

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

In the Matter of)	
)	
Wireless E911 Location Accuracy Requirements)	PS Docket No. 07-114
)	
Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems)	WT Docket No. 94-102
)	
Association of Public-Safety Communications Officials-International, Inc. Request for Declaratory Ruling)	
)	
E911 Requirements for IP-Enabled Service Providers)	WC Docket No. 05-196
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COMMENTS OF THE ALLIANCE FOR TELECOMMUNICATIONS INDUSTRY SOLUTIONS' EMERGENCY SERVICES INTERCONNECTION FORUM

The Alliance for Telecommunications Industry Solutions (ATIS), on behalf of the Emergency Services Interconnection Forum (ESIF), submits these comments in response to the Federal Communications Commission's (Commission) *Notice of Proposed Rulemaking (NPRM)* released June 1, 2007, in the above referenced dockets.¹ ESIF supports the Commission's goal of developing appropriate standards to assist wireless carriers in providing more accurate and reliable location data to ensure that public safety answering points (PSAPs) are able to dispatch emergency services with greater accuracy when calls are placed into our nation's 9-1-1 call centers. However, ESIF notes that a determination of technical and commercial feasibility is a first step before imposing new location accuracy requirements. ESIF recommends that the

¹ In the Matter of Wireless E911 Location Accuracy Requirements, PS Docket No.07-114, *Notice of Proposed Rulemaking*, FCC 07-108 (rel. June 1, 2007).

Commission engage all interested parties and stakeholders in a consensus-driven process to conduct a comprehensive feasibility study. Finally, when determining compliance testing methodologies for wireless carriers, ESIF urges that the Commission look to several technical reports developed by ESIF and described herein that address many of the issues raised in the *NPRM*.

I. Background

ATIS is a technical planning and standards development organization accredited by the American National Standards Institute (ANSI) and committed to rapidly developing and promoting technical and operational standards for communications and related information technologies worldwide using a pragmatic, flexible and open approach. The ATIS membership spans all segments of the industry, including local exchange carriers, interexchange carriers, wireless equipment manufacturers, competitive local exchange carriers, data local exchange carriers, wireless providers, providers of commercial mobile radio services, broadband providers, software developers, and internet service providers. Industry professionals from more than 300 communications companies actively participate in ATIS' open industry committees and other forums.

ATIS' ESIF serves as the primary forum for the telecommunications industry, public safety and other stakeholders to identify and resolve recognized technical and operational interconnection issues related to the delivery of E911 services. ESIF liaises with standards and government organizations to apprise them of its deliberations and decisions. ESIF also works closely with the National Emergency Number Association (NENA), which currently manages the technical evolution of the 9-1-1 system and emergency communications process. ESIF is an open, technical/operational forum that enables many different telecommunications entities to

determine voluntarily the best practices and solutions to effectively and promptly deploy E911 services nationwide.

One of ESIF's primary work products is the “Wireless E911 Phase II Readiness Package,” which was developed in collaboration with public safety organizations such as NENA and the Association of Public Safety Communication Officials-International, Inc. (APCO) and representatives of wireless carriers and 9-1-1 service providers.² The package was developed to supply PSAPs with a standard method for verifying readiness and provide carriers with complete information to speed implementation of Phase II E911.

ATIS’ comments address Section III.B of the *NPRM*, which seeks information on the technical capabilities of location technologies, the methodologies to be employed by wireless carriers for Phase II E911 compliance testing, and the extent to which Phase II E911 location information and accuracy requirements should be applied to interconnected voice-over-internet-protocol (VoIP) services.³ ESIF’s comments are based on its technical expertise and past work developing technical recommendations for accuracy testing, functionality testing and maintenance testing of E911-enabled wireless networks.

II. Discussion

A. Single Location Accuracy Standard

In the *NPRM*, the Commission seeks comment on its tentative conclusion that the public would be best served by a single location accuracy standard rather than the current bifurcated approach of separate accuracy requirements for network-based and handset-based technologies.⁴

² *Wireless E911 Phase II Readiness Package*, ATIS Emergency Services Interconnection Forum (ESIF) (January 29, 2003). This document, as well as the other ATIS documents referenced in these comments, is available at www.atis.org/esif/doc.asp.

³ *NPRM* at ¶1.

⁴ *NPRM* at ¶ 10. 47 C.F.R. § 20.18(h) states that: “Licensees subject to this section shall comply with the following standards for Phase II location accuracy and reliability: (1) For

ESIF urges the Commission to carefully investigate the technological feasibility and commercial reasonableness of imposing a uniform accuracy standard. As stated in the Office of Engineering and Technology (OET) Bulletin No. 71, “the inherent uncertainty of radio technology used for wireless ALI may mean that location cannot always be reported accurately and determination of Phase II position fixes may not even be possible in some instances.”⁵ ESIF agrees with many respondents to Section III.A of this *NPRM* that there are inherent limitations in today’s wireless technology which would require significant investment in technology development and deployment to achieve the new location accuracy requirements being proposed.⁶

Therefore, if a single standard is imposed, ESIF urges that the Commission establish one that is commercially viable and technology-neutral. As noted in the *NPRM*, the current requirement is not technology-neutral, because it provides different standards for each technology. ESIF notes that the decision to establish a single accuracy standard is a complex undertaking. In order to determine the technical feasibility of a single accuracy standard, ESIF recommends that the Commission create an open forum comprised of the wireless industry, public safety community, the Commission and other relevant stakeholders to conduct a thorough evaluation and make recommendations on the appropriate accuracy standard.⁷ The open forum could be tasked with evaluating accuracy data across a variety of usage environments – dense

network-based technologies 100 meters for 67 percent of calls, 300 meters for 95 percent of calls; (2) For handset-based technologies 50 meters for 67 percent of calls, 150 meters for 95 percent of calls.”

⁵ Federal Communications Commission, OET Bulletin No. 71, *Guidelines for Testing and Verifying the Accuracy of Wireless E911 Location Systems*, at 3 (April 12, 2000) (OET Bulletin No. 71).

⁶ See, e.g., the comments of Motorola, Inc. and Nokia, Inc. at 6, Sprint Nextel at 8, and CTIA-The Wireless Association at 4-5.

⁷ See *NPRM*, Concurring Statement of Commissioner Jonathan S. Adelstein, which proposes that: “Much like the WARN Act Advisory Committee, [the FCC] could immediately convene a committee of industry and public safety experts to develop and submit recommendations to the FCC regarding technical standards and protocols for the next generation of automatic location services.”

urban, urban, suburban and rural - and assessing various location technologies. As the primary forum for the telecommunications industry, public safety and other stakeholders to resolve 911-related technical and operational issues, ESIF would be interested in playing a significant role in such a forum.

The *NPRM* also seeks comment on whether additional information, such as elevation, should be provided as part of a single location accuracy standard. ESIF notes that currently no industry criterion exists for elevation and believes that, before such information could be included in the location standard, greater research and development must occur.

B. Wireless Location Technologies

In the *NPRM*, the Commission also seeks comment on the factors that influence how well a particular accuracy solution performs.⁸ ESIF wants to make the Commission aware of its work in this area. During 2006, ESIF published a technical report entitled “Define Topologies & Data Collection Methodology” (ATIS-0500011) that was generated based on the recommendations of the Commission’s Network Reliability and Interoperability Council #7 (NRIC 7) Focus Group 1A.⁹ This document defines the topologies in which representative location accuracy data should be aggregated and the methodology to accomplish this data analysis.¹⁰ Once compiled, this information may provide guidance to the Public Safety authorities on the typical performance in a given usage environment (*e.g.*, dense urban, urban, suburban, rural) of the various location technologies currently in use by wireless carriers.

⁸ *NPRM* at ¶ 11.

⁹ See NRIC VII, Focus Group 1A, *Near Term Issues for Emergency/E9-1-1 Services*, Final Report (December 2005), which contains recommendations addressing location accuracy reporting area, certification and reporting areas for rural areas, compliance testing, maintenance testing and testing methodologies. NRIC 7 Focus Group 1A deferred several of its recommendations to the ongoing technical work of ESIF.

¹⁰ *Define Topologies & Data Collection Methodology*, ESIF Technical Report ATIS-0500011, (2006).

ESIF believes accuracy performance data for various location technologies, collected through a systematic methodology such as that described in ATIS-0500011, can offer valuable insights about what can be expected from each location technology in a variety of settings. ESIF recommends that each carrier compile the performance metrics of its location technologies for all usage environments and submit these metrics to a mutually agreed-upon third party who would aggregate the results by location technologies. These performance metrics would assist the Commission in developing a fuller understanding of how existing location technologies perform in different contexts and provide the necessary technical data to establish a single location accuracy requirement, if appropriate.

C. Compliance Testing

The *NPRM* specifically asks what methodologies should be employed by carriers to verify compliance.¹¹ At the request of the NRIC 7 Focus Group 1A, ESIF has developed and published several industry-accepted methodologies related to E911 Phase II compliance testing which address many of the questions raised in this *NPRM*. These methodologies were created and adopted through a consensus-driven standards development process involving wireless carriers, public safety representatives and other stakeholders. These documents¹² are summarized below:

- **High Level Requirements for Accuracy Testing Methodologies (ATIS-0500001).** This document addresses the need for industry-accepted requirements for testing accuracy performance of Wireless E911 Phase II systems. It provides a common frame of reference that wireless carriers and other stakeholders can use to validate the accuracy methodology of 911 location technologies. The testing framework set forth in this document

¹¹ *NPRM* at ¶ 14.

¹² These ATIS documents are available at the ATIS Document Center at www.atis.org/docstore.

“identifies all the critical and interrelated elements required to perform accuracy testing of an E911 Phase II location system.”¹³

- **Maintenance Testing (ATIS-0500010).** This document provides a common framework for accuracy maintenance testing to ensure a wireless carrier’s network maintains location accuracy compliance as changes and updates occur over time.

Additionally, the *NPRM* seeks comment on other testing parameters that should be imposed to ensure that testing accurately assesses consumer experiences in using a carrier’s E911 service.¹⁴ ESIF’s technical report entitled “High Level Requirements for End-to-End Functional Testing” (ATIS-0500009) provides testing parameters and considerations that can be utilized to evaluate E911 capabilities. This document addresses methodologies for testing the end-to-end functionality of a Phase I and Phase II E911 integrated network and provides a set of minimum requirements for individual test methodologies. ESIF believes that the framework contained in this document can be used as a reference on how the integrated E911 architecture performs under different scenarios, with different phone capabilities, and utilizing different location technologies. The objective of end-to-end functional testing is to validate call routing and data delivery from each active cell site/sector in the PSAP jurisdiction.

The ESIF documents referenced above are consistent with and attempt to augment and clarify the guidelines found in OET Bulletin No. 71. ESIF believes these documents offer valuable insights and could serve as the basis for standard compliance testing methodologies for wireless carriers.

¹³ *High Level Requirements for Accuracy Testing Methodologies*, ESIF Technical Report ATIS-0500001 at 3 (2004).

¹⁴ *NPRM* at ¶ 14.

D. Schedule of Testing

The *NPRM* seeks comment on the Commission’s tentative conclusion to establish a mandatory schedule for accuracy testing and to determine the appropriate schedule of testing.¹⁵ ESIF’s technical report entitled “Maintenance Testing” (ATIS-0500010) specifies events that should trigger accuracy maintenance testing. Those events include: “1) major network changes that may significantly impact location accuracy; 2) problems such as unexplained significant degradation of service, systematic failed delivery of service and catastrophic events (but not single failure events); and 3) every two years, as a minimum consistent with NRIC VII Focus Group 1A recommendations.”¹⁶ Examples of major network changes that could significantly impact location accuracy and trigger accuracy maintenance testing on some or all of the deployed networks include:

- a) Changes to core location technology;
- b) Major system software upgrades that impact location algorithms, which should be verified in representative deployments or configurations, where applicable;
- c) Changes in radio frequency (RF) configuration that would result in a significant impact to location accuracy in the area being considered, such as switch-wide code division multiple access pseudo noise (CDMA PN) code change or a significant change in the number of cell sites; and
- d) Natural disasters that alter the topology of a significant portion of the infrastructure in an area of consideration.

Additionally, ATIS-0500010 specifies requirements and procedures for performing maintenance of end-to-end functionality testing of E911 Phase I and Phase II systems. The document also contains triggers for functionality testing if call routing problems are suspected. These triggers include: new cell sites; re-homes of cell sites from one Mobile Switching Center (MSC) to another MSC; cell site sector changes; PSAP-initiated routing changes for individual

¹⁵ *NPRM* at ¶ 15.

¹⁶ *Maintenance Testing*, ESIF Technical Report ATIS-0500010 at 7-8 (2006).

cell sites or groups of cell sites; platform software upgrades that have the potential to affect call routing; technology overlays (*e.g.*, TDMA to GSM); Mobile Positioning Center/Gateway Mobile Location Center (MPC/GMLC) vendor changes, and selective router or trunk group changes.

E. Interconnected VoIP Services

Finally, the Commission seeks comment on its tentative conclusion to require interconnected VoIP providers to employ automatic location technology that meets the same accuracy standards that apply to commercial mobile radio services (CMRS).¹⁷ ESIF supports the Commission's interest in ensuring that E911 Phase II is applied to newer technologies such as interconnected VoIP. However, ESIF advises the Commission that, given the early developmental stage of interconnected VoIP, application of CMRS accuracy standards may not be applicable to all interconnected VoIP technologies.

For technologies such as interconnected VoIP and associated location technologies, which are still evolving, additional work must be conducted before location accuracy requirements could be applied. This work includes: fundamental research and development, creation of standards and testing and deployment of those standards in the industry.

Over the past year, ESIF has contributed to this effort by conducting an analysis of protocols that support location acquisition. Location acquisition is the process by which interconnected VoIP clients obtain location information from the access network. The results of this analysis have been documented in an ESIF technical report entitled "Location Acquisition for Internet Access Networks in Support of Emergency Services" (pending publication as ATIS-0500012 Version 1). In addition, ESIF is planning to produce a technical report that will examine location parameter conveyance architectures and protocols. Both technical reports are intended to provide the architectures and protocols needed to enable automatic location delivery to

¹⁷ *NPRM* at ¶ 18.

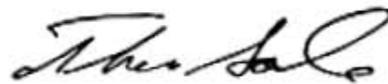
interconnected VoIP users. ESIF believes that the open forum referenced above in Section II A. would be an appropriate venue to further develop location accuracy standards for interconnected VoIP technologies and that its work in this area would offer valuable insights.

III. Conclusion

ESIF recommends that the Commission not implement a single accuracy standard without first determining the technical and commercial feasibility of such a standard. To this end, ESIF supports the establishment of an open forum or committee comprised of interested stakeholders, similar to the WARN Act Advisory Group, to conduct the feasibility assessment. Finally, ESIF notes that its published technical standards address many of the issues raised in the *NPRM*.

Respectfully submitted,

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