

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Establishment of an Interference Temperature)	
Metric to Quantify and Manage Interference and)	ET Docket No. 03-237
To Expand Available Unlicensed Operation in)	
Certain Fixed, Mobile and Satellite Frequency)	
Bands)	

COMMENTS OF NEXTEL COMMUNICATIONS, INC.

Nextel Communications, Inc. (“Nextel”), by its attorneys, hereby submits these comments in response to the Federal Communications Commission’s (“Commission” or “FCC”) Notice of Inquiry and Notice of Proposed Rulemaking (“*NOP*” and “*NPRM*”) seeking comment on the feasibility of adopting of an “interference temperature” approach to quantifying and managing interference among shared users of spectrum.¹

I. INTERFERENCE TEMPERATURE IN MOBILE WIRELESS BANDS – A SOLUTION IN SEARCH OF A PROBLEM.

The Commission has a long and distinguished history of managing spectrum rights and uses to the enormous benefit of the public. The agency’s spectrum management methods and policies necessarily must evolve to address changes in the technological capabilities of radio transmitters and receivers, and to encourage more efficient and intensive use of licensed

¹ Establishment of an Interference Temperature Metric to Quantify and Manage Interference Temperature Metric to Quantify and Manage Interference and to Expand Available Unlicensed Operation in Certain Fixed, Mobile and Satellite Frequency Bands, *Notice of Inquiry and Notice of Proposed Rulemaking*, ET Docket No. 03-237, FCC 03-289, (rel. Nov. 28, 2003) (“*NOP*” and “*NPRM*”).

spectrum. The Commission's commitment to meeting these goals is unquestioned. In its watershed 2002 Spectrum Policy Task Force Report ("Task Force Report"), for example, the Commission identified a range of specific policy recommendations designed to move from a spectrum management model of "command and control" and towards a more market-based, flexible model for commercial services. One of the recommendations was the proposal of an "interference temperature" concept, which the Task Force stated might someday serve as a means for better defining interference rights among various spectrum users. This proceeding proposes to examine how an interference temperature regime might function.

The Commission properly recognizes the proposal as a "fundamental paradigm shift in the Commission's approach to spectrum management."² As a Commercial Mobile Radio Services ("CMRS") licensee that holds thousands of licenses and provides mobile wireless services to over thirteen million subscribers nationwide, Nextel views the implementation of an interference temperature regime within mobile wireless service bands with concern. While Nextel embraces spectral efficiency and innovation as key to competitive success and product differentiation, an interference temperature regime as presented in the *NOI* would needlessly stifle continued innovation by wireless spectrum licensees. The costs to implement even a rudimentary form of interference temperature appear to far outweigh any potential benefits identified in the *NOI*. While perhaps the case can be made for a limited interference temperature experiment in designated fixed service bands, the *NOI* inexplicably focuses attention almost exclusively on developing metrics for applying the concept to mobile wireless bands. The Commission should not move ahead without recognizing the critical feasibility and technological

² *Id.* at ¶ 1.

distinctions in these different operating environments that make any interference temperature approach unworkable for mobile bands.

The Commission also must be sure it adequately considers the foreseeable results of policy paradigm shifts before implementing them. The very real challenges to managing any transition from the current “harmful interference” model to an interference temperature approach cannot be minimized. These include the disincentives for innovation that may be created as parties perceive the model as eviscerating the flexibility the Commission just bestowed on licensees in its secondary markets proceeding. Ultimately, the Commission must not lose sight of the market-driven policies and flexible use regimes that have made CMRS the mass-market success that it is. The CMRS market is highly dynamic, and management of interference in different situations presents a number of highly unique variables that the Commission just now is beginning to identify. The Commission’s current deliberations on the 800 MHz CMRS-public safety interference problem is one example of why the Commission must move very cautiously in this proceeding.

II. THE COSTS AND RESULTING LOSS OF FLEXIBILITY TO CMRS CARRIERS FROM IMPLEMENTING AN INTERFERENCE TEMPERATURE POLICY ARE SIGNIFICANT.

While the *NOI* contains a short discussion of the potential costs and benefits to licensees, manufacturers and others stemming from the introduction of interference temperature as a spectrum management tool, it fails to capture the significance of the potential costs of the regime to mobile wireless CMRS licensees. National and regional CMRS carriers have invested well

over \$100 billion in wireless infrastructure to serve the public.³ Many carriers are in the process of migrating customers to newer, higher speed digital technologies and some must dedicate a portion of their spectrum to support older, less efficient analog operation pursuant to Commission rules. To suggest, as the *NOI* seems to, that there is some compelling need to create underlays and thereby force more efficient operations in the mobile wireless industries, simply is counterintuitive. It also turns back the clock on very recent, positive steps the Commission has taken to allow licensees to use the secondary market to create underlays and other relationships when and where they make sense.

To further suggest that new underlay technologies must be “cost effective” and by implication, financially supported in part by CMRS carriers, begs the question of whether the *NOI* is prejudging the cost/benefit analysis. While it is difficult to quantify the costs of the range of possibilities envisioned by the *NOI*, there appear to be significant costs associated with a mobile interference temperature regime. For example, the *NOI* suggests that licensees cooperate in establishing a grid of monitoring stations to continuously examine RF energy levels, derive interference temperatures and then broadcast that information to subject transmitters. This is a daunting undertaking whose costs can only be guessed.

Another obvious cost to licensees of an interference temperature approach is the toll it could take on licensee innovation. CMRS carriers operate in a highly competitive market in which there is constant pressure to improve and extend service offerings to the public. The idea that interference temperature might be used to introduce forced underlays of additional spectrum

³ *Cellular Telephone & Internet Association, Semi-Annual Wireless Industry Survey 3* (Dec. 2003), available at http://www.wow-com.com/pdf/CTIA_Semiannual_Survey_YE2003.pdf.

users creates obvious market disincentives for CMRS licensees to undertake continued innovation and investment. CMRS carriers now have the incentive to develop spectrally efficient methods to enhance and expand their service offerings to the full extent of their spectrum holdings. Underlays would impair the ability of CMRS licensees to make their future spectrum operations more spectrally efficient; it could deprive them of the ability to exploit the “margins” of whatever spectrum efficiency innovations they create. The Commission’s decision to place its faith in the market is the better policy approach for commercial services.

Any discussion of interference temperature must be preceded by careful consideration of the Commission’s authority to impose major new costs on licensees that effectively modify the rights licensees bargained for in acquiring spectrum licenses from the Commission or in secondary markets. Licensees generally recognize that they assume certain day-to-day and fixed costs associated with operation, including the obligation to mitigate the effects of harmful interference. However, licensees could not reasonably have anticipated that the Commission might deprive them of the ability to exploit to the fullest extent possible technology that makes efficient use of their licensed spectrum through an after-the-fact paradigm shift in policy. Furthermore, licensees had no notice that unlicensed users would be permitted to operate in their licensed spectrum to the extent suggested in the *NOI*. Cognizant that it is operating in the dual role as regulator and spectrum auctioneer, the Commission should proceed very cautiously in changing this basic framework.

III. THE VASTLY DIFFERENT CHARACTERISTICS OF FIXED AND MOBILE WIRELESS OPERATIONS MAY DICTATE DIFFERENT RESULTS.

The Commission seeks comment on “specific technical guidelines in the NPRM portion of our discussion that could be implemented in the near future for selected frequency bands prior

to any possible general implementation of interference temperature limits.”⁴ Thus, the record of this proceeding may be a roadmap for implementing an interference temperature regime for use in mobile as well as fixed wireless environments. As the Commission recognizes, however, “[t]he key simplifying benefit of dealing with fixed operations is the fact that such operations are generally static and well-defined such that reasonable assumptions can be made about their locations and technical characteristics.”⁵ Plainly, no similar assumptions can be made about mobile wireless operations. In fact, the nature of mobile operations makes such assumptions nearly impossible because mobile wireless operations, by their very nature, are not static, nor can the location of mobile receivers or transmitters be well-defined.

Overlooking the challenges to translating the experiences of a fixed environment into a mobile one, the *NOI* raises a host of questions concerning the “development” and “transitioning” to a mobile wireless interference temperature paradigm. For example, the *NOI* requests comment on the development process that would be involved in the transitioning to the new interference methods in various frequency bands, as well as the steps that need to be taken “prior to a general implementation.”⁶ Thus, while the Commission acknowledges that implementation of the interference temperature approach would involve planning, study of existing RF noise and interference levels and other factors, the *NOI* does not acknowledge that implementation may not be feasible in mobile terrestrial spectrum bands without totally upending settled expectations

⁴ *NPRM/NOI* at ¶ 8.

⁵ *Id.* at ¶ 34.

⁶ *Id.* at ¶ 4.

regarding many aspects of current CMRS operations.⁷ Implementation of an interference temperature in CMRS bands would be fraught with challenges that the *NOI* does not adequately anticipate.

Fundamentally, introduction of an interference temperature without adequate study and justification could be potentially disastrous for wireless customers, including those customers using E911 services. Currently, CMRS carriers operate at the entire margin of the licensed spectrum available if they want to be successful in a highly competitive market. In addition, consumers increasingly rely on their wireless phone as their primary phone.⁸ This makes it increasingly essential that CMRS carriers provide the highest quality of service at all times to their customers.

Additionally, the implications of an interference temperature on potential intermodal competition should not be overlooked. To the extent that interference temperature raises costs of doing business for CMRS licensees, it will have an adverse impact on CMRS carriers' ability to compete for intermodal customers.⁹ If CMRS carriers compete with incumbent local wireline carriers, they must be assured of having access to predictable and adequate spectrum resources,

⁷ *Id.*

⁸ According to a recent study conducted by In-Stat/MDR, more than 14% of consumers use a wireless phone as their primary phone and 26% of the rest say they would consider replacing their landline with a wireless phone for primary use. In-Stat/MDR concluded that the results show "a significant potential for wireline displacement over the next 5 years" and estimated that almost 30% of wireless subscribers will not have a landline phone by 2008. *See* COMM. DAILY, February 26, 2004, at 8-9.

⁹ *See* Telephone Number Portability; CTIA Petitions for Declaratory Ruling on Wireline-Wireless Porting Issues, *Memorandum Opinion an Order and Further Notice of Proposed Rulemaking*, 18 FCC Rcd 23697 (2003).

without the threat of unlicensed service underlays. Without such assurances, intermodal competition may not be sustainable.

The Task Force Report correctly concluded that interference issues must first be addressed if the Commission hopes to increase the utility of spectrum resources.¹⁰ These issues cannot, however, be addressed adequately without appreciating the dynamics of the interference problems that arise within the current licensing operating framework. Even when CMRS operators work within existing interference parameters and within their licensed spectrum, interference problems can arise. One need not look further than the Commission's 800 MHz proceeding investigating solutions to public safety interference problems to see that even in an environment where all licensees are operating in full compliance with the parameters of their licenses, and in accordance with Commission rules, there are daunting interference challenges. This highlights the need for the Commission to move cautiously in the name of more efficient spectrum management.

IV. CONCLUSION

The Commission should not apply an interference temperature regime to mobile wireless operations without full identification and reasoned consideration of the effects of such a proposal. While the introduction of an interference temperature in theory might be tenable in certain fixed wireless bands, the *NOI* can only speculate about how such a concept might work in a mobile wireless environment. It is silent on the critical issues of cost, who bears the cost, effect on service quality, coverage or capacity and the potential of underlays to inhibit the

¹⁰ Federal Communications Commission Spectrum Policy Task Force, *Report*, ET Docket No. 02-135 (released November 15, 2002).

development of more intensively used licensed spectrum. It fails to address the legitimate legal expectations of licensees to exploit fully their use of their licensed spectrum. All of these issues deserve far more consideration and study. Only then can the Commission reasonably evaluate any interference temperature as a viable spectrum policy for particular spectrum bands.

Respectfully submitted,

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April 5, 2004