**Before the**
**FEDERAL COMMUNICATIONS COMMISSION**
**Washington, DC 20554**

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| In the Matter of | ) | |
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| Revision of the Commission's Rules | ) | CC Docket No. 94-102 |
| To Ensure Compatibility with | ) | |
| Enhanced 911 Emergency | ) | |
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To: The Commission

# REPLY COMMENTS OF NEXTEL COMMUNICATIONS, INC. TO FURTHER COMMENTS OF NENA, APCO AND NASNA

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## SUMMARY

Nextel Communications, Inc. and its affiliate Nextel Partners, Inc. (collectively "Nextel") are providers of commercial mobile radio services using a unique digital technology and infrastructure, iDEN, which integrates cellular telephone service, digital dispatch service (i.e., push-to-talk) and other functionalities in a single handset. Motorola is the sole worldwide supplier of the iDEN technology, and Nextel is one of the only wireless providers using the iDEN technology in the U.S. As a result, when Nextel began researching Phase II location solutions, its options were limited as location vendors tended to focus their development efforts on other digital technologies, e.g., TDMA and CDMA, in light of the larger potential subscriber base.

As a result, Nextel invested more than two years researching, investigating and analyzing various location solution vendors and their products. By Second Quarter 2000, Nextel had narrowed the possible iDEN location solutions to three: Enhanced Observed Time Difference ("E-OTD"), the radio fingerprinting network overlay and Assisted Global Positioning Satellite ("A-GPS"). In Nextel's independent technology trial, where each of these three technologies were field tested in identical environments under the same conditions, only one – A-GPS -- demonstrated the ability to locate a caller in compliance with the Phase II E911 accuracy requirements of the Federal Communications Commission ("Commission"). This solution, however, was not readily available for deployment in on Nextel's iDEN handsets and infrastructure. Therefore, in its November 9, 2000 Phase II Implementation Report to the Commission, Nextel requested a waiver of the Commission's Phase II timelines to deploy the A-GPS handset solution starting October 1, 2002.

Having made its technology decision, Nextel placed an order with Motorola in November 2000, and Motorola immediately began its A-GPS iDEN development efforts. The first stage of development required the addition of the A-GPS circuitry and unique A-GPS antenna to an existing iDEN handset since there are no iDEN handsets with an embedded A-GPS capability. By January 2001, Motorola had successfully integrated the A-GPS circuitry on a brassboard of the handset's circuit board, and by March 2001, the A-GPS capability had been incorporated in a prototype iDEN handset.

By June 2001, Nextel and Motorola conducted a field test of the prototype, using many of the same test sites used in its Second Quarter 2000 filed trial of all potential location technologies. The GPS capability in the prototype handset, which did not have the "assist" capability that will be provided by Nextel's network in commercial launch of the service, located the mobile unit within 50 meters in excess of 67% of the time. Only in indoor and dense urban environments, i.e., the environments in which the network assist data is most important to obtaining accurate fixes, did the prototype fail to comply with the Commission's rules. Nextel and Motorola are confident that, once the network assist is in place, A-GPS will meet the accuracy requirements in these environments.

Pursuant to the Phase II waiver standards established in the Fourth Memorandum Opinion and Order in this proceeding, grant of Nextel's waiver request is in the public interest. Nextel's decision-making process properly considered a variety of possible technical solutions, but none was "available and feasible" for timely permanent deployment or timely interim deployment. Because none of the technologies fully complied with the Commission's rules, Nextel properly chose the solution that "comes as close as possible, in terms of providing reasonably accurate location as quickly as

possible." Nextel made every effort to find an interim "Phase I plus" location solution in light of Voicestream's waiver grant in September 2000. However, the interim deployment of any non-compliant Phase II technology on Nextel's iDEN network would have had two significant adverse consequences: (1) an *additional year delay* in deploying the Phase II-compliant A-GPS location capability; and (2) a substantial investment of time, money and resources in developing and deploying what would be "throw-away" technology. More importantly, at this juncture (just two months before the beginning of this "interim" time period), an interim solution on Nextel's iDEN network is *technologically impossible.* No such solution exists today, and no solution could be developed, tested and deployed in any reasonable time frame before October 1, 2002 – the date on which Nextel's compliant location technology will be available.

Nextel's waiver request has been pending for ten months. With the Commission's Phase II initial deadline now only two months away, Nextel respectfully requests that the Commission act expeditiously to grant Nextel's request for additional time to deploy its A-GPS handset based location technology.

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**REPLY COMMENTS OF NEXTEL COMMUNICATIONS, INC. TO FURTHER COMMENTS OF NENA, APCO AND NASNA**

## I. INTRODUCTION

Nextel Communications, Inc., on behalf of itself and Nextel Partners, Inc. (collectively "Nextel") respectfully submits these Reply Comments in response to the July 19, 2001 Further Comments of the National Emergency Number Association ("NENA"), the Association of Public-Safety Communications Officials-International, Inc. ("APCO") and the National Association of State Nine One One Administrators ("NANSA") (hereinafter collectively the "Public Safety Organizations").[1] These Further Comments respond to information Nextel provided the Wireless Telecommunications Bureau ("Bureau") in response to the Bureau's May 10, 2001 request for additional information regarding Nextel's Phase II Enhanced 911 ("E911") Waiver Request ("May 21 Response").

The Public Safety Organizations have failed to raise any issue that would preclude the grant of Nextel's waiver request in accordance with the Federal Communications

[1] Further Comments of APCO, NENA and NASNA, filed July 19, 2001 in CC Docket No. 94-102 (hereinafter "Further Comments").

Commission's ("Commission") waiver criteria in the Fourth Memorandum Opinion and Order ("Fourth MO&O") in this proceeding.[2] For this reason – and the fact that the Commission's Phase II deployment deadline is only two months away – the Commission should expeditiously act on Nextel's waiver request and grant the relief requested.

## II. BACKGROUND

Nextel filed a waiver request on November 9, 2000 seeking authority to initially deploy its Assisted Global Positioning Satellite ("A-GPS") handset solution for Phase II E911 compliance on October 1, 2002 – one year from the Commission's initial deadline.[3] Thereafter, Nextel proposed to provide A-GPS capabilities in its handsets pursuant to the following timeline:

(1) 10% of all new activations by December 31, 2002;
(2) 50% of all new activations by December 1, 2003;
(3) 100% of all new activations by December 1, 2004; and
(4) 95% of the total Nextel subscriber base by December 31, 2005, thus timely achieving the Commission's final penetration requirement.

On May 10, 2001, the Bureau ordered Nextel to provide significant supporting documentation regarding its decision to deploy the A-GPS handset solution.[4] Although it waited six months to request the information from Nextel, the Bureau ordered that it be

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[2] Fourth Memorandum Opinion and Order, CC Docket No. 94-102, FCC 00-326, released September 8, 2000.

[3] Nextel Communications, Inc. and Nextel Partners, Inc. Joint Report on Phase II Location Technology Implementation and Request for Waiver, filed November 9, 2000 in CC Docket No. 94-102 (hereinafter "November 9 Waiver") at p. 4.

[4] Order, DA 01-1187, released May 10, 2001. Prior to submitting this information in response to the Bureau's Order, Nextel obtained waivers from vendors and other parties consenting to the release of otherwise privileged and confidential information. The confidential nature of this information had precluded Nextel from providing it on the record prior to May 21, 2001.

provided within ten days.[5] Despite the overwhelming nature of the request, given the personnel, time and resources required to collect, organize and provide the requested information within the Bureau's 10-day time period, Nextel thoroughly documented its processes for identifying potential location vendors, researching and analyzing alternative location technologies, preparing for and conducting an extensive field trial, and explaining the bases on which it reached its location technology decision.

Now, two months later, after having formed a "technical committee" to review Nextel's May 21 Response, the Public Safety Organizations submitted a three-page filing that addresses none of the detail contained in the Response. The Public Safety Organizations take no issue with Nextel's more-than-two-year research and evaluation process, they take no issue with the testing methodologies used by Nextel or the engineering results of those tests, and they take no issue with the criteria by which Nextel reached its ultimate decisions. Thus, the Public Safety Organizations allege no defects in Nextel's processes or evaluations; they do, however, assert two concerns:

(1) they quote from the Summary of Nextel's May 21 Response as if it were the sum and substance of Nextel's explanation for not deploying an interim solution – suggesting that Nextel's explanation is insufficient -- notwithstanding Nextel's extensive discussion on the record in support of that decision;[6] and

(2) they indulge in 20/20 hindsight, nearly nine months later, with respect to Nextel's decision not to choose an interim overlay solution that demonstrated neither the ability to achieve the Phase II accuracy requirements nor a substantial improvement over Phase I accuracy.[7]

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[5] In light of the numerous files Nextel was required to investigate, review and ultimately produce – including a number of files from its vendor, Motorola, Inc. -- Nextel sought additional time to respond to the Bureau's Data Request, but the request was denied.

[6] *See* Further Comments at pp. 1-2, citing Nextel's May 21 Response at ii.

[7] *Id.* at p. 2. As discussed below, APCO adamantly opposed the Voicestream waiver grant at the time Nextel was evaluating the possibility of deploying an interim solution. APCO, which now

In making these two assertions, the Public Safety Organizations blatantly misrepresent Nextel's efforts in this proceeding, claiming that Nextel has not "explained its *flat omission* of an interim solution when it appears to have had two to choose from," and that Nextel's waiver has a "*lack of documentation* for the claim that an interim solution would delay by at least a year the implementation of A-GPS permanently."[8] Neither allegation is correct, as demonstrated below.

## III. DISCUSSION

### A. Nextel Has Documented and Explained Fully That Deploying An Interim Location Solution in its iDEN Network Would Delay A-GPS Deployment for One Year.

1. *The Record Supports Nextel's Phase II Waiver Request.*

Although the Public Safety Organizations allege that a single sentence in the Summary of Nextel's May 21 Response is the only support for Nextel's assertion that A-GPS will be delayed for one year if an interim solution is deployed on its iDEN network, the record herein contains significantly more information supporting this fact. First, in the May 21 Response to which the Public Safety Organizations are commenting, Nextel fully explained the results of the Enhanced Observed Time Difference ("E-OTD") trials performed both in the lab and on Nextel's iDEN system, and provided information on the continued testing Motorola performed in an effort to achieve sufficiently accurate

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seems to view Voicestream's interim solution as the "bar" for granting waivers, then-proclaimed that Voicestream's interim accuracy solution was "not a meaningful improvement over Phase I" and that "[f]inding a 9-1-1 caller within that test area would still be extremely difficult and time-consuming and, ***frankly, not much better in most cases than having cell site information alone.***" Petition for Reconsideration of Voicestream Waiver, filed September 20, 2000 in CC Docket No. 94-102 ("APCO Petition for Reconsideration"), at p. 6 (emphasis added). It was in this environment that Nextel was weighing its options for an interim location solution.

[8] *See* Further Comments at p. 2 (emphasis added).

location results for an interim deployment (recognizing that E-OTD would not qualify as a permanent Nextel solution).[9] Despite these continued efforts, "the application of E-OTD to iDEN [was] not sufficient to warrant an interim deployment decision – particularly when considered in light of the minimum one-year delay such an interim deployment would have created in introducing the more accurate, Commission-compliant A-GPS solution."[10]

In support thereof, Nextel cited to the Comments of Motorola, filed January 5, 2001 on Nextel's November 9 Waiver Request.[11] Therein, Motorola explained that

> "[t]he infrastructure development of an E-OTD solution for E-911 will have an impact on the delivery of the A-GPS solution. The E-OTD infrastructure solution has significant differences with the A-GPS solution thus minimizing the opportunity of reuse between the two solutions. The RF resources are utilized differently and the assist data varies between the two solutions. Due to these differences, each solution is a unique development effort. If Motorola were to deliver an interim E-OTD solution, an A-GPS solution would be delayed from October 2002 to the second quarter 2003. A nationwide deployment of the A-GPS solution could take up to six months and result in a commercial solution by the fourth quarter 2003."[12]

In addition, prior to submitting the May 21 Response, Nextel previously addressed the problems associated with E-OTD as an interim solution.[13] First, in its November 9 Waiver Request, Nextel explained that the incremental accuracy of E-OTD

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[9] May 21 Response at pp. 8, 18-19.

[10] *Id.* at pp. 18-19.

[11] *Id.* at fn. 27.

[12] Comments of Motorola, filed January 5, 2001, in CC Docket No. 94-102 ("Motorola Comments") at p. 8.

[13] The unsuitability of E-OTD as an interim (or permanent) Phase II technology in Nextel's iDEN network has no bearing on its efficacy in other, non-Nextel wireless networks and Nextel takes no position thereon. *See* Motorola Comments at pp. 5-7 for a discussion of the unique aspects of iDEN that preclude a compliant E-OTD solution.

over Phase I E911, balanced against the delay it creates in call set-up time and overall delay in deploying A-GPS, militated against deploying E-OTD on an interim basis.[14] Next, in its January 22, 2001 Reply Comments, Nextel explained in greater detail the accuracy issues associated with E-OTD and the delay it would cause for A-GPS deployment if used on an interim basis.[15] Specifically, Nextel stated that an E-OTD solution deployed by October 1, 2001 could locate callers four times less accurately than required by the Commission's Rules, and would delay A-GPS deployment by a year because "an E-OTD deployment required different infrastructure development than that required for A-GPS deployment[,]. . . 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."[16]

Nextel explained the issue of A-GPS delay a third time in an April 2, 2001 *ex parte* presentation to the Bureau.[17] There, Nextel again explained that in arriving at its decision to deploy A-GPS as soon as possible, it had evaluated the possibility of an interim E-OTD solution similar to Voicestream's decision to use an interim Network Software Solution ("NSS") overlay solution while awaiting its Commission-compliant location solution.[18] However, E-OTD as an interim solution was not feasible in light of its limited accuracy capabilities in an iDEN network, its adverse impact on call set-up

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[14] November 9 Waiver Request at pp. 17-18.

[15] Reply Comments of Nextel, submitted January 22, 2001, at pp. 8-9.

[16] *Id.* at p. 9.

[17] *See* Letter to Blaise Scinto and Dan Grosh, Wireless Telecommunications Bureau, dated April 2, 2001, from Lawrence R. Krevor, in CC Docket No. 94-102.

[18] *Id.* at p. 3.

time, and the year-long delay it would create for A-GPS deployment (again citing Motorola's January 5 Comments to explain the reasons for delay).[19]

2. *A Year's Delay in A-GPS Deployment is not In the Public Interest.*

Although Nextel seriously considered its options for an interim technology deployment, pending full deployment of its Commission-compliant location solution, it is important to note that Nextel made its decision to forego an interim solution based on the facts described above, and the legal standard the Commission established in its Fourth MO&O. Nothing in the Commission's waiver standard required the deployment of an interim solution as a prerequisite to a waiver grant, particularly where the interim approach would cause significant delay in the permanent compliant solution.[20] Voicestream chose this avenue as a means of justifying the particular facts and circumstances of its Phase II location decision. Simply because the Commission granted Voicestream's waiver, and public safety organizations *now* seem to view Voicestream's interim deployment as part and parcel of the Commission's waiver standard, does not change the criteria that were established in the Fourth MO&O. The mere fact that some technologies, e.g., GSM, make an interim "Phase I plus" solution a viable option for some carriers does not make it an option for other carriers using different technologies. The record herein demonstrates that interim E-OTD deployment on Nextel's iDEN system, resulting in a one-year delay in A-GPS deployment while providing little location advantage and a delay in call set-up time (a particularly important consideration in emergency situations), is not in the public interest.

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[19] *Id.*

[20] *See* Fourth MO&O at paras. 42-45.

Based on this and all other information available at the time – including the vocal opposition of leading public safety officials to Voicestream's proposed interim NSS solution -- Nextel chose to implement a Commission-compliant technology as soon as possible because, as the Commission concluded, "[t]he life-saving advantage of being able to know *accurately* and *quickly* the location of an emergency is obvious. Emergency police, fire, and medical teams cannot assist a person they cannot find."[21] Nextel discusses in greater detail below the information that was available at the time it made its Phase II decision and environment within which its was making this decision.

**B. Nextel Made its Technology Decision Based on the Information Available at the Time**

In the September-November 2000 timeframe, when Nextel was finalizing its Phase II location technology decision after spending nearly two years researching and analyzing all available options, A-GPS was the only technology choice that reliably met the Commission's required location accuracy in Nextel's field trial. As a result, Nextel had only one choice for its permanent Phase II solution. However, as explained above, Nextel seriously considered deploying an interim solution in light of Voicestream's proposal to deploy an interim NSS solution. Nextel's interim solution options, however, were also limited by (1) the results of its Second Quarter 2000 field trial, (2) the time it would require to deploy any of these solutions, and (3) the vociferous opposition of public safety leadership to Voicestream's interim location accuracy.[22]

First, the public interest will only be served by an interim solution that provides a beneficial improvement over Phase I E911 location. In Nextel's Second Quarter 2000

[21] Third Report and Order, 14 FCC Rcd 17388 (1999) at para. 2 (emphasis added).

[22] Significantly, the Commission still has not affirmed Voicestream's waiver grant.

field trials, described in greater detail in the November 9 Waiver Request and the May 21 Response,[23] E-OTD located the caller within an average of 382 meters 67% of the time and in excess of 1000 meters 95% of the time. Similarly, US Wireless's Radio Fingerprinting technology located the caller within 567 meters 67% of the time and in excess of 1000 meters 95% of the time. This "accuracy," moreover, was based on post-processing of the data, which in the case of E-OTD was necessary because Motorola did not have the capability of processing the data in real time, and in the case of US Wireless, was done to eliminate known deficiencies in its trial network.

Not a single commenter – public safety or otherwise -- to this proceeding has rebutted Nextel's conclusion that the public interest would be disserved by Nextel's deployment of an interim location solution. No commenter has provided empirical evidence, or even suggested, that locating subscribers within 300-1000 meters for <u>two years</u> (while awaiting the deployment of the 50-meter-capable A-GPS solution) provides greater public interest benefits than continued reliance on Phase I location information for <u>one year</u> while awaiting the A-GPS solution. Therefore, Nextel reasonably concluded that neither E-OTD nor US Wireless' approach would provide any real accuracy benefit over Phase I for Nextel's subscribers. APCO's strong opposition to the Voicestream waiver only confirmed these conclusions for Nextel's decision-makers. In its Petition for Reconsideration of the Voicestream waiver grant, APCO stated that "[a] critical flaw in the Commission's analysis of the Voicestream proposal is the relative importance placed on Voicestream's use of a network software solution (NSS) to provide a 'safety net' until

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[23] *See* November 9 Waiver Request at pp. 14-19; May 21 Response at pp. 5-9.

such time as it is able to modify subscriber handsets to add the E-OTD capability."[24] Quoting the International Association of Chiefs of Police, APCO went on to say that the interim NSS accuracy would provide "little, if any, benefit" to public safety.[25] Thus, one of the leading public safety organizations throughout the E911 proceeding strenuously advocated the need for accurate location solutions – whether interim or permanent – to achieve the very results for which Phase II was mandated, *i.e.,* enabling emergency services personnel to quickly and efficiently locate wireless telephone users in dire need of emergency life safety services. As a result, Nextel concluded that achieving Phase II-compliant accuracy as soon as possible outweighed any "minimal value" that might be achieved by deploying an interim E-OTD or US Wireless solution offering at best incremental improvement over Phase I cell site/sector location identification.[26]

Second, any potential interim location solution had to be just that: an interim solution that could be deployed by October 1, 2001 to provide location accuracy until Nextel's A-GPS capabilities were in place. The US Wireless network overlay was not a practical interim alternative. In addition to the significant network upgrades necessary to transmit the 911 call's serving cell site identification and radio frequency assignment, as required by the US Wireless solution, it also would have been necessary to develop an extensive "fingerprint database" for the entire Nextel network.

The fingerprint database required for US Wireless' solution consists of a unique set of RF characteristics collected at multiple base stations, *i.e.,* a fingerprint collected at

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[24] APCO Petition for Reconsideration at p. 5.

[25] *Id.*

[26] *See* Reply Comments of APCO, submitted October 17, 2000, CC Docket No. 94-102, at p. 4 ("...for caller location purposes, NSS is of minimal value. . .").

approximately 30 meter increments across the entire roadway network of the Nextel network. In a typical metropolitan area like Washington, DC, this database would contain literally tens of thousands of fingerprints. Creating this database across the entire Nextel national network would have required significantly more time than was available for deploying an interim solution. The creation and on-going maintenance of this database represented an enormous development effort above and beyond the significant infrastructure deployment effort inherent in the US Wireless solution.

Moreover, once US Wireless had created this database, thus setting the stage for its overlay solution, Nextel would have been required to deploy new antennas at each of its thousands of cell sites, requiring zoning approvals, the deployment of new hardware at each base station, and upgrades to the base station controllers. Accomplishing all of these tasks in a timeframe useful for an interim solution was impossible. At best, Nextel could have deployed a marginally useful location capability in one or two markets -- assuming the iDEN infrastructure development could be accomplished without significant problems– only to "throw away" the technology and investment once A-GPS was ready for deployment.[27]

Weighing all of these factors nearly a year ago, at the time the Commission required wireless carriers to make their Phase II technology decisions, Nextel concluded that deployment of A-GPS as soon as possible was in the public interest and most closely

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[27] Although not specifically discussed to date, the deployment of an interim network overlay solution would have caused the same delays in A-GPS that are caused by an interim E-OTD deployment. As with E-OTD, the RF resources and assist data of the network overlay solution varies significantly from A-GPS, and as a result, each is a unique development effort. Thus, whether shifting Motorola's development efforts and resources to a network overlay solution or E-OTD, the interim solution would have drained resources from the A-GPS development efforts.

complied with the waiver standards outlined in the Commission's Fourth MO&O. This eleventh hour attempt by the Public Safety Organizations to second guess Nextel's decision – particularly when at least one of them viewed the Voicestream waiver as anything but the "model" of compliance they now rely upon – is unsupported by the record, and far too late in the game. July 19, 2001, the date on which the Public Safety Organizations finally decided to provide their "Further Comments," is just a little more than two months prior to the Commission's October 1, 2001 Phase II deadline. No interim solution – network overlay, handset or hybrid – can be developed and deployed on any part of Nextel's system within that time frame. Had the Public Safety Organizations seriously challenged Nextel's decision-making process at the time the waiver was filed and had the Commission acted promptly, perhaps disagreeing with Nextel's judgments on this matter, there may have been time to deploy a "Phase I plus" interim solution, although Nextel continues to believe such a decision would have come at a great cost to its customers (*i.e.*, delay in implementing really useful location accuracy in emergency situations).

### C. Nextel Is Committed To Phase I E911 Availability in the Interim Period

Nextel recognizes that its customers will continue to rely on Phase I cell site and/or cell sector location information during the interim period until A-GPS is commercially available on the Nextel network. Thus, Nextel is committed to ensuring that its subscribers relying on the availability of Phase I will have the broadest possible access to those services throughout Nextel's network. In its Phase I deployment status report to the Bureau on June 29, 2001,[28] Nextel reported that it had fully deployed Phase I

[28] Letter to Kris Monteith, Chief of the Policy Division, from Laura Holloway of Nextel, dated June 29, 2001, in CC Docket No. 94-102.

services in approximately 100 PSAPs covering nearly 24 million POPs. Although, as Nextel explained in its June 29 status report, many of the complexities, delays and hurdles that slow Phase I deployment are outside its control, Nextel believes it can significantly increase its Phase I deployments by December 31, 2001 and throughout 2002.

Nextel recently renewed its E911 service agreement with Intrado, renewing and increasing Nextel's commitment to the Phase I and Phase II deployment process. Nextel also has begun launching Phase I E911 services without first requiring a service agreement with the PSAP. Thus, in those areas where a PSAP permits the deployment of Phase I service without a service contract, Nextel has launched Phase I service. This eliminates delays that can result from legal issues that arise during contract negotiations. Additionally, Nextel has begun launching Phase I E911 services in many areas before providing an accounting of its costs to the PSAP in areas where Nextel has legal authority under state or local law to collect these costs. This ensures that the in-service date is not delayed by discussions and potential disagreements over the size and scope of Nextel's Phase I costs in that area. The service is turned up, and Nextel and the PSAP resolve any and all cost issues after the fact. These two efforts, combined with Nextel's willingness in some instances to cover certain costs that the PSAP refuses to pay (e.g., LEC charges that clearly are "PSAP costs" pursuant to the LEC's tariff), will facilitate more rapid deployment of Nextel's Phase I E911 services throughout its national network.

In summary, Nextel is committed to using whatever means possible to speed those Phase I provisioning processes that are within its control and to eliminate any and all barriers that are within its control to pave the way for speedier deployment of Phase I

E911 in response to PSAP requests.[29] In doing so, Nextel's customers will have significantly increased access to Phase I services during the interim period while Nextel and Motorola complete development and commercial deployment of Phase II-compliant A-GPS capabilities.

**D. Fulfillment of the 95% Benchmark By December 2005**

The Bureau has indicated it has concerns with Nextel's proposal to reach the Commission's December 2005 benchmark of having Phase II handsets across 95% of its total customer base.[30] In its waiver request, Nextel stated that, beginning in October 2002, it will make an A-GPS handset available to its customers. Thereafter, Nextel will make that handset model and others A-GPS capable at intervening levels until December 2004, when all of Nextel's handsets will have the A-GPS location capability. Nextel cannot achieve 100% availability of A-GPS across its handset lines until chips are available integrating the A-GPS capability into the basic circuitry of the phone. Those

[29] While committed to significantly increasing our own efforts to deploy Phase I E911, Nextel – as explained previously in this proceeding – cannot control the activities, the administration of, or the technological decisions of the LEC or the PSAP, both of which are critical to the successful deployment of Phase I E911 services. Nextel cannot ensure the delivery of trunks from the LEC, particularly if the LEC is responding to multiple wireless carrier trunking requests simultaneously. Additionally, while committing additional personnel and/or financial resources may assist in speeding Nextel's deployment efforts, it cannot speed the PSAP's delivery of mapping and routing information to Nextel to ensure accurate and proper 911 call routing. There is little, if anything, Nextel can do to extract specific technical information from the PSAP regarding its 911 network to facilitate the interconnectivity of our systems to ultimately transmit Phase I location information to the PSAP.

[30] *See* April 2, 2001 *ex parte* letter. Additionally, this issue was raised in telephone conversation between Kris Monteith, Chief of the Policy Division, and Laura Holloway of Nextel, on July 31, 2001. Nextel is responding to this concern herein.

chipsets, as discussed earlier, will not be available for the iDEN handset until late 2003, at which time Motorola can begin to integrate them across all of Nextel's handset lines. [31]

Although the Commission's Rules presume a carrier will need three years to reach the 95% penetration levels from the date on which it can offer 100% Phase II capable phones,[32] Nextel disagrees. In an era that presumably will be filled with cutting edge functionality and feature sets, many of which will likely be based on the very technology at issue here – location capabilities – turning over wireless handsets in favor of the newer, location-capable handsets should not be a three or more year project. While any such predictions admittedly rely on speculation about market conditions in the future, Nextel's own experiences provide some basis for its predictions. In June 1999, Nextel introduced a single handset model that was Internet ready – the i1000plus. Over time, Nextel added other Internet-capable phones, but still does not offer a handset line that is 100% Internet-capable. Nonetheless, with new activations still at less than 100% Internet-ready, by July 2001 Nextel had achieved a customer base that is 80% Internet-ready, staring from zero just 24 months ago.

Additionally, industry churn rates (2.5% per month, or 30% per year) and industry growth rates (Nextel's has averaged approximately 2 million customers/year) support

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[31] The A-GPS capability can only be embedded in the handset via a unique chipset that does not exist today. The availability of this new chipset is critical to Nextel's ability to deploy the A-GPS capability across its handset lines because adding the A-GPS circuitry to the existing handset platforms, as Nextel will do starting October 2002, significantly impacts form factor (i.e., size) and cost of the phone. Once the new chipsets are available – currently scheduled for December 2003 – Motorola will have the capability to integrate the A-GPS capability in all of Nextel's handset models without substantial impact on the form factor and at a significantly reduced cost. By December 2004, the chipset (and therefore the A-GPS functionality) will be embedded in all of Nextel's iDEN handsets, thus ensure that 100% of Nextel activations by December 2004 are A-GPS capable.

[32] *See* Fourth MO&O at paras. 34-38, requiring carriers to achieve 100% of new activations by December 2002 and 95% of the total subscriber base by December 2005.

Nextel's proposal that it can turn over nearly all of its customer base in 24 months. Given that at least 50% of Nextel's new activations will be A-GPS capable in 2004 and 100% will be in 2005, Nextel should be capable – without the additional marketing and potential promotional efforts at its disposal – to fulfill its 2005 penetration goal.

As Nextel stated in its April 2 *ex parte* letter, it cannot predict the specific marketing activities in which it might engage in the 2003-2005 timeframe to achieve these penetration levels, but Nextel is committed to achieving them in compliance with its waiver request. If the Commission nonetheless believes that a carrier such as Nextel will need three years (after achieving 100% activations) to turn over its customer base, the Commission can grant Nextel additional time or, alternatively, re-evaluate Nextel's progress in the Fourth Quarter 2004. At that time, the Commission will have a better sense of marketplace dynamics, the attractiveness of location-based services and the need for any additional time for Nextel to achieve the 95% threshold.

**E. Nextel's Phase II Implementation is Proceeding on Schedule**

Nextel submitted its waiver request ten months ago. Rather than waiting until it was too late to change course, if necessary, Nextel decided to inform the Commission up front, as soon as possible, that its unique iDEN technology could not support a Commission-compliant location technology by October 1, 2001.[33] Having made its technology decision, Nextel placed an order with Motorola in November 2000, and

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[33] As the Commission is aware, Motorola has committed on the record in this proceeding that it can achieve the timeline set forth in Nextel's waiver request. Additionally, Nextel and Motorola personnel traveled from South Florida and Northern Virginia to Anaheim, California in January to meet with the NENA Board and personally explain and convey our commitment – and progress – to achieving the stated timeline. Therefore, Motorola has provided ample support for its commitment to the proposed A-GPS development efforts. The request of the Public Safety Organizations for a "repeat" commitment is unfounded.

Motorola immediately began its A-GPS iDEN development efforts. The first stage of development required the addition of the A-GPS circuitry and unique A-GPS antenna to an existing iDEN handset since there is no iDEN handset with an embedded A-GPS capability. By January 2001, Motorola had successfully integrated the A-GPS circuitry on a brassboard of the handset's printed circuit board, and by March 2001, the A-GPS capability had been incorporated in a prototype iDEN handset.[34] By June 2001, Nextel and Motorola were prepared to conduct a field test of the A-GPS capability in the prototype, using a sub-set of the test locations in the Washington D.C. area where Nextel conducted its Second Quarter 2000 field trial of the varying location technologies, thus providing a near apples-to-apples comparison to the other technologies tested.[35]

The express purpose of this field test was to evaluate progress to date on the prototype's ability to accurately obtain GPS location data in varying radio frequency (RF) environments. However, the Assisted-GPS solution requires that the carrier network transmit assist data to the handset as part of the location determination process, and that network assist capability was not ready for testing. Thus, Nextel and Motorola were able to test only the GPS location capabilities in the handset – without the network's assistance.[36]

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[34] Nextel and Motorola have shown this prototype handset, including the specific GPS circuitry and antenna, to members of the Wireless Telecommunications Bureau, thus providing a better understanding of the progress as well as the distinction between adding the capability now, prior to the chipset availability, and integrating the capability into the circuitry of the handset platform.

[35] *See* May 21 Response at pp. 5-8 and Exhibits B1-B8 for a detailed discussion of Nextel's Second Quarter 2000 independent field trial.

[36] Additionally, because Nextel and Motorola were testing a prototype handset, no actual "phone calls" were placed. The phone was instructed by a laptop computer, to which it was tethered, to determine its location using the GPS antenna and circuitry in the prototype. For purposes of

Even so, the A-GPS prototype iDEN handset performed well within the Commission's accuracy requirements in nearly every geographic environment.[37] The GPS capability in the prototype handset located the "caller" within 50 meters in excess of 67% of the time in every environment except dense urban and indoor locations – the environments in which the network assist data is most important to obtaining accurate fixes. Nextel and Motorola are confident that, with the network assist in place, A-GPS will meet the Commission's accuracy requirements in the dense urban and indoor environments.

The Commission has had ample time to review and analyze the record in this proceeding – including discussions with Nextel before and after the November 9 filing.[38] If it had disagreed with Nextel's conclusions, believing that non-compliant Phase II technologies were worth the delay in a Commission-compliant technology, the Commission could have made that decision and paved the way for an alternative solution. At this late date, Nextel cannot initiate development efforts and deploy an interim solution by October 1, 2001. Even achieving some interim deployment before October 1, 2002 – the date on which the compliant A-GPS capability will be commercially available – is unlikely, given the amount of research, development and deployment it would require. Such a radical change in direction would not only require the refocusing of the

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testing the prototype handset in a "real world situation," however, the prototype was held to the ear while the GPS information was being gathered by the handset.

[37] Exhibit A is a graph depicting the accuracy of the various location "fixes" relative to the Commission's requirements for each type of terrain/environment tested.

[38] *See, e.g.*, Letter to Magalie Salas from Laura L. Holloway, dated September 29, 2000, providing ex parte notice of a meeting between Nextel legal, marketing and engineering personnel and Bureau staff where Nextel discussed its efforts to select a Phase II location solution, the results of its field trial and its likely decisions to be included in the November 9, 2000 Report.

Motorola infrastructure and handset development efforts, but would necessitate, in the US Wireless case, the creation of a new national organization to acquire the necessary approvals and deploy new antenna infrastructure on more than 15,000 cell sites.

## IV. CONCLUSION

Nextel is a provider of wireless services using a unique digital technology – iDEN -- used by only one other wireless provider in the United States. The iDEN technology and infrastructure has a sole worldwide supplier – Motorola. As a result of its unique nature, no available location technology solution demonstrated the ability to meet the Commission's accuracy requirements on Nextel's system by October 1, 2001. Nextel's research and analysis proved this late last year, and Nextel immediately informed the Commission in its November 9, 2000 waiver request. For ten months, Nextel's waiver has been pending before the Commission. Two months prior to the implementation deadline, a group of Public Safety Organizations are ignoring the record in this proceeding while attempting to second-guess Nextel's location technology decisions. Nextel has fully and fairly explained its unique situation as an iDEN provider, its decision-making process and the basis for its decision to deploy a compliant handset based solution in October 1, 2002. Nothing in the Public Safety Organizations' Further

Comments justifies denying Nextel's request. For the reasons discussed herein, Nextel respectfully requests that the Commission expeditiously grant its waiver request.

Respectfully submitted,

Nextel Communications, Inc.

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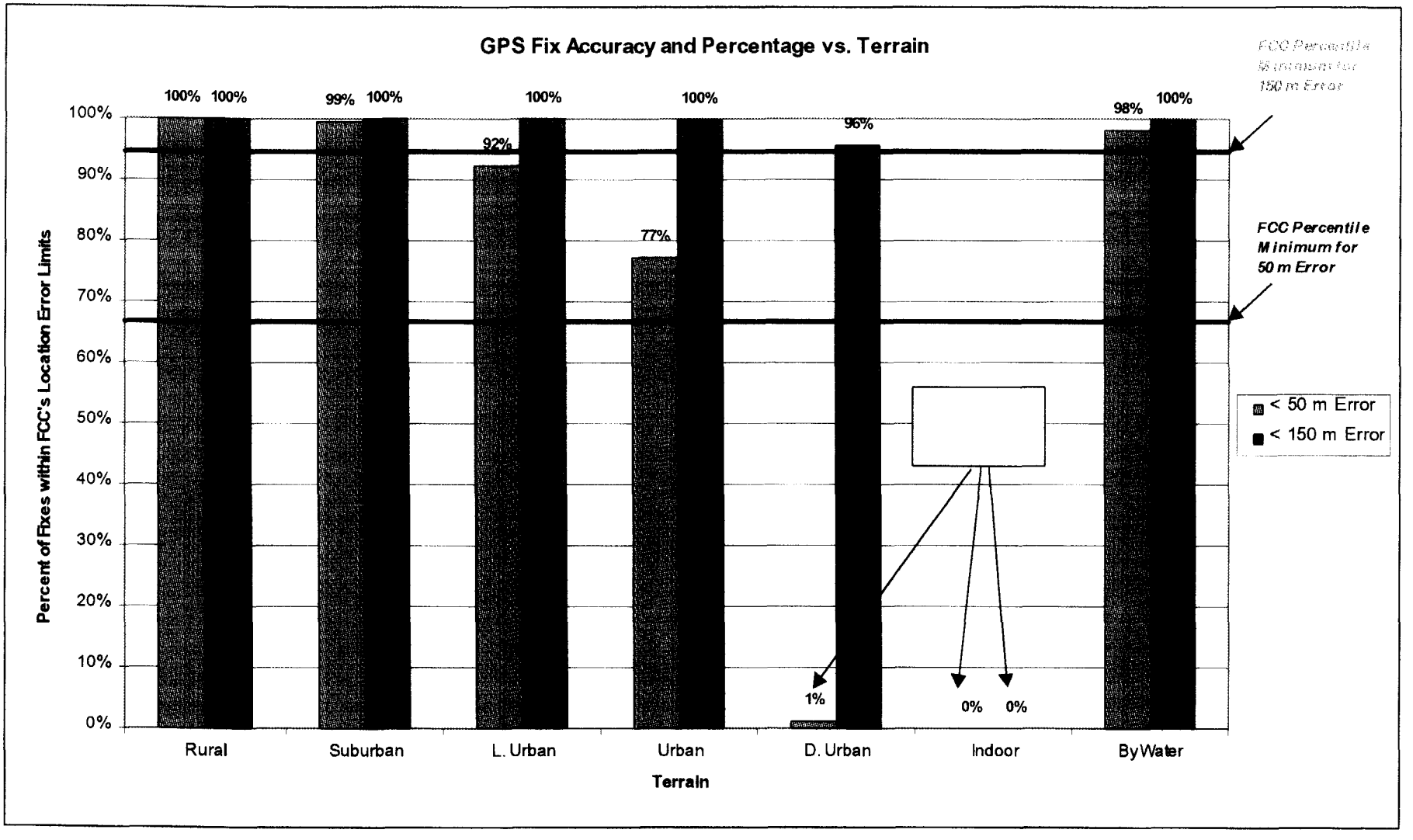
August 2, 2001

# EXHIBIT A


GPS Fix Accuracy and Percentage vs. Terrain
Percent of Fixes within FCC's Location Error Limits
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
100% 100%
99% 100%
92% 100%
77% 100%
1% 96%
0% 0%
98% 100%
Rural
Suburban
L. Urban
Urban
D. Urban
Indoor
By Water
Terrain
FCC Percentile Minimum for 150 m Error
FCC Percentile Minimum for 50 m Error
< 50 m Error
< 150 m Error

## CERTIFICATE OF SERVICE

I, Rochelle L. Pearson, hereby certify that on this 2nd day of August 2001, caused a copy of the attached Reply Comments of Nextel Communications, Inc. to be served by hand to the following:

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Federal Communications Commission
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Commissioner Kathleen Q. Abernathy
Federal Communications Commission
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Commissioner Michael J. Copps
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