

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

In the Matter of)
)
Revision of the Commission's) CC Docket No. 94-102
Rules to Ensure Compatibility)
with Enhanced 911 Emergency)
Calling Systems)
)

TRITON PCS LICENSE COMPANY, L.L.C.
PETITION FOR WAIVER OF THE E911 PHASE II
LOCATION TECHNOLOGY IMPLEMENTATION RULES

LAURA H. PHILLIPS
CARLOS M. NALDA
DOW, LOHNES & ALBERTSON, PLLC
1200 NEW HAMPSHIRE AVENUE, NW
SUITE 800
WASHINGTON, DC 20036
(202) 776-2000

Its Attorneys

Triton PCS
Glen Robinson
Senior Vice President of Engineering
and Information Technologies
1100 Cassatt Road
Berwyn, PA 19312
(610) 722-4424

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SUMMARY

Less than two months ago, manufacturers from which Triton PCS License Company, L.L.C. ("Triton") planned to obtain Phase II-compliant handsets confirmed in writing that they no longer plan to manufacture GPS-equipped TDMA handsets. These GPS-equipped TDMA handsets were to be Triton's E911 Phase II technical solution. Because they will not be manufactured, Triton has had no alternative but to reevaluate its Phase II E911 implementation program.

In restarting its search for compliant technology that can be deployed consistent with the Federal Communications Commission ("FCC") timetables, Triton has conducted an intensive evaluation of all other alternative Phase II approaches. Specifically, Triton has requested and obtained proposals from vendors on available network-based wireless location systems and services, and has independently analyzed potential Phase II technologies. Based on this information, Triton believes that there currently is no automatic location information technology that can fully satisfy the E911 Phase II accuracy requirements within the time frames prescribed in the FCC's rules. In such circumstances, the Commission has directed carriers to employ a solution that comes as close as possible, in terms of providing reasonably accurate location information, as quickly as possible.

Triton has concluded that Mobile-Assisted Network Location System ("MNLS") constitutes the most viable Phase II solution for its TDMA network. The MNLS solution has significant advantages over the other technologies Triton evaluated. For example, because MNLS uses capabilities inherent in all TDMA networks, its deployment as a Phase II solution will not require extensive network modifications. This makes MNLS a highly reliable and cost effective solution that can be deployed in an extremely short time frame. In addition, because

MNLS works with existing TDMA handsets, it eliminates the need to upgrade or replace handsets, and has the additional advantage of being capable of supporting roamers as well as callers using uninitialized TDMA handsets. Although MNLS currently does not satisfy the FCC's accuracy requirements for network-based location technologies, test results and other data submitted in this proceeding demonstrate that the accuracy of MNLS is comparable to that of other network-based solutions and is expected to improve over time.

In addition, Triton's alternative Phase II strategy is affected by its plans, as a member of the AT&T Wireless Network, to deploy a GSM "overlay" network that ultimately will replace its current TDMA facilities. Triton intends to provide Phase II services in its planned GSM network using E-OTD technology, a hybrid handset and network-based solution. Although E-OTD does not currently satisfy the E911 Phase II location accuracy requirements, it is expected to meet and even exceed the prescribed accuracy requirements in the near future. Moreover, the FCC granted a temporary waiver of its Phase II rules for VoiceStream to utilize E-OTD in its GSM system. Like VoiceStream, Triton requires a temporary waiver of the FCC's accuracy rules to employ E-OTD in its planned GSM overlay system.

In view of the significant advantages of the MNLS and E-OTD solutions, Triton respectfully requests a waiver of the E911 Phase II implementation requirements of Sections 20.18(e)-(h) of the rules to permit Triton to provide Phase II services using these technologies in its existing and planned facilities.

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EXHIBITS

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Triton PCS License Company, L.L.C. ("Triton"), by its attorneys, pursuant to Sections 1.3 and 1.925 of the Federal Communications Commission's ("Commission" or "FCC") rules, respectfully requests a waiver of the E911 Phase II location accuracy requirements of Sections 20.18(e)-(h) of the rules to permit Triton to provide Phase II services using Mobile-Assisted Network Location System ("MNLS") technology in its existing TDMA network and Enhanced Observed Time Difference of Arrival ("E-OTD") technology in its planned GSM network.¹ As demonstrated herein, a waiver of the Commission's rules would serve the public interest and is justified based upon the unique circumstances of Triton's request.

I. INTRODUCTION AND BACKGROUND

Through its parent, Triton PCS Holding Company, Inc., Triton is the first member of the AT&T Wireless Services, Inc. ("AT&T") network of affiliates. Triton markets its wireless services under the brand SunCom, and is licensed to build and operate a digital wireless network in a contiguous area covering approximately 13 million people in Virginia, North and South

¹ 47 C.F.R. §20.18(e)-(h).

Carolina, northern Georgia, northeastern Tennessee and southern Kentucky. Triton commenced service to the public in January 1999, and currently operates a network consisting of seven mobile switches and over 1500 cell sites.

From the outset of its E911 implementation efforts, Triton has worked with the Commission and public safety answering points (“PSAPs”) to ensure that its customers will obtain the public safety benefits of automatic location information (“ALI”) technologies. Triton has consistently met or exceeded expectations for E911 Phase I implementation, and Triton remains committed to the implementation process for Phase I throughout its service area. Triton continues to work closely with PSAP managers upon receipt of Phase I requests to ensure a smooth transition to Phase I. Triton currently is working to migrate all of its implemented Phase I PSAPs to a Non-Call Associated Signaling (“NCAS”) solution. This will ensure that the necessary signaling mechanisms are in place once a Phase II solution is implemented.

Furthermore, Triton has kept the Commission fully informed of the status and progress of its E911 Phase II program.² Triton has at all times dealt straightforwardly and honestly with the Commission about its capability to ensure timely deployment of Phase II technology. Indeed, in its initial Phase II report to the FCC in November, 2000, Triton informed the FCC that, despite efforts to identify a compliant solution, that Triton believed that none would become available consistent with the FCC’s timetable. In that same report Triton stated that it was not in a position to choose between a handset-based or network-based E911 Phase II solution.³ The FCC

² See Report of Triton PCS License Company, L.L.C., CC Docket No. 94-102 (filed November 9, 2000) (“E911 Report”); Amended Report of Triton PCS License Company, LLC, CC Docket No. 94-102 (filed December 21, 2000) (“Amended E911 Report”); Update to Amended Report of Triton PCS License Company, LLC, CC Docket No. 94-102 (filed June 11, 2001) (“E911 Update”).

³ See E911 Report at 3-5.

nevertheless required Triton to select either a handset-based or a network-based solution, and Triton complied, selecting a handset-based E911 Phase II solution for its existing TDMA network.

In its Amended Report of December 2000, Triton stated that it believed a handset-based solution was its best option for Phase II implementation, and that it was working with handset manufacturers to develop a handset-based ALI solution using GPS technology in TDMA subscriber handsets.⁴ However, Triton also stated that it might need to revise its E911 Phase II technology selection based on vendor availability, equipment availability, technological developments and other factors.⁵ Consistent with the diligence the Commission requires of carriers, Triton maintained contact with its handset vendors regarding their plans and timetables for Phase II compliant TDMA handset production and availability.

On June 11, 2001, Triton informed the Commission that manufacturers from which Triton planned to obtain Phase II-compliant handsets had confirmed that GPS-equipped TDMA handsets would not be available for use in Triton's Phase II implementation program.⁶ This significant development, resulting from circumstances entirely beyond Triton's control, has left Triton with no alternative but to abandon its handset-based E911 Phase II strategy and to develop alternative Phase II implementation plans in an extremely short time frame. Triton has no choice but to alter its Phase II implementation plans to arrive at some solution that comes as close as possible, as quickly as possible, to the FCC's requirements for ALI availability and accuracy. In

⁴ See Amended E911 Report at 3.

⁵ See *id.* at 7.

⁶ See E911 Update at 4-5; see *id.* at Attachment 1 (Letter from Michael Flemming, Nokia Mobile Phones, to Jim Sheehan, TritonPCS, dated June 8, 2001), Attachment 2 (Letter from Lenny Frucht, Motorola, to Jim Sheehan, TritonPCS, dated June 5, 2001) and Attachment 3 (Letter from Robert J. Miklosko, Panasonic, to Jim Sheehan, TritonPCS, dated May 30, 2001).

doing so, however, Triton will again have no choice but to rely upon the availability of solutions from manufacturers and vendors of Phase II products.

In addition, as an affiliate member of the AT&T Wireless Network with contractual responsibilities to support AT&T services within its service territories, Triton is directly affected by AT&T's decisions related to deployment of future network technologies. As the Commission is aware, AT&T has announced that it will overlay a GSM platform onto its existing TDMA network. To maintain consistency and interoperability with AT&T's network, Triton plans to implement a similar GSM overlay strategy in the regions it serves. Thus, in addition to developing an alternative Phase II implementation strategy for its TDMA system, Triton also must develop E911 Phase II plans for its follow-on GSM network on an expedited basis.

Since receiving confirmation that Phase II-compliant TDMA handsets would not be available, Triton has worked diligently to obtain and evaluate updated information concerning alternative Phase II technologies for its current TDMA network and planned GSM network. For example, Triton has reviewed responses to a Request for Proposal ("RFP") seeking information from vendors on available network-based E911 Phase II wireless location systems and services. In addition, because severe time constraints and Triton's limited resources have precluded independent field testing of alternative Phase II technologies, Triton has analyzed test results of proposed E911 Phase II solutions filed in the docket of this proceeding in an effort to validate the accuracy claims of prospective vendors.

Based on its independent analysis of available information, Triton has concluded that MNLS provides, by far, the best E911 Phase II solution for its existing TDMA facilities, and that E-OTD is the optimal Phase II technology for Triton's planned follow-on GSM system. However, Triton requires a waiver of the Commission's rules to utilize these Phase II solutions

because they do not currently meet prescribed accuracy requirements and cannot be deployed prior to the existing Phase II implementation deadline of October 1, 2001. As discussed below, good cause exists to waive the Commission's rules in the unique circumstances of this case to permit Triton to utilize MNLS and E-OTD technologies in its E911 Phase II implementation program.

II. THE COMMISSION'S E911 PHASE II REQUIREMENTS AND WAIVER STANDARDS

In 1996, the Commission adopted rules to ensure the availability of 911 emergency telecommunications services for callers using wireless handsets.⁷ Sections 20.18(e)-(h) of the Commission's rules require, among other things, commercial mobile radio service ("CMRS") licensees to provide E911 Phase II (latitude and longitude) information to PSAPs as early as October 1, 2001. The accuracy requirement for E911 Phase II information depends upon the type of technology employed: (i) network-based technologies must locate a caller within 100 meters for 67 percent of calls, and within 300 meters for 95 percent of calls; and (ii) handset-based technologies must locate a caller within 50 meters for 67 percent of calls, and within 150 meters for 95 percent of calls.⁸

The Commission's requirements were ambitious. Indeed, at the time they were adopted, no technology existed that would yield the required level of accuracy. The Commission based its prescribed accuracy standards on the assumption that adequate location technologies could be

⁷ See Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102, *Report and Order and Further Notice of Proposed Rulemaking*, 11 FCC Rcd. 18676 (1996).

⁸ See 47 C.F.R. § 20.18(h)(1)-(2).

developed and fully implemented by wireless carriers prior to the implementation deadline.⁹ As discussed below, however, no location technology has yet emerged that fully satisfies the Commission's Phase II requirements on a consistent basis. As a result, several wireless carriers have requested a waiver of the E911 Phase II rules to permit the deployment of Phase II technologies that provide enhanced location information but do not yet meet the Commission's stringent accuracy requirements.¹⁰

The Commission may waive its rules in circumstances where strict enforcement would not serve the underlying purpose of the rules, and grant of the waiver would further the public interest; or where unique factual circumstances would make application of the rule in a given case inequitable, unduly burdensome, contrary to the public interest or there is no reasonable

⁹ See Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102, *Fourth Memorandum Opinion and Order*, 15 FCC Rcd. 17442, 17451 (2000) ("*Fourth MO&O*").

¹⁰ See Nextel Communications, Inc. and Nextel Partners, Inc. Joint Report on Phase II Location Technology Implementation and Request for Waiver, CC Docket No. 94-102 (filed Nov. 9, 2000); AT&T Wireless Services, Inc. Request for Waiver of the E911 Phase II Location Accuracy Technology Implementation Rules, CC Docket No. 94-102 (filed Apr. 4, 2001) ("*AT&T Waiver Request*"); Cincinnati Bell Wireless LLC Petition for Waiver of the E911 Phase II Location Accuracy Technology Implementation Rules, CC Docket No. 94-102 (filed May 1, 2001); D&E/Omnipoint Wireless Joint Venture, L.P.'s Petition for Waiver of the E-911 Phase II Location Technology Implementation Rules, CC Docket No. 94-102 (filed June 20, 2001); Corr Wireless Communications, L.L.C. Petition for Waiver, CC Docket No. 94-102 (filed June 22, 2001); Cingular Wireless LLC Petition for Waiver Petition for Limited Waiver of Sections 20.18(e)-(h), CC Docket No. 94-102 (filed July 6, 2001) ("*Cingular Waiver Request*"); Qwest Wireless, LLC and TW Wireless, LLC Petition for Extension of Time or Waiver of Section 20.18 of the Rules, CC Docket No. 94-102 (filed July 23, 2001); TeleCorp PCS, Inc. Request for Waiver of the Commission's Rules for E911 Phase II Enhanced Services, CC Docket No. 94-102 (filed July 23, 2001); Verizon Wireless Updated Phase II E911 Report and Request for Limited Waiver, CC Docket No. 94-102 (filed July 25, 2001); ALLTEL Communications, Inc. Petition for Waiver of Sections 20.18(e) and (g) of the Commission's Rules, CC Docket No. 94-102 (filed July 25, 2001); Sprint PCS Supplemental Phase II Implementation Report and Request for Temporary and Limited Waiver, CC Docket No. 94-102 (filed July 30, 2001); Inland Cellular Telephone Co. Petition for Limited Waiver of Sections 20.18(e) and (g) of the Rules, CC Docket
continued...

alternative.¹¹ In addition, the Commission has recognized that a waiver of the E911 Phase II rules is warranted where technology-related issues or other exceptional circumstances make it impossible for a carrier to implement compliant Phase II services by the October 1, 2001 deadline.¹² The Commission has indicated that a request for waiver of the E911 Phase II implementation rules should be “specific, focused and limited in scope, and with a clear path to full compliance,”¹³ but also has noted that “if no solution is available that fully complies, the carrier [is] expected to employ a solution that comes as close as possible, in terms of providing reasonably accurate location information as quickly as possible.”¹⁴ As demonstrated below, Triton’s waiver request satisfies these standards.

III. THE COMMISSION SHOULD WAIVE ITS E911 PHASE II RULES TO PERMIT TRITON TO EMPLOY THE MNLs AND E-OTD SOLUTIONS

From the time it learned that GPS-equipped TDMA handsets would not be available for its E911 Phase II implementation program, Triton kicked off a new and intensive round of evaluation of alternative Phase II technologies for its TDMA system. For example, Triton issued a formal RFP seeking proposals from vendors on available network-based E911 Phase II wireless location systems and services. Triton received comprehensive RFP responses from five prospective vendors and thoroughly evaluated the proposals submitted.

No. 94-102 (filed July 30, 2001); American Samoa License, Inc. Request for Waiver of the E911 Phase II Rules, CC Docket No. 94-102 (filed July 30, 2001).

¹¹ See 47 C.F.R. §§ 1.3, 1.925; see also *Northeast Cellular Telephone Co. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990); *WAIT Radio v. FCC*, 418 F.2d 1153, 1159 (D.C. Cir. 1969).

¹² See *Fourth MO&O* at ¶ 43.

¹³ See *id.*, ¶ 44.

¹⁴ See *id.*, ¶ 45.

In addition, rather than relying exclusively on the location accuracy assertions contained in the proposals, Triton independently examined available test data in an effort to validate vendor claims. Because severe time limitations and limited resources preclude independent field testing of alternative Phase II technologies, Triton analyzed test results of proposed E911 Phase II solutions filed in the docket of this proceeding. Triton also has held extensive discussions with ALI vendors regarding Phase II implementation issues. As discussed below, Triton has concluded that MNLS is the best Phase II solution for its TDMA system.

Triton conducted a similar evaluation of potential Phase II solutions for its planned GSM overlay network. Triton's efforts were aided by the substantial information available regarding E-OTD technology, including the Commission's decision to grant VoiceStream a waiver to implement this technology in its GSM system.¹⁵ Like VoiceStream and other GSM wireless carriers, Triton has concluded that E-OTD is the most viable Phase II solution for its planned GSM network.

A. MNLS Is the Best E911 Phase II Solution for Triton's TDMA Network

In evaluating alternative Phase II solutions for its TDMA system, Triton considered a wide range of factors including achievable location accuracy, integration complexity, hardware and software requirements, installation time frames, deployment costs and other factors. No single factor was determinative. Triton's evaluation included information submitted in vendor responses to its RFP, as well as publicly available data regarding the accuracy performance of proposed Phase II solutions. Further, given that no available solution fully satisfies the Commission's E911 Phase II requirements, Triton was guided by the FCC's stated imperative: "to employ a solution that comes as close as possible, in terms of providing reasonably accurate

location information as quickly as possible.”¹⁶ In weighing all of these considerations, Triton believes that MNLS provides, by far, the best solution for rapid and ubiquitous deployment across all of Triton’s TDMA network.

1. The Use of MNLS To Provide E911 Phase II Services Will Afford Substantial Public Interest and Safety Benefits

MNLS is a network-based technology that uses the radio signal strength (“RSS”) measurements made by a TDMA handset to determine the location of the caller.¹⁷ In TDMA systems, the mobile terminal can be ordered to make RSS measurements when “camped” on the control channel, and when it is operating on a traffic channel. In the former case, RSS measurements are used for mobile-assisted channel allocation (“MACA”); in the latter case, RSS measurements are for mobile-assisted handoff (“MAHO”). These RSS measurements can be made available within the wireless network, and they can be used to determine the location of the caller by matching the measurements to a predetermined grid location within the MNLS database. That location information then is forwarded to the PSAP during 911 call set-up and can be updated as a wireless E911 call progresses.¹⁸ The advantage of MNLS is that TDMA digital cellular standards already call for the mobile terminal to make RSS measurements for network management reasons. Therefore, the MNLS solution has minimal impact on TDMA digital cellular standards.

¹⁵ See generally *id.*

¹⁶ See *id.*, ¶ 45.

¹⁷ MNLS (sometimes referred to as mobile-assisted handoff or MAHO-based location) uses existing functionality of TDMA handsets that measure signal strength to facilitate cell-site handoffs.

¹⁸ See AT&T Waiver Request at Exhibit H (“MNLS White Paper”), attached as Exhibit 1; see also Notice of *Ex Parte* Presentation of AT&T Wireless Services, Inc., CC Docket No. 94-102 (filed June 14, 2001), attached as Exhibit 2.

MNLS has significant advantages over other network-based Phase II solutions evaluated by Triton. First, the MNLS solution operates using existing functionality found in all TDMA handsets. Therefore, no handset changes or upgrades will be necessary to implement the system, and Triton's existing TDMA subscribers will be able to enjoy the benefits of Phase II service as soon as the solution is implemented. Additionally, MNLS has the additional virtue of being able to support all TDMA handsets roaming onto Triton's TDMA network, including uninitialized handsets.

Second, because MNLS uses functionality already utilized by the network for cell-site handoffs, the system is highly reliable and relatively easy to integrate into the network. In contrast, other network-based systems, which are independent from the network's normal operations, present far greater integration challenges. Further, use of an internal functionality as opposed to reliance on external systems for ALI can make ALI subsystem problems much simpler to detect and faster to remedy.

Third, MNLS will permit PSAPs to request updated location information throughout the duration of a 911 call. This capability is critical in the context of a mobile 911 caller who may change locations during the course of an emergency call.

Fourth, the accuracy of the MNLS solution can be expected to improve over time. For example, in its recently submitted test results of its MNLS field trial in Denver, AT&T concludes that appropriate grid size selection and ongoing database improvements (*e.g.*, using more accurate propagation models, increased measurement data, periodic testing, etc.) are the best methods to improve the future performance of MNLS.¹⁹ Similarly, in an *ex parte* submission

¹⁹ Submission of AT&T Wireless Services, Inc., Denver MNLS Trial Technical Summary, CC Docket No. 94-102 (filed July 10, 2001), attached as Exhibit 3.

examining AT&T's proposed use of MNLS technology for its TDMA system, U.S. Wireless recognizes that the accuracy of MNLS can be improved over time through continued development of the system.²⁰

Fifth, MNLS can be deployed in an extremely rapid and efficient manner. Because MNLS is based on capabilities already available in TDMA handsets, no modifications or equipment are needed at cell sites and minimal network infrastructure is required beyond that deployed for Phase I service. As a result, Triton can quickly deploy Phase II capability throughout its service area in a cost-effective manner. Moreover, this solution eliminates the need for additional antennas and avoids significant installation complexities that could delay the provision of Phase II service. Finally, MNLS is a fully standards compliant solution, currently in the process of being adopted by TR45.2 AHES (Ad-Hoc on Emergency Services), the industry-PSAP body overseeing wireless E911 standards.²¹

2. MNLS Provides Accuracy Levels Similar to Other Network-Based Location Technologies

MNLS will offer location accuracy levels only slightly below those required under the Commission's rules for network-based technologies. Specifically, MNLS will provide an estimated accuracy level of 250 meters for 67 percent of the time and 750 meters for 95 percent of the time.²² These accuracy levels are consistent with extensive, real-world testing of MNLS

²⁰ *Ex Parte* Comments of U.S. Wireless Corporation on Performance, Viability, and Application of the Mobile-Assisted Network Location System (MNLS), CC Docket No. 94-102 (filed July 11, 2001), attached as Exhibit 4.

²¹ MNLS White Paper at 7, attached as Exhibit 1.

²² *See id.* at 7; *see also* Cingular Waiver Request at Attachment I (Letter from Ericsson to Cingular Wireless dated June 27, 2001), attached as Exhibit 5.

technology conducted by AT&T.²³ Significantly, the record of this proceeding also establishes that the accuracy levels of the MNLS solution are similar to those of other network-based technologies.

AT&T has submitted substantial data regarding the accuracy performance of various network-based technologies in the context of its waiver request. For example, during 1999 and 2000, AT&T conducted two trials of network-based solutions in Redmond, Washington. The first trial was conducted in partnership with TruePosition and yielded accuracy results that failed to meet the FCC's Phase II requirements by a wide margin. Specifically, the TruePosition tests achieved accuracy levels of 318-371 meters for 67 percent of all drive-test calls and 965-1226 meters for 95 percent of all drive test calls. The second trial was conducted with Grayson Wireless, and resulted in accuracy levels of 245-855 meters for 67 percent of a drive-test calls and 474-1624 meters for 95 percent of all drive-test calls.²⁴ These test results not only establish that MNLS accuracy levels are similar to, if not better than, other network-based solutions, but also reveal the significant complexities associated with implementing "add-on" network-based solutions, including substantial maintenance, optimization and system stability issues.²⁵

AT&T conducted follow-up trials with Grayson Wireless in the Denver, Colorado metropolitan area. In the initial rounds of testing resulting in accuracy levels of 400 meters for

²³ See Supplemental Response of AT&T Wireless Services, Inc. to Order of the Wireless Telecommunications Bureau, CC Docket No. 94-102 (filed June 12, 2001), at Exhibit C (Redmond Mobile Drive Trial of MNLS), attached as Exhibit 6; and Exhibit D (Bellevue MNLS Trial), attached as Exhibit 7; see also Submission of AT&T Wireless Services, Inc., Denver MNLS Trial Technical Summary, CC Docket No. 94-102 (filed July 10, 2001), attached as Exhibit 3.

²⁴ See AT&T Waiver Request at 8-9; see also *id.* at Exhibit C (TruePosition Test Report), attached hereto as Exhibit 8, and Exhibit D (Grayson E-911 Trial Technical Summary), attached as Exhibit 9.

²⁵ See AT&T Waiver Request at 8-9.

67 percent of all drive-test calls and 750 meters for 95 percent of all drive-test calls.²⁶ Later testing achieved accuracy levels of 250-400 meters for 67 percent of all drive-test calls and 420-750 meters for 95 percent of all drive-test calls.²⁷ Again, these results are substantially similar to the accuracy levels of MNLS. However, the Denver trial also revealed significant location, zoning and installation challenges associated with the use of large, add-on antennas necessary to implement the tested network-based technology.²⁸

AT&T also submitted data regarding a demonstration of U.S. Wireless's RadioCamera™ Location System conducted in Seattle, Washington in December 2000.²⁹ AT&T notes that it did not participate in developing or conducting this demonstration, and that the limited test area appeared optimized for the U.S. Wireless system and was not indicative of AT&T's service area. Despite this advantageous test environment, the U.S. Wireless demonstration failed to meet the Commission's Phase II accuracy requirements, yielding accuracy results of 56 meters for 67 percent of all drive-test calls and more than 1000 meters for 95 percent of all drive-test calls. AT&T has stated that it believes that the U.S. Wireless results cannot be replicated in light urban, suburban or rural environments.³⁰

The testing of E911 Phase II technologies conducted by Cingular Wireless LLC ("Cingular") yielded similar results regarding their current accuracy levels and implementation challenges. After performing a series of trials from May 1999 to October 2000, Cingular

²⁶ *See id.* at 9; *see also id.* at Exhibit E (Grayson E-911 Trial (Urban Denver, CO): Technical Summary), attached as Exhibit 10.

²⁷ *See id.*

²⁸ *See id.*

²⁹ *See id.* at 10-11.

³⁰ *Id.*

concluded that the accuracy claims made by vendors are overstated because they do not incorporate confidence statistics in their analysis and, in any event, the technologies fail to meet the FCC's accuracy requirements.³¹ In addition, Cingular concluded that, unlike MNLS and other switch-based solutions, the installation of additional antennas associated with alternative network-based ALI technologies could substantially complicate and delay the provision of Phase II service.³²

In view of these test results, it is obvious that any difference in accuracy performance between MNLS and other network-based technologies is negligible. Furthermore, as discussed above, there are substantial customer and public safety benefits offered by MNLS, including rapid deployment, ubiquitous coverage without the need for new handsets, service to roamers and uninitialized callers and prevention of installation complexities and delay associated with the use of additional antennas. Accordingly, the Commission should waive its E911 Phase II implementation rules to permit Triton to provide Phase II service on its TDMA network using MNLS technology.

Upon grant of the waiver, Triton will immediately begin the development of its MNLS database and install the necessary software upgrades for its Ericsson switches when such upgrades become available. Triton will begin the deployment process in markets with outstanding PSAP requests, and anticipates the necessary upgrades to its network will be completed by the second quarter of 2002. This will allow Triton to complete deployment in all

³¹ See Cingular Waiver Request at Attachment D (E911 Phase II Trial Results), attached as Exhibit 11.

³² See *id.* at Attachment E (Deployment Time Line Estimation for Network-Based E911 Phase II Location Technologies), attached as Exhibit 12.

of its markets by the end of 2002. Triton will work diligently with Ericsson to accelerate this schedule if that is possible.

B. E-OTD Technology Is The Best Phase II E911 Solution For Triton's Planned GSM Network

As noted above, as an affiliate member of the AT&T Wireless Network, Triton plans to implement a GSM overlay network in the regions it serves to maintain consistency and interoperability with AT&T's planned GSM network. Triton has selected E-OTD technology to provide E911 Phase II services on its planned GSM overlay network because, as has been generally recognized, E-OTD is the best solution for GSM systems.

First, as the Commission recognized when it granted VoiceStream's waiver request, E-OTD is the standardized location method for GSM and will be included in future releases.³³ Thus, Triton's GSM handset manufacturers can be expected to include E-OTD capability in all of its GSM handsets.

Second, implementing an E-OTD solution will ensure rapid initial deployment of Phase II service to Triton's GSM subscribers because Triton intends that its GSM network will be E-OTD equipped from the moment it is installed. In contrast to VoiceStream, whose GSM network was already in place when the Commission granted it a waiver, Triton does not anticipate having to implement an interim solution to accommodate legacy GSM handsets.³⁴

Third, the use of the E-OTD solution in Triton's GSM overlay network ultimately will provide the stringent Phase II location accuracy levels associated with handset-based solutions.

³³ See *Fourth MO&O*, ¶ 59 and n.100.

³⁴ Unlike Triton, VoiceStream's legacy GSM system required it to deploy a network software solution ("NSS") to make use of existing network capabilities to provide immediate location information for all 911 calls on the network. *Id.*, ¶ 53.

Initially, E-OTD technology will be able to satisfy the accuracy standards required for network-based location solutions. As the Commission recognized in granting the VoiceStream waiver, however, the accuracy of the E-OTD solution will “improve over time, as the software is refined, experience is gained, and additional cell site are added to serve increasing traffic.”³⁵ Moreover, in recent comments on AT&T’s waiver request, VoiceStream stated that given the positive test results from its E-OTD trials in Houston, Texas, it “remains confident that the location accuracy of E-OTD will improve over time and ultimately meet or exceed the 50 meter accuracy standard.”³⁶

The use of E-OTD technology in Triton’s planned GSM system will result in substantial customer and public safety benefits, including ultimate compliance with the Commission’s most stringent E911 Phase II location accuracy requirements. Furthermore, the Commission already has granted a waiver to VoiceStream to implement E-OTD in its GSM network. Accordingly, the Commission should also grant Triton a temporary waiver of the E911 Phase II location accuracy requirements to permit Triton to provide Phase II services using E-OTD technology in its planned GSM overlay network.

As required by the Commission in the VoiceStream waiver, Triton will commit to meeting the accuracy requirements for handset-based solutions of 50 meters for 67 percent of the time, and 150 meters for 95 percent of the time, by October 1, 2003, or will adopt another ALI technology that complies with the Commission’s requirements.³⁷

³⁵ *Id.*, ¶ 59.

³⁶ Reply Comments of VoiceStream Wireless Corporation, CC Docket No. 94-102 (filed May 21, 2001) at 2-3.

³⁷ *Fourth MO&O* at ¶¶ 59, 64.

Triton plans to implement E-OTD with the market-by-market rollout of the GSM network so that E-OTD will be available to all GSM subscribers from day one. Starting in the second quarter of 2002, Triton plans to deploy a GSM platform as an overlay to its existing TDMA network. Triton intends to complete deployment of its GSM overlay by fourth quarter of 2003. Triton does not currently plan to discontinue service over its TDMA network on a certain date as a result of its transition to GSM. The migration of existing customers from TDMA to GSM will be directly dependent on customer demand for new services and equipment. Although Triton does not have a set date for discontinuance of its TDMA service, it fully expects the offering of 2.5G and 3G services in its GSM network to be an incentive for its TDMA subscribers to migrate to GSM.

C. Grant of a Waiver Is Warranted in the Unique Circumstance of this Case

As discussed above, substantial public interest and safety benefits will result from implementing MNLS and E-OTD solutions in Triton's TDMA and planned GSM networks, respectively. These benefits include rapid deployment, ubiquitous coverage without the need for new handsets or any "interim" solution, as well as the prevention of installation complexities and delay associated with the use of additional antennas. In addition, the accuracy levels achievable using MNLS and E-OTD technologies are comparable to other network-based solutions and, in the case of E-OTD, ultimately will meet the Commission's most stringent Phase II accuracy requirements. Accordingly, grant of a waiver to Triton to deploy these technologies would further the public interest.

In addition, grant of the requested waiver would not undermine the purpose of the Commission's rules. There currently is no ALI technology that can fully satisfy the E911 Phase II accuracy requirements within the time frames prescribed in the Commission's rules. In such

circumstances, the Commission has directed carriers to employ a solution that comes as close as possible, in terms of providing reasonably accurate location information as quickly as possible. The MNLS and E-OTD solutions will do just that – provide reasonably accurate location information within a reasonable time frame.

Triton's circumstances are unique. Only a short time ago, Triton learned that GPS-equipped TDMA handsets it had committed to deploy simply will not be available as handset manufacturers put their efforts into developing other handset technologies. Accordingly, Triton had no alternative but to abandon its selection of a handset-based Phase II solution for its TDMA system and to conduct an intensive evaluation of alternative E911 Phase II technologies in a very short period of time. Based on the information available to it, Triton believes that MNLS and E-OTD constitute the most viable Phase II solutions for its existing and planned facilities.

Significantly, Triton would note that is not the only carrier to determine that MNLS and E-OTD technologies provide the optimal Phase II solution for its facilities. On April 4, 2001, AT&T filed a request for waiver of the Commission's Phase II implementation rules to employ MNLS and E-OTD in its TDMA and planned GSM networks. On April 30, 2001, Cincinnati Bell Wireless LLC, another member of the AT&T Wireless Network, filed a petition for waiver mirroring AT&T's request. More recently, as explained in its July 6, 2001 petition for waiver, Cingular has concluded that "switch-based" technology including MNLS is the optimal Phase II solution for its TDMA system, and E-OTD technology is the best solution for its planned GSM system.³⁸ Given the significant amount of time and resources committed by AT&T and

³⁸ On July 24, 2001, Cingular filed a notice withdrawing its request for waiver with respect to its TDMA network. Cingular indicated, however, that it is in the process of concluding tests that should validate the switch-based location technology it plans to deploy on its TDMA system, and that it will resubmit a waiver request for its TDMA system once these tests are complete. *See continued...*

Cingular, in particular, to evaluating potential E911 Phase II solutions, independent determinations by these carriers that MNLS and E-OTD constitute the best Phase II solutions strongly support Triton's waiver request.

Finally, as a member of the AT&T Wireless Network, Triton's network operations are directly affected by AT&T's decisions related to network technologies. AT&T plans to deploy MNLS and E-OTD technologies in its existing TDMA and planned GSM networks, and Triton seeks to implement these Phase II solutions in its network. The public interest would be served by granting authority for us to deploy similar Phase II solutions to maintain consistency and interoperability throughout the AT&T Wireless Network and the networks of AT&T affiliates.

Cingular Wireless Withdraws TDMA Portion of Request for Waiver of E911 Phase II Location Technology Implementation Rules, *Public Notice*, CC Docket No. 94-102, DA 01-1809 (July 27, 2001).

IV. CONCLUSION

For all of the foregoing reasons, Triton respectfully requests that the Commission grant the waivers requested herein at the earliest possible time.

Respectfully submitted,

TRITON PCS LICENSE COMPANY, L.L.C.



Laura H. Phillips

Carlos M. Nalda

Dow, Lohnes & Albertson, PLLC

1200 New Hampshire Avenue, N.W.

Suite 800

Washington, D.C. 20036

(202) 776-2000

Its Attorneys

Triton PCS

Glen Robinson

Senior Vice President of Engineering
and Information Technologies

1100 Cassatt Road

Berwyn, PA 19312

(610) 722-4424

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TRITON PCS LICENSE COMPANY, L.L.C.
PETITION FOR WAIVER OF THE E911 PHASE II
LOCATION TECHNOLOGY IMPLEMENTATION RULES

EXHIBITS*

- EXHIBIT 1** AT&T Wireless Services, Inc. Request for Waiver of the E911 Phase II Location Accuracy Technology Implementation Rules, Exhibit H (“MNLS White Paper”), CC Docket No. 94-102 (filed Apr. 4, 2001).
- EXHIBIT 2** Notice of *Ex Parte* Presentation of AT&T Wireless Services, Inc., CC Docket No. 94-102 (filed June 14, 2001).
- EXHIBIT 3** Submission of AT&T Wireless Services, Inc., Denver MNLS Trial Technical Summary, CC Docket No. 94-102 (filed July 10, 2001).
- EXHIBIT 4** *Ex Parte* Comments of U.S. Wireless Corporation on Performance, Viability, and Application of the Mobile-Assisted Network Location System (MNLS), CC Docket No. 94-102 (filed July 11, 2001).
- EXHIBIT 5** Cingular Wireless LLC Petition for Waiver Petition for Limited Waiver of Sections 20.18(e)-(h), Attachment I (Letter from Ericsson to Cingular Wireless dated June 27, 2001), CC Docket No. 94-102 (filed July 6, 2001).
- EXHIBIT 6** Supplemental Response of AT&T Wireless Services, Inc. to Order of the Wireless Telecommunications Bureau, Exhibit C (Redmond Mobile Drive Trial of MNLS), CC Docket No. 94-102 (filed June 12, 2001).
- EXHIBIT 7** Supplemental Response of AT&T Wireless Services, Inc. to Order of the Wireless Telecommunications Bureau, Exhibit D (Bellevue MNLS Trial), CC Docket No. 94-102 (filed June 12, 2001).
- EXHIBIT 8** AT&T Wireless Services, Inc. Request for Waiver of the E911 Phase II Location Accuracy Technology Implementation Rules, Exhibit C (TruePosition Test Report), CC Docket No. 94-102 (filed Apr. 4, 2001).
- EXHIBIT 9** AT&T Wireless Services, Inc. Request for Waiver of the E911 Phase II Location Accuracy Technology Implementation Rules, Exhibit D (Grayson E-911 Trial Technical Summary), CC Docket No. 94-102 (filed Apr. 4, 2001).

* All of the Exhibits attached hereto have been filed publicly in the docket of this proceeding, and are filed separately in connection with this Petition for Waiver for ease of reference.

- EXHIBIT 10** AT&T Wireless Services, Inc. Request for Waiver of the E911 Phase II Location Accuracy Technology Implementation Rules, Exhibit E (Grayson E-911 Trial (Urban Denver, CO): Technical Summary), CC Docket No. 94-102 (filed Apr. 4, 2001).
- EXHIBIT 11** Cingular Wireless LLC Petition for Waiver Petition for Limited Waiver of Sections 20.18(e)-(h), Attachment D (E911 Phase II Trial Results), CC Docket No. 94-102 (filed July 6, 2001).
- EXHIBIT 12** Cingular Wireless LLC Petition for Waiver Petition for Limited Waiver of Sections 20.18(e)-(h), Attachment E (Deployment Time Line Estimation for Network-Based E911 Phase II Location Technologies), CC Docket No. 94-102 (filed July 6, 2001).