Opinion and Order and Further Notice of Proposed Rulemaking*, 16 FCC Rcd 16043 (2001); *Flexibility for Delivery of Communications by Mobile Satellite Serv. Providers in the 2 GHz Band, the L-Band, and the 1.6/2.4 GHz Band; Amendment of Section 2.106 of the Commission's Rules to Allocate Spectrum at 2 GHz for Use by the Mobile Satellite Serv.*, IB Docket No. 01-185, ET Docket No. 95-18, *Notice of Proposed Rulemaking*, 16 FCC Rcd 15532 (2001).

CONCLUSION

Accordingly, for the foregoing reasons, the Commission should reject the proposed 800 MHz rebanding plan and adopt instead, the Coalition's (and AWS's) proposal to relocate 800 MHz public safety service licensees to the 700 MHz band using proceeds from auction of the vacated spectrum to fund that relocation. In addition, the Commission should reject Nextel's self-interested attempt to obtain 2 GHz spectrum.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I, Catherine Carroll, hereby certify that on this 6th day of May 2002, the foregoing Comments of AT&T Wireless Services, Inc. were filed electronically on the FCC's Electronic Comment Filing System and electronic copies were served via electronic mail to the following:

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