

**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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To: The Commission

**REPLY COMMENTS OF
THE BOULDER REGIONAL EMERGENCY TELEPHONE SERVICE AUTHORITY
ON THIRD FURTHER NOTICE OF PROPOSED RULEMAKING**

The Boulder Emergency Telephone Service Authority (“BRETSA”), by its attorney, hereby submits its Reply Comments on the Commission’s February 21, 2014 Third Further Notice of Proposed Rulemaking in the above-referenced Docket (“NPRM”).

I. The Commission Should Adopt Its Proposed Standards, But Periodically Refresh The Record.

It is important that the Commission adopt aspirational standards, to propel the advancement of location technology. The Commission should refresh the record at regular intervals with information on test bed results and results of location technologies in actual operational performance. The Commission should be open to accelerating or delaying the implementation deadlines or granting waivers, across all morphologies or select morphologies based upon the updated information.

Waivers are an essential element of any regulatory scheme involving rules of general applicability. The fact that waivers of past location standards have been granted is no reason to avoid adopting standards of general applicability.

A. The Commission Should Adopt The Proposed Standards.

Ironically, if service providers were not granted immunity, the same providers which argue *against* the adoption of standards in this docket would be arguing *for* standards as a safe harbor against liability. Liability for negligent or intentional acts is as much a market force, as are pricing and consumer demand. Consumer demand as a market force pushing investment and technological innovation in the area of 9-1-1 and public safety services is ineffective because (i) consumers already *assume* the government assures that 9-1-1 will work with all telephone services, and (ii) location accuracy for wireless 9-1-1 service and wireless 9-1-1 is a relatively complex issue. Nevertheless, the tremendous growth of wireless market penetration has in large part been driven by consumers' beliefs that wireless service will allow them to reach help while away from home, just as with their home phones.

That the Commission has had to require that wireless providers (i) even allow 9-1-1 calls and route them to a PSAP, and (ii) provide caller location information to PSAPs (which providers continue to complain about in this proceeding) demonstrates the ineffectiveness of consumer demand to drive such improvements.¹ Wireless providers now sing the tiresome refrain that the deadlines proposed by the Commission are unrealistic given the current state of technology, investment in improved location accuracy under current technology will result in wasted investment and actually impede improvements, or they cannot afford or obtain

¹ Text-to-911 service was voluntarily agreed to by some providers in the face of a Commission rulemaking proceeding on the issue, but may have actually delayed availability of the service. The providers now argue that the Commission should not go past the requirements of their voluntary agreement, and other providers continue to argue that the requirements should not be extended to them, at least at this time.

components to comply with the new requirements. Absent market forces effectively driving improvement in 9-1-1 location accuracy, and given the general pace of technological advancement, the Commission *must* adopt aspirational standards or settle for the status quo.

B. The Commission Should Periodically Refresh The Record.

The Commission should refresh the record in this proceeding annually or biennially. Given the pace of technological advancement, it is as likely that it will be feasible and prudent to move up the date providers will be capable of complying with the new rules, as it is that delay in or waiver of the requirements will be necessary.

As BRETSA noted in its Comments herein, wireless providers, ANI/ALI providers and NG9-1-1 Providers should be able to capture wireless 9-1-1 call data demonstrating the actual performance of wireless location technologies in a production environment. Reservation of data fields reserved for interested PSAPs to provide additional data captured by their CAD and PSAP phone systems, or gathered by First Responders when responding to incidents, should allow even more complete picture of the performance of the 9-1-1 System including the evaluation of the claims of location technology vendors and providers regarding the current state of location technology. (The ANI/ALI or NG9-1-1 data complex providers who sit between the originating service providers and the PSAPs, might be the logical choice of entity to compile this data.)

PSAPs claim they are receiving Phase II information for a diminishing percentage of wireless calls, which service providers contend is due to a sudden failure of PSAPs to rebid the ANI/ALI database. BRETSA believes Phase II routing will improve response times for far more people than improvements in indoor location accuracy, and supports location solutions which will support Phase II routing *and* improve indoor accuracy. BRETSA also believes indoor accuracy is more important in some morphologies than others, the cost effectiveness of different

technologies may vary by morphology, and thus that potential modification of location requirements based upon morphology may be appropriate as the record is refreshed with actual operational data drawn from the 9-1-1 System itself.²

Data relevant to 9-1-1 System performance exists and is or can be captured at all levels of 9-1-1 Service and Emergency Response, from the originating service providers to the ANI/ALI and NG9-1-1 data complex providers to the PSAPs and First Responders. The capture of location data, times required for provision of Phase II data, incidence of Phase I misroutes and other information based upon actual 9-1-1 calls and 9-1-1 System performance, would be a critical resource for (i) the Commission to monitor whether its proposed rules, standards and timelines continue to be appropriate, (ii) state authorities (“PUCs”) provide oversight and enforcement of state regulations and allocate resources for 9-1-1 Services, and (iii) PSAPs, technology vendors and other parties study means of improving the efficiency and effectiveness of 9-1-1 Service and Emergency Response.³ BRETSA strongly urges the Commission to adopt such regulations as may be necessary for implementation of data compilation programs and filing of reports enabling the Commission and interested parties to evaluate performance of wireless 9-1-1 services, including location accuracy, in a production environment.

C. Test-Bed Evaluations Can Identify Technologies Capable Of Meeting Commission Requirements, But Cannot Guaranty That They Will Meet The Requirements As Deployed.

BRETSA believes establishment of the CSRIC test-bed is an important measure to evaluate whether location technologies are *capable* of meeting the standards established by the

² The location accuracy required for indoor locations will vary with the size of the structure involved, features inhibiting line-of-sight, and the number of separate and separately secured units. Multistory office and apartment buildings provide greater challenges to location of a caller than single-family homes or open factory floors in terms of the time required for First Responders to locate callers. Indoor location accuracy may also be more challenging in urban areas due to increased density of construction.

³ BRETSA advocates the adoption of the current standards, subject to refinement as the record is refreshed, rather than further delaying improvement of location technology by making perfect information the enemy of the good.

Commission and improving 9-1-1 location accuracy for wireless and perhaps PBX and VoIP services. However the fact that a technology meets the requirements in the designated test-bed environment, let alone in alternative, vendor-selected test-bed environments, does not mean that the technology will meet Commission standards *as deployed* in any specific market.

Even when precluded from selecting test-beds favorable to the characteristics of their specific technology, location technology vendors may be able to optimize the test-bed results for their technology by installing a concentration of transmitter sites, receive sites, beacons, etc., or “tweaking” the location of such sites and devices, in a manner which will not be replicated in operational deployments.⁴ If successful testing in the CSRIC test-bed is deemed to obviate the need for testing the *as-deployed* systems or technologies, the wireless providers will have no incentive to require, and the location technology providers no incentive to provide, the same effort and expense to optimize the as-deployed systems or technologies. The test-bed results will not be reliably replicated in operation.

BRETSA has proposed that CSRIC test-bed evaluation could include proposed test procedures and criteria for demonstrating that the technology *as-deployed* will meet the Commission’s standards and test-bed results, but which would be less rigorous and expensive than the test-bed methodology (“Proof-of-Performance”). The technology provider would have to demonstrate correlation of the proposed Proof-of-Performance results to the CSRIC test results. Proof-of-Performance procedures and criteria, if different from the CSRIC methodology, should be subject to public comment prior to approval or rejection of the technology as meeting Commission requirements. There would thus be a three-part test for compliance: (i) test-bed

⁴ A vendor might be incented to make uneconomic investment to produce passing test results in the test-bed environment, if doing so would both qualify it for deployment in production environments and insulate it from proving its performance in those production environments. Passing the test-bed performance requirements would constitute winning a government lottery as wireless providers will be required to implement improved location technologies nationwide, perhaps utilizing the vendor’s technology.

demonstration of capability of meeting the standard, (ii) Proof-of-Performance upon deployment, and (iii) ongoing performance monitoring based upon data compilation and reports from actual operation of the 9-1-1 System. Ideally, the compilation of data from actual operation of the 9-1-1 System could constitute Proof-of-Performance testing, limiting implementation costs.

II. Phase II Routing Is A Higher Priority Than Improved Indoor Accuracy.

BRETSA has suggested that the Commission should require that data from operation of the 9-1-1 System be compiled and reports on 9-1-1 System performance filed with the Commission (and PUCs). The compiled data will enable detailed analysis of 9-1-1 System performance, location accuracy, areas prone to Phase I misroutes in which Phase II routing should be implemented, etc. BRETSA believes that such data will demonstrate Emergency Response is more frequently delayed due to Phase I misroutes than due to insufficiently accurate indoor location information, and thus that outcomes can be improved in more cases by implementing Phase II call routing than by improving indoor location accuracy and this should be a near-term priority.

Phase I call misroutes result in significant delays in dispatch of First Responders, as the PSAP which initially receives the call must (i) determine that the call has been misrouted, (ii) identify the PSAP to which the call should have been routed, and then (iii) transfer the call, or call the correct PSAP on an administrative line (generally answered on a secondary basis) and relay the information provided by the caller. If the call is transferred, the caller must start all over explaining the emergency when the call is answered at the correct PSAP.

With Phase II call routing, the call is not routed to a PSAP until Phase II information is received, or a time-out period expires at which time the call is be routed based upon the Phase I information. During the time that the call is held, a ringing signal is sent back to the caller so that

the caller does not know the call is being held for Phase II location data.⁵ NextNav states that its technology will allow a wireless device to determine its location in as little as five seconds from a cold start of the GPS chipset, and that its technology can reduce GPS battery drain eliminating the delay involved in determining location from a cold start, which would make Phase II routing more practical. Data collected from actual operation of the 9-1-1 System and provision of location data can (i) validate provider claims, (ii) allow evaluation of whether proposed solutions such as Phase II call routing actually improve outcomes, and (iii) provide for prioritization of solutions which will improve outcomes in the greatest number of cases; all in a real-world operational environment—a production environment.

III. “Push” Delivery Of Location Information Should Be Developed.

Currently, when a 9-1-1 Call is received at a traditional (non-NG9-1-1) PSAP, the PSAP systems automatically contact the ANI/ALI database provider and request location information (“dip the database” or “bid the database”). In the case of a wireless 9-1-1 call, the ANI/ALI database returns the Phase I information: the location of the tower or cell sector over which the call is received by the wireless system. The Phase I information is subsequently updated in the ANI/ALI database with Phase II information, if and when available. Generally, PSAP personnel must manually rebid the ANI/ALI database (through entry of a key combination or mouse click) in order to obtain the initially-provided and any updated Phase II information, while they are also speaking with the caller, entering the information provided by the caller in the CAD system, perhaps accessing premises records for additional information regarding the location of the incident or accessing other information relevant to the incident or Emergency Response, and in

⁵ BRETSA understands Phase II call routing has been implemented in some areas in California and Ohio.

many PSAPs also dispatching the First Responders. In some cases, PSAP systems have been programmed to rebid the system after an interval of time without dispatcher intervention.

The Commission should hold workshops or initiate proceedings to determine whether it is feasible and would be economical to develop and deploy the capability for ANI/ALI databases to “push” updated ANI/ALI data to a PSAP following the initial bid for that information from the PSAP. That is, once a PSAP has initiated the initial bid for the caller location, the ANI/ALI database/provider “knows” the PSAP to which the 9-1-1 call has been routed. The potential for the ANI/ALI database to detect when location data is updated, and initiate transmission of the updated data to the PSAP (rather than waiting for the PSAP to initiate a re-bid), should be assessed. Whether deploying any such capability in advance of deployment of NG9-1-1 would represent a prudent use of resources should also be addressed.

IV. Phase II Location Data Should Be Provided To All PSAPs.

There are still jurisdictions and PSAPs which are not wireless Phase II 9-1-1 compatible.⁶ This is because Phase II compatibility requires that a PSAP be able to (i) receive Phase II location information and (ii) use the location information. Use of Phase II location data is really a non-issue. If the Phase II location information is provided to the PSAP, the PSAP can enter the information into an inexpensive desktop mapping program or a free online mapping service, or even plot the location using USGS quads and a ruler, in order to be able to “use” the information (determine the caller’s location to assist First Responders in contacting the caller).

⁶ PSAP Phase II compatibility is not required for a 9-1-1 Service provider to route calls to a PSAP based upon Phase II location information. Phase II compatibility is only required for a wireless provider to be required to provide Phase II (caller location) information to the PSAP.

We understand that the reason PSAPs are not Phase II compliant is thus that their PSAP equipment is unable to receive and/or display Phase II information.⁷ The use of browser based solutions for delivery to PSAPs of text-to-911 messages (at no cost to the PSAP) has demonstrated the feasibility of using this method to provide 9-1-1 “call” information to PSAPs. Browser based solutions requiring only a computer and an internet connection for a PSAP to receive and display Phase II location information may be far less expensive than the cost of upgrading PSAP systems to receive and display Phase II information. (Indeed, the browser solution might permit provision of NG9-1-1 like solutions to PSAPs which would not otherwise be able to transition to NG9-1-1 in the near future.) The goal must not be the *manner* in which information is conveyed to PSAPs, but that information which can improve Emergency Response *is* conveyed to PSAPs.

Respectfully submitted,

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⁷ The proliferation of devices with handset-based (GPS) location solutions should assure that Phase II information is available even in areas served by a single cell site.