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

In the Matter of	
Wireless E911 Location Accuracy Requirements	PS Docket No. 07-114
E911 Requirements for IP-Enabled Service Providers	WC Docket No. 05-196

T-MOBILE USA, INC. REPLY COMMENTS ON FURTHER NOTICE OF PROPOSED RULEMAKING AND NOTICE OF INQUIRY ON LOCATION ACCURACY

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February 18, 2011

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I. INTRODUCTION AND SUMMARY

T-Mobile USA, Inc. ("T-Mobile") is committed to providing reliable, valid, and usable location estimates, within the practical and operational constraints of available technologies. T-Mobile recognizes that a 911 call is likely the most important call a person will make. First responders should have the best information possible so that they may render assistance as quickly as possible. For that reason, T-Mobile has worked vigorously to implement E911 from its inception and is now in the beginning stages of an eight-year transition to A-GPS positioning, pursuant to the county/PSAP level standards adopted by the Commission in the *Second Report and Order.*[1]

[1] *Wireless E911 Location Accuracy Requirements*; *E911 Requirements for IP-Enabled Service Providers*, Second Report and Order, 25 FCC Rcd. 18909 (2010) ("*Second Report and Order*").

The filed comments confirm that the *FNPRM and NOI*[2] are premature, and that the FCC should defer any further changes to the E911 rules until after full implementation of the *Second Report and Order*. The Commission should likewise refrain from mandates for VoIP autolocation until it determines (1) that the requisite technologies permitting technically, economically, and operationally feasible implementation exist, and (2) that the regulations are necessary in the public interest.

Without analyzing the implementation and results of the *Second Report and Order*, the Commission will be unable to make a "reasoned determination that [any proposed additional regulation's] benefits justify its costs," as the President's Executive Order 13563 directs.[3] For example, the *Second Report and Order* will already likely lead to a substantial harmonization of accuracy requirements and technologies as well as provide confidence and uncertainty data to those PSAPs that want and can use it. New rules are not necessary to achieve these public interest benefits.

Moreover, commenters supporting additional rules generally tiptoe around – or simply ignore – the central and essential issues of technical and economic feasibility. However, the Commission has no such option. As T-Mobile noted in its comments, technical and economic feasibility are required by the Administrative Procedure Act's prohibition on "arbitrary and capricious" rules.[4] Proponents of indoor testing, for example, do not address the practical question of how such tests would be conducted given the substantial difficulties in obtaining

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[2] *In the Matter of Wireless E911 Location Accuracy Requirements; E911 Requirements for IP-Enabled Service Providers*, Further Notice of Proposed Rulemaking and Notice of Inquiry, 25 FCC Rcd. 18957 (2010) ("*FNPRM*," "*NOI*" or "*FNPRM and NOI*").

[3] Exec. Order No. 13563, 76 Fed. Reg. 3821, at § 1(b) (Jan. 18, 2011).

[4] Comments of T-Mobile USA, Inc. at 7-8 (filed Jan. 19, 2011) ("T-Mobile Comments"). Unless indicated otherwise, all Comments cited in these Reply Comments were filed in PS Docket No. 07-114 & WC Docket No. 05-196.

access to a statistically significant number of test locations. And, Intrado again calls for the inclusion of z-axis information, but addresses none of the technical and operational issues acknowledged by virtually every other commenter addressing vertical location estimates.

The Commission should turn aside the pleas by various individual technology vendors to mandate their location technology as a complement to A-GPS. The Commission has never mandated particular location technologies, and should not do so now. The record demonstrates that there has not been a sea change in location technology in the two years since the National E911 Office completed its assessment of emerging location technologies.[5] Some technologies are in development, but no mature, market- and deployment-ready solutions as an A-GPS complement exist today. Going forward, as new technologies present themselves, the Commission should refer consideration of any new technologies to a technical advisory committee that can evaluate them on the basis of real-world testing rather than on the unsupported claims of their proponents.

Additionally, T-Mobile agrees with TCS that the Commission should take steps to ensure that carriers have access to the technical solutions necessary to implement the Commission's E911 mandates, without running into intellectual property hurdles.[6] In particular, the Commission should inform the Department of Justice that it considers the deployment of E911 to be a use by or for the United States, pursuant to 28 U.S.C. § 1498.

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5 *See* The National E9-1-1 Implementation Coordination Office, *A National Plan for Migrating to IP-Enabled 9-1-1 Systems*, September 2009.

6 Comments of TeleCommunications Systems, Inc. at 9-12 (filed Jan. 19, 2011) ("TCS Comments").

II. PROPOSED CHANGES IN THE *FNPRM* TO THE *SECOND REPORT AND ORDER*'S STANDARDS ARE PREMATURE.

T-Mobile reiterates that the *FNPRM* is premature – an opinion shared by many other commenters.[7] The *Second Report and Order* has been effective for only one month, and the deadline for the first of four benchmarks is eleven months away. These benchmarks span eight years, marking progress in a detailed transition from location estimates based primarily on network-based technologies to ones based primarily on A-GPS. The implementation of the *Second Report and Order* will result in improved accuracy performance (particularly in rural areas), *de facto* unification of accuracy standards as the largest carriers will all be primarily using A-GPS at the end of the transition, and the provision (within two years) of confidence and uncertainty estimates to those PSAPs that request and can use such information. With the *Second Report and Order*, compliance with accuracy standards will be assessed at the county or PSAP level, providing PSAPs with more localized assurance of the average performance. The Commission and carriers need to focus efforts and resources on implementing these sweeping new rules before consideration is given to further changes.

A. A Unified Accuracy Standard Will Naturally Result Through Implementation of the *Second Report and Order*.

As wireless carriers implement the *Second Report and Order*, *de facto* unified standards will naturally result, achieving NENA's desire for a "regulatory vision for achieving a single,

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[7] *See, e.g.*, Comments of CTIA–The Wireless Association (filed Jan. 19, 2011) ("CTIA Comments"); Comments of the Telecommunications Industry Association (filed Jan. 19, 2011); Comments of AT&T (filed Jan. 19, 2011) ("AT&T Comments"); Comments of Sprint Nextel (filed Jan. 19, 2011); Comments of Motorola Mobility, Inc. and Motorola Solutions, Inc. (filed Jan. 19, 2011) ("Motorola Comments").

harmonized location accuracy standard."[8] Although the *Second Report and Order* does not formally eliminate the distinction between network-based and handset-based accuracy standards, the transition plan for network-based providers adopted in the *Second Report and Order* fundamentally anticipates that today's network-based carriers will be introducing A-GPS network technology and handsets and will achieve 85% penetration of A-GPS handsets within five years.[9] At that point, today's network-based providers will be able to use handset-based standards to demonstrate compliance with accuracy standards.

A central reason for the *Second Report and Order*'s continued distinction between network-based and handset-based standards is that, as AT&T recognizes in its comments, "the use of a single accuracy standard . . . is not technically or economically feasible at this time."[10] The *Second Report and Order* adopted different plans for network-based and handset-based carriers precisely because network-based carriers need to transition from current network-based technologies to A-GPS in order to comply with the *Second Report and Order*'s ultimate accuracy standards at a county or PSAP level, and could not otherwise immediately meet those standards.[11] Given that the *FNPRM* and the *Second Report and Order* were issued on the same day, there is no plausible basis for believing that a unified set of accuracy standards is any more achievable now than at the time the *Second Report and Order* was issued. As CTIA states, "The wireless industry should be provided the time needed to implement these new rules and

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8 Comments of the National Emergency Number Association at 7 (filed Jan. 19, 2011) ("NENA Comments").

9 T-Mobile Comments at 5.

10 AT&T Comments at 6.

11 *See* Declaration of John F. Pottle and Ryan N. Jensen at ¶ 9 (filed Dec. 8, 2008).

benchmarks for enhanced E911 location information prior to the Commission again revising these requirements."[12]

The Commission should thus reject Verizon's and Intrado's calls to implement a unified standard now[13] as neither commenter addresses the technical feasibility of creating a unified accuracy standard.[14] In fact, Verizon Wireless has previously told the Commission, "the Commission should avoid regulations that are not firmly grounded in technical feasibility."[15] In its 2009 Reply Comments in response to the Public Safety and Homeland Security Bureau's Public Notice that preceded the adoption of the *Second Report and Order*, Verizon Wireless called only for the "*eventual*" unification of E911 accuracy standards "one day."[16] By calling for unified standards now, rather than after the Commission can evaluate the technical results of the *Second Report and Order*, Verizon and Intrado ignore the reality that the eight year transition to A-GPS is likely to result in a *de facto* unified accuracy standard. That unification will occur without the need for the complexities and litigation over technical feasibility that additional regulation would entail.[17]

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12 CTIA Comments at 1.

13 Comments of Verizon and Verizon Wireless at 1-2 (filed Jan. 19, 2011); Comments of Intrado Inc. and Intrado Communications at 5 (filed Jan. 19, 2011) ("Intrado Comments").

14 *See Nuvio Corp. v. FCC*, 473 F.3d 302, 303 (D.C. Cir. 2006) (noting that technical feasibility is a clear requirement of the arbitrary and capricious standard for rulemaking).

15 Reply Comments of Verizon Wireless at 4 (filed Dec. 4, 2009).

16 *Id*. at 3, 7-9 (emphasis added). *See also* NENA Comments at 7 ("Though *the technical and market conditions that led to that compromise [for the bifurcated standard for network- and handset-based technologies] have not yet wholly abated*, NENA considers it important that the Commission begin to clearly lay out a regulatory vision for achieving a single, harmonized location accuracy standard.") (emphasis added); Comments of APCO at 3 (filed Jan. 19, 2011) ("APCO Comments") ("As APCO has noted in the past, we generally support a single accuracy standard *to the extent feasible*.") (emphasis added).

17 *Cf.* Exec. Order No. 13563, 76 Fed. Reg. at 3821.

B. Further Requirements With Respect to Confidence and Uncertainty Estimates Are Unnecessary.

The *Second Report and Order* already requires carriers to provide, within two years, confidence and uncertainty data on a per-call basis upon the request of a PSAP. It is thus unclear what change to 47 C.F.R. § 20.18(h)(3) NENA seeks with respect to mandatory provision of this data to PSAPs, as the rules already appear to address what NENA seeks.[18]

NENA further suggests the Commission require a higher confidence level for location estimates. But the Commission should not intervene in the standards processes at this time. ESIF recently issued technical recommendations for adopting a common confidence level,[19] which were developed through a cooperative effort involving public safety, equipment manufacturers, location technology vendors, carriers, emergency system service providers, and other stakeholders.[20] The Commission should allow ESIF's recent recommendations to be implemented.

C. The *Second Report & Order* Addressed Location Performance on an Ongoing Basis Following Initial Compliance, and Commenters Have Provided No Basis for Declaring Those Provisions Inadequate.

The *Second Report and Order*, which was based on negotiated proposals put forth by APCO, NENA, and various carriers, eschewed continued accuracy testing data once baseline confidence and uncertainty had been established at the county level.[21] The *Second Report and Order* establishes a system that permits key performance indicators, such as uncertainty estimate

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18 NENA Comments at 5 ("[W]e recommend that the Commission promulgate a rule at § 20.18(h)(3) allowing the delivery of estimated location accuracy and confidence to PSAPs alongside the currently-required latitude and longitude.").

19 ESIF Issue 70 Resolution Statement (Nov. 29, 2010) (recommending that all uncertainty estimates be provided at a common confidence level of approximately 90%).

20 *Id.*

21 47 C.F.R. § 20.18(h)(3); *Second Report and Order*, 25 FCC Rcd. at 18928, ¶¶ 50-52.

trends, to be monitored to ensure proper continued performance of location systems at the local level following initial compliance testing. This practice alleviates the need for ongoing empirical accuracy testing (following initial compliance) in most instances, allowing limited resources to be utilized elsewhere to improve emergency services.

Despite that background, NENA and APCO both suggest in their comments that the FCC mandate accuracy testing pursuant to OET Bulletin No. 71.[22] Setting aside the issue of testing with respect to indoor accuracy (which is not technically feasible to accomplish through testing a large number of locations in each county or PSAP area, as discussed in Section III.D, below), APCO and NENA do not explain why the ongoing compliance monitoring provisions that they agreed to and which were incorporated into the *Second Report and Order* are now inadequate. The Commission cannot perform the basic cost-benefit analysis required by the arbitrary and capricious standard and by Executive Order 13563 without such information.

III. TECHNICAL AND ECONOMIC INFEASIBILITY LIMIT THE COMMISSION'S AUTHORITY TO IMPLEMENT MANY PROPOSALS.

Should the Commission decide to move forward with additional regulations before evaluating the impact of the *Second Report and Order*, which it should not do, any new location accuracy standards must be both technically and economically feasible. Without record evidence on both counts, the Commission cannot impose new regulations without running afoul of the prohibition on arbitrary and capricious rulemaking[23] and without subverting the President's Executive Order on regulatory improvement and review, which Chairman Genachowski has

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

23 *Alliance for Cannabis Therapeutics v. DEA*, 930 F.2d 936, 940 (D.C. Cir. 1991) ("Impossible requirements imposed by an agency are perforce unreasonable."); Exec. Order No. 13563, 76 Fed. Reg. at 3821.

specifically endorsed.[24] Though the Commission may make predictive judgments within the scope of its expertise, those judgments must be based on evidence[25] – evidence which is lacking in this proceeding.

Some commenters have called on the Commission to act now to impose stringent new location accuracy standards or adopt various technological solutions despite the absence of evidence showing those solutions are technically or economically achievable. For instance, Intrado proposes a dramatic, two-year transition to requiring a dispatchable indoor address for all wireless 911 calls,[26] while Commlabs, Polaris Wireless, and TruePosition all encourage the Commission to adopt their particular location technologies.[27] Intrado's proposal is pure fantasy, and none of the other proposed solutions have been adequately tested or proven to be technically possible.

The Commission should instead carefully consider what evidence *is* in the record – evidence indicating that no new location accuracy technology exists that is superior to, or even a demonstrated beneficial complement to, A-GPS.[28] The Commission should refrain from imposing new and impossible mandates on carriers at this time and instead allow wireless

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24 Julius Genachowski, FCC, Prepared Remarks at the Broadband Acceleration Conference (Feb. 9, 2011) at 4.

25 *See BellSouth Telecomms., Inc. v. FCC*, 469 F.3d 1052, 1060 (D.C. Cir. 2006) ("[T]he deference owed agencies' predictive judgments gives them no license to ignore the past when the past relates directly to the question at issue.").

26 Intrado Comments at 3-4.

27 Comments of Commlabs, Inc. at 3-4 (filed Jan. 19, 2011) ("Commlabs Comments"); Comments of Polaris Wireless, Inc. at 2-3 (filed Jan. 19, 2011) ("Polaris Wireless Comments"); Comments of TruePosition, Inc. at 8-12 (filed Jan. 19, 2011) ("TruePosition Comments").

28 *See* T-Mobile Comments at 10-18.

carriers the flexibility to "adopt the very best location technologies available in the most expeditious manner feasible,"[29] as T-Mobile has done.

A. Intrado's Proposals Lack Grounding in Reality.

Intrado's comments are a particularly egregious – and dangerous – example of hollow calls for action backed by no real evaluation of technical or operational feasibility Intrado's proposal for a two-year transition to a heightened accuracy standard that would enable emergency responders to know "which door to kick in"[30] lacks any grounding in engineering realities and contemplates that wireless carriers would somehow be able to provide PSAPs with hyper-accurate base maps that would include ground truth information, building elevations, and floor-by-floor building maps.[31] This type of irresponsible hype only serves to raise expectations without promoting workable solutions or pragmatic dialogue.

Intrado makes absolutely no effort to show that its solution is technically possible or survives basic cost-benefit analysis.[32] Intrado makes the naked assertion that "current and foreseeable advances in network and handset technology" make its proposal achievable, but it does not provide detail on what those advances are or how they could be used.[33] Intrado seems to assume that because it says the information to be collected and transmitted is "realistically achievable,"[34] that makes it so. Some of Intrado's analytical failings follow:

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29 APCO Comments at 2-3 (filed Jan. 19, 2011).

30 Intrado Comments at 3.

31 *Id.* at 3-4.

32 *See generally id.*

33 *See id.* at 4.

34 *Id.*

- Intrado claims femtocells will enable wireless carriers to provide more accurate indoor location information without detailing the technological limitations of femtocells or even the estimated cost to deploy them throughout a service area.[35] Currently, femtocells are present in only a tiny fraction of indoor locations served by wireless carriers – and then usually only upon a customer's request. A random scattering of femtocells is hardly a basis for floor-by-floor location identification. Even among those femtocell devices that incorporate A-GPS location technology, autolocation may not be technically feasible due to the limitations of measuring GPS satellite transmissions indoors – for example, when a femtocell is not placed near a window or does not use a GPS antenna that can be placed near a window.
- Intrado states that "mechanisms that provide more accurate Z[-axis] location information" can be used to increase location accuracy[36] even though it is clear from the record in this proceeding that there is no current or foreseeable technology that can provide accurate Z-axis location information.[37] Although Intrado cites A-GPS as one of the technologies that will facilitate identification of "which door to kick in," Intrado nowhere acknowledges that the range of error on A-GPS estimates – both horizontal and vertical[38] – means that it can never tell you precisely "which door to kick in" in any but the most rural of locations, and even then not with respect to vertical location.

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35 *See id.*

36 *Id.*

37 *See, e.g.*, T-Mobile Comments at 20-21; *see infra* Part III.C.

38 As a handset-based technology, A-GPS must be within 50 meters in 67% of calls. Other than for widely spaced buildings, more than one "door" will be within 50 meters. Vertically, the margin of error is approximately *70* meters, which is approximately 25 stories. *See* T-Mobile Comments at 20 & n.31.

- Intrado's proposal requires that wireless carriers provide PSAPs with "hyper-accurate base maps that may include property boundaries, building envelopes, and floor elevations."[39] But Intrado does not provide any suggestion for how such maps could be generated nor does it address the likely enormous cost of generating such maps. In reality, of course, such maps would be inordinately expensive to construct, if it is even possible to amass the magnitude of information required. Moreover, such maps would be nearly impossible to maintain and keep current as even minor renovations or other changes to buildings in the service area would undermine their validity and usefulness, and major changes would be expected to occur constantly as buildings are constructed and renovated. And, Intrado has made no showing that PSAPs have or could develop the capacity to use such maps.[40]

Intrado proposes that all of these changes be adopted within a two-year timeframe that it calls "pragmatic and realistic,"[41] but it provides no record evidence to support such an assertion. Just the process of compiling the maps would take more than two years, given that the type of maps proposed do not exist and creation of them would require building-by-building field inspections.

The Commission cannot ignore the lack of evidence for any of Intrado's suggestions.[42] To adopt changes to the location accuracy rules based on the conclusory statements of Intrado

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39 Intrado Comments at 4.

40 *Cf.* CTIA Comments at 8 (noting that many PSAPs are still unable to receive Phase II location data).

41 Intrado Comments at 4.

42 *See Motor Vehicle Mfrs. Ass'n of the U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) ("[A]n agency rule would be arbitrary and capricious if the agency … entirely failed to consider an important aspect of the problem…").

and other similar commenters would be entirely arbitrary and capricious.[43] The Commission must instead carefully consider the record evidence regarding technical and economic feasibility – or, here, the lack of such evidence – and refrain from making infeasible mandates.[44]

B. No Commenter Has Provided Record Evidence of Viable New Technology to Complement A-GPS.

Commlabs, Polaris Wireless, and TruePosition each encourage the Commission to see their own particular technology as the best solution to location accuracy problems. As AT&T correctly points out, the Commission has always refrained from mandating particular technologies,[45] and it should continue to do so here. Mandating technologies would freeze technical solutions, rather than allowing the best solutions to evolve from innovative technologies. Moreover, none of the technologies sponsored by individual commenters are ready for commercial deployment or provide a demonstrated record of meaningful improvement over A-GPS. Commlabs' technology is only in the very early stages of concept development and has not been tested or proven to be technically feasible.[46] And, the methods espoused by TruePosition and Polaris Wireless have been tried and found incapable of meeting the enhanced accuracy requirements contained in the *Second Report and Order* – thus necessitating the carefully developed transition to A-GPS over the next eight years.[47]

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43 *See id.*; *BellSouth Telecomms., Inc.*, 469 F.3d at 1060; *cf. Rural Cellular Ass'n v. FCC*, 588 F.3d 1095, 1103 (D.C. Cir. 2009).

44 *See Alliance for Cannabis Therapeutics*, 930 F.2d at 940.

45 AT&T Comments at 6.

46 *See* Commlabs Comments at 10-15.

47 *See generally* TruePosition Comments; Polaris Wireless Comments. As T-Mobile has noted, TDOA and RF Fingerprinting are not viable complementary technologies to A-GPS. T-Mobile Comments at 12, 14.

Though Commlabs' proposed WAPS technology is interesting, its concept has yet to be proven in practice. Commlabs' technology would require a change-out of all handsets currently in the subscriber base – a process that would take many years to accomplish – and has yet to be integrated into a single production handset, even for testing purposes. That fact alone invalidates the claim by Commlabs that this technology "offers the capability for wireless carriers to exceed the eight-year location accuracy standards within two years where it is available."[48] Commlabs' proposal would also require the deployment of a nation-wide network of location beacons. The cost required to deploy and maintain this infrastructure (the scope of which is unknown as it is unclear how many transmission stations would be necessary to allow proper multilateration) and to access the required licensed spectrum is unknown, but is likely to be substantial.[49]

TruePosition and Polaris Wireless continue to argue for adoption of hybrid standards, each unsurprisingly proposing its own technology as the complement to A-GPS in those standards. Though TruePosition provides some performance data for its UTDOA technology, this data has not been validated or proven to be obtainable in general, real-world, real-time conditions. It also ignores the cost of deployment and maintenance of the necessary infrastructure – a critical factor in the Commission's evaluation of any potential solution. Polaris Wireless likewise ignores the economic realities of deploying an RF Fingerprinting solution, including the need for careful and frequent calibration resulting in enormous ongoing operational costs.[50] The fact is that there is no real-world evidence supporting the technical feasibility or economic viability of any complementary (or A-GPS replacement) technologies. Until such

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48 Commlabs Comments at 10.

49 This and other potential emerging location technologies could be the subject of further careful study by an E911 Technical Advisory Group. *See infra* Part IV.

50 *See* T-Mobile Comments at 12, 14.

evidence is presented for careful consideration by the Commission, such technologies cannot be adopted.[51]

C. The Record Evidence Indicates That Z-Axis Location Technology Will Not Become Feasible in the Foreseeable Future.

T-Mobile supports efforts that continue to investigate means of providing elevation information.[52] But diverse stakeholders agree – elevation information is not possible now.[53] Any efforts to require carriers to incorporate unreliable – and indeed, likely unusable – elevation technology at this time will only impede those efforts to improve location technology that are already underway. Despite the claims of Intrado and Commlabs[54] to the contrary, regulatory mandates are unnecessary: the technological limitations constrain everyone. The Commission should allow the technology to continue to evolve before imposing any mandates that could have unforeseen effects on carriers and their ability to provide accurate and useful elevation information.

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51 *See BellSouth Telecomms., Inc.*, 469 F.3d at 1060.

52 *See, e.g.*, Polaris Wireless Comments at 2 ("[T]he Commission should… facilitate the development of vertical coordinate location information by forming a stakeholders group to investigate the relevant emerging technologies and public safety requirements to make use of this additional information.").

53 *See* APCO Comments at 5; NENA Comments at 11-12; Comments of ATIS at 9 (filed Jan. 19, 2011).

54 Commlabs' claims that its WAPS technology can provide high accuracy z-axis location information have yet to be proven in practice and face many technical challenges, including those associated with absolute changes in air pressure inside many buildings. Moreover, its approach would require a change-out of all handsets currently in the subscriber base to add the required electromechanical pressure sensor. The cost, physical, and battery-life effects on the handset have yet to be determined. This proposal is perhaps worthy of further study, but is certainly premature to drive any changes to performance standards.

D. Suggested Indoor Accuracy Mandates Also Fail the Cost-Benefit Test.

T-Mobile reiterates that indoor standards are not feasible with today's technology, nor will they become feasible in the near future. While it would certainly be desirable to have a set of standards by which accuracy in indoor environments could be readily evaluated, no such mechanism exists today. As T-Mobile has previously set forth, indoor testing based on the model utilized for outdoor testing is not technically feasible.[55] ESIF (with full participation of public safety, equipment manufacturers, location technology vendors, carriers, emergency system service providers, and other stakeholders) has taken a hard look at the feasibility of indoor testing and concluded that "indoor testing is time-consuming, requires diligence, is complex and is costly."[56] Moreover, "repetitive application of indoor testing at the local level may yield limited additional benefit compared to the resources required."[57] ESIF therefore recommended, "because of the complexity of indoor testing, resources may be best utilized to establish baseline performance expectations in representative indoor environments."[58] No commenters provide any reliable evidence that indoor accuracy testing is feasible or that advances have occurred to make indoor testing a more viable option at this time or even in the near future. The Commission must instead take into account the wealth of evidence that *is* in the record – evidence addressing the logistical, security, and economic ramifications and the technical limitations of requiring indoor accuracy standards and testing at this time.[59]

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55 T-Mobile Comments at 21-23.

56 Emergency Services Interconnection Forum, Alliance for Telecommunications Industry Solutions, *Approaches to Wireless E9-1-1 Indoor Location Performance Testing*, ATIS-0500013, at 27 (February 23, 2010).

57 *Id.*

58 *Id.*

59 *See id.*

IV. T-MOBILE SUPPORTS THE CREATION OF A TECHNICAL ADVISORY COMMITTEE.

If, in time, the Commission desires to re-evaluate the feasibility of emerging location technologies to further enhance location system performance, it should begin the process by establishing an E911 Technical Advisory Group (ETAG), as AT&T suggests.[60] This group could evaluate any potential technology candidates in a practical, common, and real-world testbed format – identifying improvements that are technically and commercially feasible. Only after such a proving process based on actual, real-world data (rather than unsupported vendor claims) should any new technology performance claims be allowed to influence future accuracy standards.

V. THE COMMISSION SHOULD ADDRESS INTELLECTUAL PROPERTY ISSUES SURROUNDING 911 LOCATION TECHNOLOGIES.

T-Mobile agrees with TCS that the Commission should address intellectual property rights for 911 location solutions.[61] T-Mobile agrees that intellectual property owners deserve fair compensation, but they should not be allowed to use control of technologies necessary to meet the Commission's mandates to extract exorbitant royalties. As TCS points out, the patent laws have a mechanism set forth in 28 U.S.C. § 1498 to provide for reasonable royalties in uses for or with the authorization and consent of the United States.[62] The Commission should take steps to inform the Department of Justice that it considers the implementation of E911 autolocation mandates to be a use for or with the authorization and consent of the United States.

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60 AT&T Comments at 4-5; *see also* CTIA Comments at 4-8.

61 TCS Comments at 9-12.

62 *See id.*

VI. VOIP AUTOLOCATION REMAINS PREMATURE FOR THE COMMISSION TO ADDRESS.

No party has come forward with a practical or feasible means of providing VoIP autolocation.[63] The Commission should therefore continue to refrain from mandating autolocation for VoIP services. The record does not contain any indication that the current system of customer-provided registered locations is not working in the vast majority of situations. Before embarking on an economically unknown, technologically and logistically difficult autolocation mandate, the Commission should assess the actual need for autolocation, including how often autolocation would actually make a difference to the emergency response.

Though Y-Max touts its technology as capable of providing autolocation for VoIP,[64] it utterly fails to address its abuse of the non-service initiated handset rules. Y-Max's autolocation technology works by free-riding on the capability installed by AT&T, T-Mobile, and other GSM carriers pursuant to FCC rules in which non-service initialized handsets can place 911 calls.[65] Such technology is not a viable solution to the problem of VoIP autolocation, the scope of which is, again, unknown. Certainly, wireless carriers have not built their networks to become default

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63 *See* Comments of Qwest Communications International Inc. at 7 (filed Jan. 19, 2011) ("Technical and economic feasibility of VoIP automatic location information updating should be proven before any regulatory mandates."); Motorola Comments at i-ii ("Overcoming challenging environments, providing accurate vertical location information, and achieving automatic location information for all users when roaming will require additional study, development, and coordination.").

64 *See* Comments of Y-Max at 3-6 (filed Jan. 19, 2011).

65 This is apparently not the only instance of Y-Max's free-riding, as PSAP comments indicate that Y-Max does not pay 911 fees to support the 911 infrastructure that it uses. *See* Comments of Adams County E-911 Emergency Telephone Service Authority, Arapahoe County E-911 Emergency Communications Service Authority, Jefferson County E-911 Emergency Communications Service Authority Colorado at 4 (filed Jan. 19, 2011).

911 providers for all nomadic or mobile VoIP providers, which is what Y-Max appears to contemplate when it suggests adopting its wireless-based "autolocation" solution for VoIP.

VII. CONCLUSION

The comments confirm that the *FNPRM* and *NOI* are both premature. With respect to wireless services, the public interest would be best served by permitting carriers to focus on implementation of the *Second Report and Order*, without further shifting 911 mandates during this transition. In any event, the *Second Report and Order* will deliver demonstrable improvements for the E911 system. Rather than spending more time on current generation 911 mandates, the Commission should focus on helping PSAPs implement next generation 911.

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