

**Before the  
Federal Communications Commission  
Washington, DC 20554**

In the Matter of	)	
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Wireless E911 Location Accuracy	)	PS Docket No. 07-114
Requirements	)	
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**REPLY COMMENTS OF THE ALLIANCE FOR  
TELECOMMUNICATIONS INDUSTRY SOLUTIONS**

The Alliance for Telecommunications Industry Solutions (ATIS) submits these comments on behalf of its Emergency Services Interconnection Forum (ESIF) and Wireless Technologies and Systems Committee (WTSC) in response to the *Third Further Notice of Proposed Rulemaking (Third FNPRM)* released February 21, 2014, in the above-referenced docket. In the *Third FNPRM*, the Federal Communications Commission (Commission) seeks comment on specific experiment proposals, and potential alternatives to these proposals, with respect to indoor location accuracy. ATIS supports the proposed use of test beds representative of real-life call scenarios, to demonstrate compliance with location accuracy requirements. ATIS also supports alternative testing methods so long as the methodology and testing procedures are at least equivalent to the rigor and standards used in the independent location accuracy test bed approach. Finally, ATIS urges the Commission to consider the significant work that has been done within ATIS on location accuracy issues and to ensure that any new regulations are consistent with this industry work.

## **I. BACKGROUND**

ATIS is a global standards development and technical planning organization that leads, develops and promotes worldwide technical and operations standards for information, and communications technologies (ICT). ATIS' diverse membership includes key stakeholders from the ICT industry – wireless and wireline service providers, equipment manufacturers, broadband providers, software developers, consumer electronics companies, public safety agencies, digital rights management companies, and internet service providers. Nearly 600 industry subject matter experts work collaboratively in ATIS' open industry committees and incubator solutions programs. Technical, operational, and business priorities are also examined by ATIS through its Technology and Operations (TOPS) Council, a group established by the ATIS Board of Directors to identify and address the ICT ecosystem's needs through focused, expedited efforts.

ATIS has a number of initiatives directed at facilitating access to existing and emerging emergency communications services and systems. ATIS' Emergency Services Interconnection Forum (ESIF), for example, develops standards for the interconnection of emergency services networks through a collaborative process involving service providers and equipment manufacturers, as well as governmental, standards, and public safety organizations. ATIS' Wireless Technologies and Systems Committee (WTSC) works on key emergency service-related initiatives, including Short Message Service (SMS) to 9-1-1, push-to-talk (PTT), and interference issues. Work on emergency communications services and systems is also progressed through ATIS' role as the North American Organizational Partner in the Third Generation Partnership Project (3GPP), which develops 4G wireless specifications, including Long Term Evolution (LTE) standards.

## II. TEST BED

In the *Third FNPRM*, the Commission proposes that commercial mobile radio service (CMRS) providers demonstrate compliance with indoor location accuracy requirements by participating in an independently-administered test bed program or an alternative test bed methodology of equivalent reliability.<sup>1</sup> ATIS supports the proposed use of test beds to demonstrate compliance with location accuracy and agrees with the Commission that testing should include parameters such as location accuracy, latency (Time to First Fix), and reliability (yield).<sup>2</sup>

To ensure the neutrality of the test bed and to provide for appropriate stakeholder input, ATIS supports the organizational structure discussed in the Final Report of Working Group 1 of the Communications Security, Reliability and Interoperability Council (CSRIC) IV. This working group recommended a management framework that would include a:

- Technical Advisory Committee of relevant stakeholders that would provide input on technical or related programmatic changes to the test bed;
- Neutral Test Bed Program Manager that would serve as the primary interface between the Commission, the Test Bed Administrator, and participating carriers, vendors, public safety entities; and
- Test Bed Administrator-Executor that would develop a detailed test plan, review candidate test buildings, review vendors' test configurations and test processes, and oversee and support field testing, correlating/analyzing field data, etc.<sup>3</sup>

ATIS would be willing to serve in the role of Test Bed Program Manager and also to convene and manage the Technical Advisory Committee. As noted by the Commission, ATIS

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<sup>1</sup> *Third FNPRM* at ¶84.

<sup>2</sup> *Id.* at ¶89.

<sup>3</sup> *Final Report Specification for Indoor Location Accuracy Test Bed* from Working Group 1, Subgroup 3 of CSRIC IV (June 2014) at p.3.

was a key contributor to the previous CSRIC indoor location accuracy test bed. ATIS collaborated with Working Group 3 of CSRIC III to develop a test bed to test performance levels in real world conditions representative of indoor location environments across the country.<sup>4</sup> Moreover, ATIS ESIF's *Approaches to Wireless E9-1-1 Indoor Location Performance Testing* (ATIS-0500013) served as the basis for the CSRIC III test bed methodology.<sup>5</sup>

ATIS has also been an active contributor to CSRIC IV's work on indoor location accuracy. On February 7, 2014, ATIS submitted input on behalf of the ATIS' ESIF Emergency Services & Methodologies (ESM) Subcommittee to CSRIC IV Working Group 1's task force on regional test beds. This input identifies the parameters that may affect indoor location performance, such as the location technologies/systems used, radio access network technology, the providers/vendors' implementation of location technology configuration options, the quality/density of surrounding transmission sources, the geometry of surrounding transmission sources, etc. The input also notes that a successful indoor location test bed plan will need to anticipate and accommodate a variety of geographic morphologies, especially given the varying levels of diversity that can exist on a regional basis (for example, building structures and a test site's geographic proximity to a Public Safety Answering Point (PSAP)). Six (6) regional test beds centered around metropolitan hubs were recommended to represent the various regions across the United States.<sup>6</sup>

As noted by CSRIC II Working Group 3 and by commenters in this proceeding, ATIS has developed indoor testing standards incorporating representative test environments (*i.e.*, urban, dense urban, suburban and rural morphologies) as defined in its *Define Topologies &*

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<sup>4</sup> *Id.* at ¶82.

<sup>5</sup> *Indoor Location Test Bed Report* from Working Group 3 of CSRIC III (March 14, 2013) at §6.1.

<sup>6</sup> The test beds recommended by ESIF ESM were: (1) San Francisco Bay Area; (2) Chicago; (3) Atlanta; (4) Denver/Front Range; (5) Philadelphia; and (6) Manhattan.

*Data Collection Methodology* (ATIS-0500011). ATIS has incorporated these morphologies in its *Approaches to Wireless E9-1-1 Indoor Location Performance Testing* (ATIS-0500013), which provides guidance for assessing the performance of wireless location technologies in various types of indoor structures and indoor calling scenarios.<sup>7</sup> ATIS urges the Commission to consider relying on this industry work rather than developing duplicative or conflicting regulations. ATIS believes that these morphologies, when used in concert with the six regional test beds, are sufficiently representative of use cases nationwide and inclusive of the variety of indoor environments in which wireless 911 calls are made. ATIS notes that it is working on specific implementations of these morphologies for the six recommended regional test beds.

Finally, ATIS notes that, in addition to the test bed approach discussed above, ATIS would also support alternative testing methods so long as the methodology and testing procedures are at least equivalent to the rigor and standards used in the independent location accuracy test bed approach.

### **III. CONFIDENCE AND UNCERTAINTY DATA**

In the *Third FNPRM*, the Commission seeks comment on whether to incorporate into its rules ESIF's recommended 90 percent confidence level.<sup>8</sup> ATIS believes that this is an appropriate confidence level. As ATIS ESIF concluded from its evaluation of the Confidence (CNF) parameter set in the Position Determining Entity used to calculate the Uncertainty that is delivered to public safety, a uniform CNF level among service providers is desirable for

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<sup>7</sup> ATIS believes that the definitions in *Define Topologies & Data Collection Methodology* (ATIS-0500011) are more appropriate for location accuracy than the census bureau's definitions, which are based on number of people in a household, and do not take into account other factors (e.g., construction materials) that affect propagation characteristics.

<sup>8</sup> *Third FNPRM* at ¶156.

consistency in interpretation for PSAP operations.<sup>9</sup> ATIS ESIF therefore recommended that CNF should be normalized at 90 percent to provide for the consistent interpretation of location data by the PSAP staff without significantly affecting the integrity of the calculated UNC.

#### **IV. CONCLUSION**

As noted in these reply comments, ATIS supports the proposed use of test beds, or alternative equivalently-rigorous testing methods, to demonstrate compliance with location accuracy requirements. ATIS also urges the Commission to consider the significant work that has been done within ATIS on location accuracy issues, including issues such as representative test environments and confidence/uncertainty data, and to ensure that any new regulations are consistent with this industry work.

Respectfully submitted,



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<sup>9</sup> ATIS ESIF Issue 70 (Final Closure Date: November 29, 2010). *See also High Level Requirements for Accuracy Testing Methodologies* (ATIS-0500001).