

Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554

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In the Matter of )  
 )  
Revision of the Commission's Rules )  
To Ensure Compatibility with )  
Enhanced 911 Emergency )  
Calling Systems )

CC Docket No. 94-102 ✓

To: Chief, Wireless Telecommunications Bureau

REPLY COMMENTS OF NEXTEL COMMUNICATIONS, INC.

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Date: January 22, 2001

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**REPLY COMMENTS OF NEXTEL COMMUNICATIONS, INC.**

**I. INTRODUCTION**

Nextel Communications, Inc. ("Nextel") respectfully submits these Reply Comments in response to the comments filed on its Request for Waiver of the Federal Communications Commission's ("Commission") Phase II Enhanced 911 ("E911") rules in the above-referenced proceeding.<sup>1</sup>

On January 5, 2001, six parties submitted Comments – five supporting or tentatively supporting Nextel's waiver request,<sup>2</sup> and only one in opposition.<sup>3</sup> Nextel submits these Reply Comments to address this limited opposition and provide additional information supportive of its request.

The sole opposition to Nextel's request was filed by Grayson Wireless ("Grayson"), a network-based location services vendor that purports to offer Phase

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<sup>1</sup> Public Notice, "WTB Seeks Comment on Phase II E911 Implementation Waiver Requests Filed by Nextel Communications, Inc. and Hawaiian Wireless, Inc.," DA 00-2704, released December 4, 2000.

<sup>2</sup> Comments of APCO on Phase II Implementation Waiver Requests Filed By Nextel Communications, Inc. and Hawaiian Wireless, Inc.; ("Comments of APCO"); Comments of NENA; Comments of Motorola; Comments of AT&T Wireless Services, Inc.; Comments of Pacific Wireless Technologies, Inc. APCO and NENA, though generally supportive, requested some additional information – most of which has been provided by Motorola in its Comments in this proceeding and which is supplemented herein.

<sup>3</sup> Opposition of Grayson Wireless To Nextel Request for Waiver ("Opposition of Grayson").

II compliant automatic location identification ("ALI") solutions for multiple wireless communications technologies and air interfaces. Through numerous briefings and reviews of documentation over a period of fourteen months, Nextel developed an understanding of Grayson's Geometrix™ solution and solicited Grayson's participation in its multi-vendor field trial of four different location technologies in April 2000. Grayson initially planned to participate; however, when presented with the location and schedule of Nextel's field trial, Grayson dropped out of the trial.

Nextel's field trial, as discussed below, tested alternative Phase II solutions in multiple environments to identify the strengths and weakness of each solution in the various operating environments found in Nextel's nationwide iDEN network. Grayson apparently chose to not participate in Nextel's field trials because it had not completed development of the location equipment it believed necessary for a successful urban field trial.<sup>4</sup> Grayson's decision denied Nextel the opportunity to obtain timely, *independently verified field trial data* regarding Geometrix's performance vis-à-vis other competing Phase II E911 technologies in Nextel's iDEN network's various operating environments. Grayson essentially took itself out of the running to be Nextel's Phase II technology solution.<sup>5</sup> In short, the instant Opposition is just "sour grapes" from a disappointed vendor.

Nextel is one of the world's few users of Motorola's iDEN technology and, as the Association of Public-Safety Communications Officials-International, Inc. ("APCO") recognized in its Comments herein, this places it in a "unique" position

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<sup>4</sup> As Nextel understands it, Grayson believed that "four-channel" Geometrix™ equipment was necessary to provide Phase II compliant results in an urban environment. Although it could have tested its "two-channel" equipment, the "four-channel" equipment was not ready and it chose not to participate.

with few options for choosing a location technology vendor.<sup>6</sup> As an operator using this "island" technology, there were no "comparative" trial results from industry-sponsored fora and field trials such as those performed on other technologies (such as those sponsored by the Code Division Multiple Access ("CDMA") Development Group). Nextel, therefore, had to arrange for its own *independent* trials of alternative ALI solutions to determine their success in locating callers within the Commission's accuracy requirements in varying environments on its unique iDEN network. Technology demonstrations, advertising puffery, unsubstantiated claims of a Commission compliant solution, or field tests in limited radio frequency ("RF") environments and topologies – such as those Grayson refers to in its Opposition<sup>7</sup> -- do not provide the statistical significance or technical sufficiency a decision of this magnitude requires.

Accordingly, of the 13 vendors that initially responded to Nextel's 1998 Request for Information, Nextel arranged independent field trials with only those ALI vendors that had demonstrated, based on criteria pre-established by Nextel, a theoretical capability of locating iDEN users within the Commission's accuracy requirements. As a result of this trial, only one location technology – Assisted Global Positioning System ("A-GPS") -- proved an acceptable location solution for Phase II E911. Although Nextel's A-GPS solution will roll out approximately one year after the Commission's initial rollout requirement, it is capable of locating callers within 50 meters 67% of the time and will be available to 95% of Nextel's customer base by December 31, 2005, as required by the Commission's Rules.

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<sup>5</sup> As discussed below, Grayson has yet to demonstrate the reliability and accuracy of Geometrix™ for use in Nextel's nationwide iDEN network.

<sup>6</sup> Comments of APCO at p. 3.

<sup>7</sup> Opposition of Grayson at p. 5.

Nextel is fully committed to making E911 Phase II a reality for its customers and for wireless users generally.<sup>8</sup> Nextel's commitment is evidenced by its decision to deploy a location technology that will locate callers within the Commission's most stringent accuracy requirements. It is also demonstrated by Nextel's establishing a clear path to full compliance with the Commission's ultimate Phase II requirement that 95 percent of a carrier's handsets be Phase II ALI capable by December 31, 2005.<sup>9</sup> Given Nextel's unique position, its commitment to E911 rollout, the public interest benefits of deploying an A-GPS solution on Nextel's system, and the substantial support of the commenters herein, Nextel respectfully requests that the Commission grant its waiver request.

## II. DISCUSSION

### A. **The Sole Opposition to Nextel's Waiver Request is That of a Location Vendor That Failed to Make a Sale**

As noted above, iDEN is an "island" technology in the United States – *i.e.*, only Nextel and two smaller carriers operate iDEN networks making it less attractive to ALI vendors than the more commonly used TDMA, CDMA and AMPS air interfaces. In an effort to stimulate maximum competitive innovation and ALI solution choices, Nextel requested iDEN Phase II ALI solutions from 13 location technology vendors and, based on their responses (or lack thereof), solicited

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<sup>8</sup> To that end, if the Commission grants its waiver request, Nextel has offered to provide \$25 million over two years to assist PSAPs in upgrading their technology and equipment to accept and display E911 location information – both Phase I and Phase II – that Nextel and other providers will be transmitting as rollout progresses. Notwithstanding Grayson's allegation that this is unnecessary because Phase I capable PSAPs can accept Geometrix™ output, the fact is that the majority of the nation's PSAPs are not Phase I capable today – in many cases due to funding challenges. See Opposition of Grayson at p. 8. As APCO states, even Nextel's \$25 million proposal – while significant – is a "drop in the bucket" of overall E911 PSAP upgrade funding requirements. Comments of APCO at p. 5.

<sup>9</sup> See Nextel Communications, Inc. and Nextel Partners Joint Report on Phase II Location Technology Implementation at Request for Waiver. Filed herein on November 9, 2000, at p. 7-10.

multiple vendor participation in its field trial process. Nextel invited four location vendors, including Grayson, to participate in its field trial in the Washington D.C. area in April 2000.

At a cost of more than a quarter of a million dollars, Nextel attempted to make thorough, well-considered decisions regarding the vendors it chose to participate in the field trials. Nextel included Grayson because its analysis suggested that Geometrix™ had the theoretical underpinnings of a solution that could properly collect and process Time Difference of Arrival (“TDOA”) data on iDEN handsets, thereby meriting further investigation. However, when it was time for Grayson to demonstrate its product on Nextel’s system, it stated that it was unprepared and withdrew.<sup>10</sup> After investing fourteen months studying Grayson’s location services and potential iDEN performance, Nextel was extremely disappointed that it would not be able to test Grayson’s Geometrix™ iDEN performance representations. Although Grayson proposed to perform its trial at a later date,<sup>11</sup> Nextel did not have the option of postponing its data collection and analysis to accommodate Grayson in light of the Commission’s then-upcoming Phase II reporting deadlines.

Thus, there is no evidence that Grayson’s claim that it “supports the iDEN air interface utilized by Nextel’s network infrastructure” has ever been *independently*

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<sup>10</sup> See Opposition of Grayson at p. 6 (“[] Grayson Wireless does not dispute that it did not have available at the early 2000 date chosen by Nextel some of the equipment elements of the type required for Nextel’s specific chosen market venue trial area. . .”).

<sup>11</sup> Although Grayson claims in its Opposition that it can conduct a field trial in four to six weeks, Grayson told Nextel in March 2000 that, while the necessary hardware would be available in the trial area by June 2000, testing could not commence until September 2000. Thus, in Nextel’s case, Grayson’s trial would not have been completed – much less the data analyzed, evaluated and compared by the independent experts Nextel employed – until it was too late for Nextel to make an informed decision on its Phase II technology deployment. See Opposition of Grayson at p. 6.

field tested on an iDEN network. To ensure the most accurate and reliable field trials possible among alternative Phase II solutions, Nextel established specific testing criteria, insisted on independent data collection and analysis and required that all trials be conducted in the same geographic area, thus assuring an “apples to apples” comparison of the varying location technologies. The fact that after more than a year of discussions Grayson could not participate in the field tests speaks volumes as to the validity of the facts upon which it bases its Opposition.<sup>12</sup>

Grayson claims it subsequently “performed a live demonstration for Nextel of the Geometrix capability to locate and track iDEN handsets[,]”<sup>13</sup> but that “demonstration” was nothing more than a computer-plotted tracking demonstration that provided no “ground truth” comparisons, *i.e.*, there was no comparison between the location of the caller on the computer screen and the actual latitude and longitude location of the caller. In other words, this demonstration provided Nextel no empirical evidence upon which to judge the location accuracy of Grayson’s capabilities. Additionally, because it was not conducted pursuant to Nextel’s testing parameters and was conducted in a primarily suburban geographic area,<sup>14</sup> the “demonstration” did not provide Nextel the “apples to apples” comparison necessary to judge Grayson’s product against the others Nextel had tested in multiple environments.

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<sup>12</sup> Or, alternatively, it may reflect the possibility that Grayson’s resources were tied up in attempting to provide solutions for the larger and more lucrative TDMA and CDMA Phase II markets.

<sup>13</sup> Opposition of Grayson at p. 6.

<sup>14</sup> Testing Grayson’s network based solution in a suburban area such as Reston, Virginia could skew the results as TDOA location solutions will typically perform better in these relatively moderate multi-path environments, and may not perform as accurately in urban environments.

Given Grayson's position as a vendor seeking to sell its product to Nextel and the complete lack of evidence that its product can fulfill Nextel's Phase II E911 location capabilities, the Commission should dismiss the Opposition. Grayson urges the Commission to deny Nextel's waiver request on the basis that Grayson has an E911 solution that is Phase II compliant and that Nextel "for undisclosed reasons" improperly chose to not select it.<sup>15</sup> As demonstrated above, there has been no real world field trial with the iDEN RF interface, and Grayson has having provided no evidence that its demonstrations to date were independently verified. Thus, Grayson cannot validate its claims that its location technology fulfills the Commission's Phase II E911 requirements in an iDEN network. For these reasons, the Commission should dismiss Grayson's Opposition.<sup>16</sup>

**B. Nextel's Waiver Request is In the Public Interest and Satisfies the Commission's Criteria for Waiver of its Phase II E911 Rules**

In its Fourth Memorandum Opinion and Order in this proceeding,<sup>17</sup> the Commission concluded that waivers would only be justified if there are "technology-related issues or exceptional circumstances" that "mean that deployment of Phase II may not be possible by October 1, 2001."<sup>18</sup> As Nextel demonstrated in its November 9 filing and Motorola, AT&T, Pacific Wireless, NENA and APCO supported in their Comments herein, Nextel faces the very technology-related issues and exceptional circumstances envisioned by the Commission in drafting its policy

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<sup>15</sup> Opposition of Grayson at Summary p. i.

<sup>16</sup> Nextel takes no position on the quality of Geometrix™ ALL technology as applied to other carriers' non-iDEN wireless networks and does not intend to impugn in any way Grayson's readiness or performance in any other E911 application. The facts indicate, however, that Nextel had a reasonable basis for deciding not to choose Geometrix™ for its iDEN Phase II solution.

<sup>17</sup> Fourth Memorandum Opinion and Order, FCC 00-326, released September 8, 2000 ("Fourth MO&O").

<sup>18</sup> *Id.* at para. 43.

governing Phase II deployment waivers. As Motorola stated in its comments, iDEN is a unique technology with distinct differences from all other digital air interfaces, including the Global System for Mobile (“GSM”) platform.<sup>19</sup> Despite the longstanding efforts of Motorola and Nextel to develop a location technology for iDEN that would meet the Commission’s Phase II deployment and accuracy requirements, only the A-GPS handset solution, with a delivery date of October 2002, will meet the accuracy standards.<sup>20</sup>

In its November 9 filing, Nextel demonstrated that the A-GPS solution will provide the handset-based accuracy required by the Commission’s rules, and in its Comments herein, ***Motorola supports those accuracy claims as well as its commitment to the deployment dates provided in Nextel’s November 9 filing.***<sup>21</sup> Additionally, Motorola’s Comments support Nextel’s assertions that an Enhanced Observed Time Difference (“E-OTD”) network solution will not provide the Commission’s required accuracy levels on an iDEN network.<sup>22</sup> As explained in detail by Motorola, its E-OTD testing on iDEN technology in a lab environment – an environment which should produce more accurate results than a real-world test – resulted in location “hits” outside the parameters of the Commission’s network-based accuracy requirements.<sup>23</sup> Specifically, Motorola’s lab tests resulted in a weighted average accuracy of 382 meters 67% of the time and 1327 meters 95% of the time.<sup>24</sup> A second E-OTD test, which involved the installation of additional

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<sup>19</sup> Comments of Motorola at p. 2.

<sup>20</sup> *Id.* at pp. 2-3.

<sup>21</sup> *Id.* at pp. 2-5. Motorola’s Comments, moreover, satisfy APCO’s request for a statement from Motorola supporting Nextel’s claim that A-GPS location-capable handsets will not be available on or before October 1, 2001. Comments of APCO at p. 4.

<sup>22</sup> Comments of Motorola at pp. 5-7.

<sup>23</sup> *Id.*

<sup>24</sup> *Id.* at p. 5.

hardware at each iDEN cell site, achieved better accuracy, but at levels still below the Commission's Phase II E911 requirements.<sup>25</sup>

Motorola's Comments also support Nextel's decision not to deploy E-OTD on an interim basis pending deployment of its A-GPS handset solution. The E-OTD solution that could be deployed on a limited basis by October 1, 2001 would provide location at approximately 382 meters 67% of the time – a radius nearly four times that required by the Commission's rules. Coupled with the fact that an E-OTD interim solution will cause a one-year delay in the deployment of Nextel's A-GPS solution (which locates callers within 50 meters 67% of the time), such an interim solution is not in the public interest.<sup>26</sup> This delay results from the fact that an E-OTD deployment requires different infrastructure development than that required for A-GPS deployment.<sup>27</sup> Additionally, the RF resources utilized for E-OTD and A-GPS are different, and the assist data varies between the two solutions, thus requiring two very different Motorola development efforts.<sup>28</sup> Thus, accordingly to Motorola, a short-term interim E-OTD deployment would inevitably and significantly delay A-GPS commercial deployment to fourth quarter 2003.<sup>29</sup>

This is why Nextel has chosen to not implement an interim network overlay solution. Rather than divert critical resources to an interim solution that does not work and that would delay deploying Phase II compliant A-GPS technology, Nextel chose – as the Commission's waiver standard for E911 Phase II requires – to establish a clear path to full Phase II compliance as soon as possible.

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<sup>25</sup> *Id.* at p. 6.

<sup>26</sup> *See* Comments of NENA at p. 4, suggesting that Nextel "volunteer" to deploy a network solution in the interim pending deployment of its A-GPS solution.

<sup>27</sup> Comments of Motorola at p. 8.

<sup>28</sup> *Id.*

<sup>29</sup> *Id.*

**CONCLUSION**

For the reasons discussed herein and in its November 9 filing, Nextel respectfully requests that the Commission grant Nextel's waiver request.

Respectfully submitted,

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January 22, 2001

CERTIFICATE OF SERVICE

I, Rochelle L. Pearson, hereby certify that on this 22<sup>nd</sup> day of January 2001, caused a copy of the attached Reply Comments of Nextel Communications, Inc. to be served by hand delivery to the following

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