

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

In the Matter of )  
 )  
Wireless E911 Location Accuracy Requirements ) P.S. Docket 07-114  
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**REPLY COMMENTS OF THE TELECOMMUNICATIONS INDUSTRY  
ASSOCIATION**

**I. INTRODUCTION AND SUMMARY**

The Telecommunications Industry Association (“TIA”)<sup>1</sup> submits these reply comments to the Federal Communications Commission (“Commission”) in the above-captioned proceeding.<sup>2</sup> TIA appreciates the opportunity to discuss how the Commission can best support the development of location accuracy capabilities of 911 and E911 services for voice communications during emergencies.

The ICT industry and wireless carriers continue to develop highly innovative approaches and new products to improve location accuracy in the absence of any FCC mandate. Any future

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<sup>1</sup> TIA represents the global information and communications technology (ICT) industry through standards development, advocacy, tradeshow, business opportunities, market intelligence, and world-wide environmental regulatory analysis. Its hundreds of member companies manufacture or supply the products and services used to provide broadband and broadband-enabled applications. Since 1924, TIA has enhanced the business environment for broadband, mobile wireless, information technology, networks, cable, satellite, and unified communications. TIA’s standards committees create consensus-based voluntary standards for numerous facets of the ICT industry.

<sup>2</sup> See, In the Matter of Wireless E911 Location Accuracy Requirements Third *Further Notice of Proposed Rulemaking*, P.S. Docket 07-114 (Rel. February 20, 2014) (“FNPRM”)

location accuracy requirements should reflect more mature technology and not be based on unproven early stage solutions.

The requirements should also not be structured to favor, or to disadvantage, any particular technology. In the Next Generation 9-1-1 Advancement Act of 2012, Congress wisely recognized that location technologies remain in development, and that undue burdens should not be imposed.<sup>3</sup>

If the Commission adopts further location accuracy requirements at this time—which TIA strongly opposes—the agency should account for the unique challenges presented by the tremendously different settings in which wireless networks operate in the United States, and ensure that any new rules adhere to technology neutral solutions and results-based principles that can be deployed ubiquitously.

The ICT industry and TIA have both long supported the Commission’s focus on improving location accuracy for emergency communications.<sup>4</sup> Even now, industry is working to improve location accuracy technologies and applications to more quickly and accurately locate wireless 911 callers experiencing an emergency situation. Industry is also working to facilitate emergency requests by, and responses to, those with disabilities and those who reside in sparsely populated or tribal areas. TIA recognizes the need for improved location accuracy and will continue to work with the Commission and all stakeholders to ensure that wireless services meet the needs of the American people during emergencies.

TIA urges the Commission to focus on allowing the formulation and implementation of standards and best practices by network providers, vendors, and other stakeholders. The FCC

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<sup>3</sup> See Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96 (2012), Title VI, Subtitle E (Next Generation 9-1-1 Advancement Act of 2012).

<sup>4</sup> See, e.g., Comments of the Telecommunications Industry Association, CC Docket No. 94-102, PS Docket No. 07-114, WC Docket No. 05-196 (filed Aug. 20, 2007), at 2.

should not issue any indoor location rules until the performance of all technically and economically viable positioning technologies is accurately characterized and carriers' reasonable deployment plans are taken into account.<sup>5</sup> In this regard, Qualcomm noted in its comments that: "It is important to recognize that not all technologies that can provide indoor positioning were tested in CSRIC III WG3."

## **II. LOCATION ACCURACY REQUIREMENTS SHOULD BE BASED ON STANDARDIZED SOLUTIONS, AND REFLECT CURRENTLY AVAILABLE TECHNOLOGY**

Although TIA supports the development of improved indoor location accuracy, many concerns remain regarding the impact of new requirements on innovation and whether technology is sufficiently developed to support the proposed mandate. Just as significant, if not more, the Commission's speculative mandate poses the risk of discouraging the development of and prematurely employing the use of alternative location identification approaches. Consequently the Commission should refrain from adopting new location accuracy rules at this time.

The Commission's experience with the E-911 Phase II implementation warrants consideration, as requirements should be based on more mature technology. A regulatory mandate based on speculation or prototype solutions exposes the Commission to regularly revisiting the issue. As CTIA has noted regarding E-911 Phase II implementation: "The

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<sup>5</sup> See, Comments of Qualcomm, PS Docket Nos. 07-114 (filed May 12, 2014) "Qualcomm Comments" at 6.

Commission issued roughly forty waiver orders addressing countless individual waiver petitions and acted on more than a dozen enforcement decisions.”<sup>6</sup>

As Qualcomm has cautioned: “The *FNPRM* essentially proposes to require mobile carriers to provide the same 50 meter level of ‘x-y’ accuracy for callers located indoors, in any and all types and sizes of buildings, including underground, and it also proposes a completely new vertical ‘z-axis’ accuracy requirement of 3 meters — an order of magnitude greater precision than the present horizontal outdoor requirement — all within a period of two to three years, which is an order of magnitude less time than the FCC has allowed carriers to provide the same level of accuracy outdoors.”<sup>7</sup>

Indoor location solutions are also being developed that use Wi-Fi and similar in-building technology to locate calls.<sup>8</sup> Specifically Cisco’s technology uses RF fingerprinting to determine location. The approach, using the evolving IEEE 802.11mc and completed IEEE 802.11k/u are currently on track to be ready for Wi-Fi Alliance certification in the 2015 timeframe. As Cisco has reported to the Commission, “802.11mc File Timing Measurement protocol over the 802.11ac (80MHz) Physical layer will be capable of producing 10 feet of accuracy on a horizontal X/Y axis 90% of the time although more accurate data is possible depending upon implementation and the use of “angle of arrival” data. Retailers, in particular, are interested in detailed granulation of location data so that they can track traffic through Specific aisles in their stores.”<sup>9</sup>

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<sup>6</sup> See CTIA ex parte Ex Parte Presentation, PS Docket No. 07-114 Feb 14, 2014

<sup>7</sup> See Qualcomm Comments at ii

<sup>8</sup> See NPRM at ¶ 132

<sup>9</sup> See Cisco EX PARTE in Amending the Definition of Interconnected VoIP Service in Section 9.3 of the Commission’s Rules, GN Docket No. 11-117; Wireless E911 Location Accuracy Requirements, PS Docket No. 07-114; E911 Requirements for IP-Enabled Service Providers, WC Docket No. 05-196 July 24 2013.

TIA notes, though, that new user devices will need to be deployed to support this feature in order to be available to support the Commission’s location accuracy objectives.

Cisco observed the evolving challenges and opportunities in the mobile environment: “Today’s mobile ecosystem is vastly different. Location data can come from many non-carrier sources and the new rules should embrace these new sources of data. Consumer location information, which is by far the most vastly utilized, provides for consumer-friendly applications like: navigation; find a friend; find a restaurant; even aeronautic and marine navigation applications. Public Safety should be able to leverage these location systems. Although these consumer systems historically were viewed as untrustworthy, they can allow PSAPs unprecedented location accuracy when coupled with currently deployed CMRS E911 location technologies and trustworthy location information from Enterprise Wi-Fi.”<sup>10</sup>

If the Commission nonetheless adopts new rules without allowing the technology to develop further and solutions to be validated—which TIA strongly opposes—the FCC must recognize the challenges posed by different building types and geographies, and set a reasonable and flexible timeline for carriers to improve location accuracy in all locations. Further, the Commission should continue to ensure that E911 location accuracy requirements are technology-neutral and consciously avoid favoring or disfavoring one technology over another.

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<sup>10</sup> See Comments of Cisco PS Docket Nos. 07-114 (filed May 12, 2014) “Cisco Comments” at 5

### III INDOOR LOCATION DETERMINATION SOLUTIONS ARE NOT SUFFICIENTLY DEVELOPED FOR E911 CALLS

The NPRM proposes a near-term requirement to achieve “rough” indoor location information.<sup>11</sup> It proposes to require CMRS providers subject to Section 20.18 to provide horizontal information for wireless 911 calls that originate indoors, specifically a caller’s location, to within 50 meters in the x-y domain.<sup>12</sup>

While significant improvements have been made to indoor location accuracy technology, the NPRM itself notes that “the record, to date, is divided regarding whether location accuracy technology is sufficiently developed to support the near-term implementation of an indoor location accuracy requirement.”<sup>13</sup>

As Cisco notes in its comment: “The *NPRM* proposes to utilize the old wireless 911 regulatory paradigm – adopt new accuracy requirements and require CMRS carriers to make the investments necessary to satisfy the requirements. There is a better approach. Information regarding the location of a wireless caller is currently available from a wide variety of non-carrier sources, such as Wi-Fi devices and mobile apps. In many cases, these sources can provide the information public safety desires – a dispatch-able address – rather than coordinates that must be reverse geo-coded into an address.”<sup>1415</sup>

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<sup>11</sup> See NPRM at ¶ 44

<sup>12</sup> Id.

<sup>13</sup> See NPRM at ¶ 56

<sup>14</sup> See Cisco Comments at (i)

<sup>15</sup> Qualcomm concurs: “Standards exist to facilitate the use of Wi-Fi information, including both the raw measurements but also the positions used by existing commercial location based services, as supplemental information to E911 location servers. Bluetooth beacons similarly can be incorporated into the location determination.” Qualcomm does make note technical challenges which need to be addressed. Qualcomm Comments at 8

At the conclusion of the *CSRIC Indoor Location Test Bed Report*, WG3 noted, “additional development is required to ensure” the provision of an “actionable location,” especially in urban and dense urban environments.<sup>16</sup> For a PSAP, “actionable location” is obtaining the correct civic address, which is more important than obtaining some relative measure of meters and its associated error margin. Although the CSRIC Test Bed Report revealed promising data for the deployment of improved indoor location technologies, providers continue to express concern about whether they can realistically meet the proposed requirements based on currently available technology. In a letter to the Commission, CTIA noted, “It is hoped that such [indoor location] technologies would be tested and validated in future test bed campaigns.”<sup>17</sup> AT&T noted, “[T]he time [is] right to begin discussing Indoor Location Accuracy for E911” but the “FCC should be careful to ensure that any proposed rules on location accuracy are aligned with proven capabilities of the current state of technology and they should set realistic accuracy benchmarks that the industry and public safety can embrace.”<sup>18</sup>

The NPRM proposes to require CMRS providers to deliver z-axis information within 3 meters of the caller’s location, for 67 percent and 80 percent of indoor wireless 911 calls within three years and five years of the effective date of adoption rules, respectively.<sup>19</sup> Although the NPRM speculates that a 3-meter vertical location accuracy requirement is technically feasible, the CSRIC III Report and a number of commenters have explained that z-axis technology requires substantial further research, testing, refinement, validation, standardization and

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<sup>16</sup> See CSRIC III WG3, *Indoor Location Test Bed Report* (Mar. 14, 2013), at 8, Last visited July 14, 2014 available at [http://transition.fcc.gov/bureaus/pshs/advisory/csric3/CSRIC\\_III\\_WG3\\_Report\\_March\\_%202013\\_ILTestBedReport.pdf](http://transition.fcc.gov/bureaus/pshs/advisory/csric3/CSRIC_III_WG3_Report_March_%202013_ILTestBedReport.pdf) (*CSRIC Indoor Location Test Bed Report*)

<sup>17</sup> See Letter from Brian Josef, CTIA-The Wireless Association, to Marlene Dortch, Secretary, FCC, PS Docket 07-114 (filed Feb. 14, 2014), at 2

<sup>18</sup> See letter from Joseph P. Marx, Assistant Vice President, AT&T Services, Inc., to Marlene Dortch, Secretary, FCC, PS Docket 07-114 (filed Feb. 13, 2014), at 1

<sup>19</sup> NPRM at ¶ 73

development before it can be effectively implemented.<sup>20</sup>

#### **IV. CONCLUSION**

TIA strongly supports the Commission's goal to improve location accuracy. But imposing location accuracy mandates at this time would be premature, given the nascent stage of the technology that the Commission is looking to accomplish the certain accuracy objectives, and should neither favor nor disfavor specific technologies. TIA looks forward to working with the Commission and industry to continue to develop technologies that will improve location accuracy for the public safety community.

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<sup>20</sup> NPRM at ¶ 15

CSRIC's continued role in tracking the evolution of location performance promotes the Commission's objectives. The Commission should task the CSRIC with evaluating the capabilities and timetables associated with incorporating existing location information from various sources into a comprehensive solution to the indoor accuracy issue for wireless 911 calls. A test bed should evaluate the best methods for combining the various sources of location information and assess the accuracy of the location information that results from utilizing multiple sources to generate a location fix.

Respectfully submitted,

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