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

In the Matter of	)	
	)	
Wireless E911 Location Accuracy Requirements	)	PS Docket No. 07–114

To: The Commission

COMMENTS OF ERICSSON TO THE COMMISSION'S THIRD FURTHER NOTICE OF PROPOSED RULEMAKING

Ericsson hereby submits these comments in response to the Commission's Third Further Notice of Proposed Rulemaking ("*Notice*") seeking comment on proposals to add new location accuracy requirements for wireless 911 calls.[1] Ericsson is at the forefront of delivering new technologies that promise to increase the ability of emergency responders to locate wireless callers in emergencies, and is pleased to offer these comments to the Commission as it deliberates new accuracy rules.

Ericsson is a leading supplier of telecom solutions and has been involved in the market for over 135years. Our commitment to open and innovative technology standards helps ensure that our public safety offerings are interoperable among various networks, devices, and operators. Moreover, Ericsson has special expertise in the public safety realm, offering products that are effective in day-to-day operations as well as during extraordinary incidents.[2]

I. NEW POSITIONING RULES ARE PREMATURE

Ericsson encourages the Commission not to adopt new accuracy requirements at this time. Industry has increased, and continues to increase, positioning accuracy without new

[1] Wireless E911 Location Accuracy Requirements, *Third Further Notice of Proposed Rulemaking*, PS Docket No. 07-114, 29 FCC Rcd 2374, FCC 14-13 (rel. Feb. 21, 2014).

[2] *See* Comments of Ericsson, Implementing Public Safety Broadband Provisions of the Middle Class Tax Relief and Job Creation Act of 2012, PS Docket Nos. 12-14, 06-229 and WT Docket No. 06-150, filed May 24, 2013, at 2.

regulations. However, if the Commission is determined to adopt new requirements, Ericsson urges it to base them on standards that exist today or that are far along in the development process. Simply by way of example, Ericsson and others are currently working on standards within 3GPP that would add "cell portion" to LTE positioning standards. To continue to maximize positioning accuracy and yield beyond what is possible today, Ericsson recommends combining positioning methods based on the user's device, such as A-GPS or OTDOA, with methods based on network measurements, such as Enhanced Cell ID ("E-CID") in the case of LTE networks. [3] The combination has the potential to offer greater accuracy than either type of method can offer alone.

While Ericsson agrees that delivering the most accurate, and useful, information to public safety personnel is crucial, we are concerned that the *Notice* relies on limited vendor claims to support the notion that its short-term goals (in particular, z-axis delivery within three years) are achievable.[4] The CSRIC III WG 3 Report contains information about a number of technologies that could improve indoor wireless location technology.[5] Many of the technologies referenced in this report are still in development – indeed, one other vendor cited in the Notice posited that it would take *more* than three years before the level of accuracy the Commission has proposed would be realized.[6] We caution the Commission not to mandate the first promising technology to emerge in this very competitive and innovative space. Experience has shown that the best

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[3] *See* 3GPP: R3-140831, "Cell Portions and Positioning Methods" (Ericsson);; R3-140832, "Support for Positioning Measurements with Sub-cell Granularity" (Ericsson, Samsung, Huawei), CR 36.305 Rel12; R3-140833 "Adding Cell Portion to E-CID Measurement Reporting" (Ericsson, Samsung, Huawei), CR0046r2 36.455 Rel12.

[4] Certainly, z-axis information is important for locating a caller in a multi-story building. However, incorporation of new technology into network and consumer devices will require more thorough investigation than what was performed during the CSRIC III tests.

[5] *See* CSRIC III WG3, Indoor Location Test Bed Report (Mar. 14, 2013), *available at* http://transition.fcc.gov/bureaus/pshs/advisory/csric3/CSRIC_III_WG3_Report_March_%202013_ILTestBedReport.pdf ("CSRIC III WG 3 Report").

[6] *See Notice* at ¶ 74, n.152.

solutions are those that emerge through the collaboration of an entire, competitive industry focused on a common goal.

Even if there is no delay or unforeseen complication in the development of the particular technologies the *Notice* references, industry will need time to design, build, and test them, as well as to build out the networks and replace consumer handsets. Although the *Notice* references the standardization process[7] and seeks comment on the length of time standards-setting bodies would require to develop standards, it does not appear to have incorporated time for standardization into the proposed two, three, and five year benchmarks.[8] Thus it is, at best, unclear whether the Commission's benchmarks could realistically be achieved within the proposed timeframe.[9]

II. THE STANDARDIZATION PROCESS IS YIELDING INCREASING POSITIONING ACCURACY

The wireless telecommunications industry continues to work toward improving positioning technology through the voluntary and consensus-driven standardization process. Ericsson has seen groups such as 3GPP commit to improving accuracy for emergency communications, and so within each release of the relatively short history of the LTE standard, we see increasingly accurate positioning solutions:

- Release 8: CID (Cell ID) – Provides basic knowledge of the user's location using cellular system knowledge about the serving cell for the specific user. The user location area is associated with the serving Cell ID.

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[7] *See id.* at ¶¶ 57-58.

[8] *See id.* at ¶ 3.

[9] Over-reliance on claims based on prototypes also may cause E911 history to repeat itself. Recall that E911 Phase II accuracy rules were based in large part on rosy visions of the future from individual vendors—and led to the Commission having to issue approximately 40 orders addressing numerous waiver petitions from operators that simply could not meet the implementation benchmarks. *See* CTIA – The Wireless Association, *Ex Parte* Presentation, PS Docket No. 07-114, at 2 (dated Feb. 14, 2014).

- Release 9:
    - E-CID (Enhanced Cell ID) – Uses both end-user device assisted and network-based methods that utilize CID RF measurements from multiple cells, timing advance, and angle of arrival.
    - OTDOA (Observed Time Difference of Arrival) – An end-user device assisted method based on reference symbol time difference (RSTD) measurements conducted on downlink positioning reference signals received from multiple locations, where the user location is calculated through the use of multilateration.
    - A-GNSS (Assisted Global Navigation Satellite System) –An end-user device based and assisted method that uses satellite signal measurements retrieved by systems such as GPS and Galileo.
- Release 11: UTDOA (Uplink OTDOA) – An uplink method for OTDOA, which utilizes uplink time of arrival measurements performed at multiple receiving points, based on Sounding Reference Signals (SRS).

These are just a few of the examples of how the standards-setting process for LTE continues to push forward with enhancing location accuracy.

III. TECHNOLOGIES BEING DEPLOYED TODAY SHOW PROMISE TO ADDRESS IMPROVEMENTS TO WIRELESS INDOOR LOCATION

One of the newer, and at present most exciting, areas for potential technological development in positioning is in the deployment of "small cells" such as the Ericsson Radio Dot.[10] Small cell deployment is a key part of Ericsson's heterogeneous network strategy. By integrating small cells as part of the macro mobile network, operators can cost effectively provide increased network capacity and improved coverage, especially indoors. Depending upon the deployment, products like the Ericsson Dot could provide enhanced accuracy in buildings where multiple Dots have been deployed. The advantage to such deployments is that no additional network hardware is necessary – the same Radio Dot used to provide in-building coverage and capacity can also aid in location determination down to a very granular level.

[10] More information about the Ericsson Radio Dot System, which enables mobile operators to deliver consistently high performance voice and data coverage and capacity in the broadest range of enterprise buildings and public venues, is available at http://www.ericsson.com/ourportfolio/products/radio-dot-system.

CONCLUSION

With further network deployments, the addition of heterogeneous networks, and dedicated indoor solutions (including the Ericsson Dot and integrated Wi-Fi systems), we expect industry solutions to improve indoor location accuracy. We encourage the Commission not to prematurely set rules, but to base any changes to positioning requirements on such industry solutions as they are deployed.

Respectfully submitted,

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