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See MCI v. FCC. 515 F 2d 385 (D.C. Circ 1974).

FOR IMMEDIATE RELEASE:
September 23, 2010

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FCC TAKES ACTION TO IMPROVE WIRELESS 9-1-1 SERVICES

Washington, D.C. -- Today the Federal Communications Commission took action to help strengthen and improve the ability of Public Safety Answering Points (PSAPs, or 9-1-1 call centers) to quickly locate wireless 9-1-1 callers and dispatch emergency responders to assist them during emergencies.

More than 240 million 9-1-1 calls, or nearly two-thirds of all calls received by 9-1-1 centers nationwide, are made annually from mobile handheld devices in the United States. As more and more Americans rely on their mobile handheld devices, such as cell phones and smartphones, the FCC's new rules are essential to ensuring that wireless carriers are taking the necessary steps to provide more accurate 9-1-1 caller locations.

9-1-1 call centers can readily pinpoint the address of most calls made from landline phones, but up to 40 percent of emergency calls made from mobile devices fail to provide accurate caller location information, known as Enhanced 9-1-1 (E9-1-1) service. The Commission has unanimously adopted a Second Report and Order that requires wireless carriers to meet the Commission's wireless location accuracy requirements in more numerous and geographically smaller areas. As a result, wireless 9-1-1 location information will be reported to PSAPs more accurately in many areas throughout the country.

The Order requires wireless carriers to provide reliability data on each 9-1-1 call upon the request of a PSAP, which will improve the ability of public safety personnel to assess the accuracy of location information. Most importantly, the Commission's actions today will help save lives by enabling emergency response personnel in many places to reach people who call 9-1-1 from mobile devices sooner.

The Commission also unanimously adopted a Further Notice of Proposed Rulemaking (FNPRM) and Notice of Inquiry (NOI), as recommended in the National Broadband Plan, that explores how to further improve the location capability of 9-1-1 and E9-1-1 services for existing and new voice communications technologies, including new broadband technologies associated with the deployment of Next Generation 9-1-1 (NG 9-1-1) networks.

The FNPRM seeks public comment on a number of issues, including whether the FCC should adopt a technologically neutral location accuracy standard, methodologies for verifying compliance, and how wireless 9-1-1 caller location accuracy can be improved in challenging environments, such as in high-rise buildings, urban canyons and mountainous and forested terrain.

The NOI seeks public comment on whether to require interconnected Voice over Internet Protocol (VoIP) service providers to automatically identify the caller's location, rather than requiring the caller to self-report his or her location, and whether other forms of VoIP services should be subject to the 9-1-1 rules. The NOI also focuses on the potential impact of future NG 9-1-1 deployment on location accuracy and automatic location identification.

Additionally, the NOI explores whether to extend 9-1-1 and E9-1-1 requirements to new and emerging voice communications services, devices, and application enabled by broadband technologies.

Action by the Commission, September 23, 2010, by Second Report and Order (FCC 10-176). Chairman Genachowski, and Commissioners Copps, McDowell, Clyburn and Baker. PS Docket No. 07-114. Action by the Commission, September 23, 2010 by Further Notice of Proposed Rulemaking and Notice of Inquiry (FCC 10-177). Chairman Genachowski, and Commissioners Copps, McDowell, Clyburn and Baker. Public comments may be filed in PS Docket No. 07-114 and WC Docket No. 05-196.

Separate Statements issued by Chairman Genachowski, and Commissioners Copps, McDowell, Clyburn and Baker.

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-FCC-

Before the
Federal Communications Commission
Washington, D.C. 20554

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

SECOND REPORT AND ORDER

Adopted: September 23, 2010 **Released: September 23, 2010**

By the Commission: Chairman Genachowski and Commissioners Copps, McDowell, Clyburn, and Baker issuing separate statements.

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I. INTRODUCTION

1. One of the most important opportunities afforded by mobile telephony is the potential for the American public to have access to emergency services personnel during times of crisis, wherever they may be. To ensure this benefit is realized, however, public safety personnel must have accurate information regarding the location of the caller. Without precise location information, public safety's ability to provide critical services in a timely fashion becomes far more difficult, if not impossible. Accordingly, this order requires wireless carriers to take steps to provide more specific automatic location information in connection with 911 emergency calls to Public Safety Answering Points (PSAPs) in areas where they have not done so in the past. As a result of this order, emergency responders will be able to

reach the site of an emergency more quickly and efficiently. In addition, in a companion Further Notice of Proposed Rulemaking and Notice of Inquiry that we adopt today, we build on the order and explore how to further enhance location accuracy for existing and new wireless voice communications technologies, including new broadband technologies associated with deployment of Next Generation 911 (NG911) networks.

2. To accomplish these goals, in this Second Report and Order, we revise section 20.18(h)[1] of the Commission's rules, which specifies standards for wireless Enhanced 911 (E911) Phase II location accuracy and reliability. Specifically, we now require wireless licensees subject to Section 20.18(h) to satisfy these standards at either a county-based or PSAP-based geographic level. We also revise the requirements of section 20.18(h) for handset-based and network-based location technologies.

II. BACKGROUND

3. On June 1, 2007, the Commission released a Notice of Proposed Rulemaking (*Notice*) seeking comment on the appropriate geographic area over which to measure compliance with Section 20.18(h), as well as a variety of additional questions about how to improve 911 location accuracy and reliability.[2] In the *Notice*, the Commission indicated that carriers should not be permitted to average their accuracy results over vast service areas, because carriers thereby could assert that they satisfy the requirements of Section 20.18(h) without meeting the accuracy requirements in substantial segments of their service areas.[3] The Commission stated that although measuring location accuracy at the PSAP level may present challenges, the public interest demands that carriers and technology providers strive to ensure that when wireless callers dial 911, emergency responders are provided location information that enables them to reach the site of the emergency as quickly as possible.[4] Because many carriers were not measuring and testing location accuracy at the PSAP service area level, the Commission sought comment on whether to defer enforcement of Section 20.18(h) if the Commission adopted its tentative conclusion to require compliance at the PSAP level.[5]

4. On November 20, 2007, the Commission released a Report and Order (*First Report and Order*) requiring wireless licensees to satisfy the E911 accuracy and reliability standards at a geographic level defined by the service area of a PSAP.[6] The decision to adopt a PSAP-level compliance requirement was responsive to a request for declaratory ruling filed by the Association of Public-Safety Communications Officials-International, Inc. (APCO) asking that the Commission require carriers to meet the Commission's location accuracy requirements at the PSAP service area level.[7] Specifically, the

[1] 47 C.F.R. § 20.18(h).

[2] Wireless E911 Location Accuracy Requirements; Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems; 911 Requirements for IP-Enabled Service Providers, PS Docket No. 07-114, CC Docket No. 94-102, WC Docket No. 05-196, *Notice of Proposed Rulemaking*, 22 FCC Rcd 10609 (2007) (*Notice*).

[3] *Notice*, 22 FCC Rcd at 10611-12 ¶ 5.

[4] *Id.* at 10612 ¶ 6.

[5] *Id.*

[6] Wireless E911 Location Accuracy Requirements; Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems; 911 Requirements for IP-Enabled Service Providers, PS Docket No. 07-114, CC Docket No. 94-102, WC Docket No. 05-196, *First Report and Order*, 22 FCC Rcd 20105, 20108 ¶8 (*First Report and Order)*.

[7] *See id*. at 20107 ¶ 6; Association of Public-Safety Communications Officials-International, Inc. Request for Declaratory Ruling, CC Docket No. 94-102, at 1 (filed Oct. 6, 2004).

First Report and Order established interim annual requirements leading to an ultimate deadline of September 11, 2012 for achieving compliance with section 20.18(h) at the PSAP level, for both handset-based and network-based technologies.[8] Several carriers filed with the Commission Motions for Stay of the *First Report and Order*, seeking a stay of the effectiveness of the rules adopted in the *First Report and Order* pending judicial review.[9] Following petitions for review filed with respect to the *First Report and Order*, on March 25, 2008, the United States Court of Appeals for the District of Columbia Circuit (Court) stayed the *First Report and Order*.[10]

5. On July 14, 2008, APCO and the National Emergency Number Association (NENA) filed an *ex parte* letter stating that they "are now willing to accept compliance measurements at the county level" rather than at the PSAP level.[11] APCO and NENA added that "[p]ublic safety and wireless carriers are in current discussions on a number of other issues associated with E9-1-1, with the goal of improving information available to PSAPs. There are areas of agreement in concept; however, the details are still being developed."[12]

6. On July 31, 2008, the Commission filed with the Court a Motion for Voluntary Remand and Vacatur, which requested remand based on the proposals contained in the July 14 *ex parte* letter and "[i]n light of the public safety community's support for revised rules."[13] Following this filing with the Court, NENA, APCO, Verizon Wireless, Sprint Nextel Corporation (Sprint Nextel), and AT&T Inc. (AT&T) submitted written *ex parte* letters with the Commission with proposed new wireless E911 rules.[14] On September 17, 2008, the Court granted the Commission's Motion for Voluntary Remand.[15]

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[8] *First Report and Order*, 22 FCC Rcd at 20112 ¶ 17, App. B.

[9] Sprint Nextel Motion for Stay (filed Jan. 28, 2008); T-Mobile Application for Expedited Stay (filed Jan. 28, 2008); Rural Cellular Association Motion for Stay *Pendente Lite* (filed Jan. 28, 2008); Alltel Corporation Response in Support of Motions for Stay (filed Feb. 4, 2008); Verizon Wireless Request for Stay Pending Judicial Review (filed Feb. 8, 2008); AT&T Motion for Expedited Stay Pending Judicial Review (filed Feb. 29, 2008).

[10] *Rural Cellular Association and T-Mobile USA, Inc. v. Federal Communications Commission and the United States of America*, No. 08-1069, slip op. at 1 (D.C. Cir. Mar. 25, 2008) (per curiam).

[11] Letter from Willis Carter, President, APCO, and Ronald Bonneau, President, NENA, to Derek Poarch, Chief, Public Safety and Homeland Security Bureau, FCC, filed July 14, 2008, at 1 (APCO/NENA July 14 Ex Parte).

[12] *Id*. at 2.

[13] Motion of Federal Communications Commission for Voluntary Remand and Vacatur, Rural Cellular Association and T-Mobile et al. v. Federal Communications Commission and United States of America, No. 08-1069 (D.C. Cir. July 31, 2008).

[14] Letter from Brian Fontes, CEO, NENA, Robert M. Gurss, Director, Legal & Gov't Affairs, APCO, and John T. Scott, III, VP & Deputy General Counsel, Verizon Wireless, to Kevin J. Martin, Chairman, FCC, filed Aug. 20, 2008, at 1 (NENA/APCO/Verizon Aug. 20 Ex Parte); Letter from Anna M. Gomez, Vice President, Federal and State Regulatory and Lawrence R. Krevor, Vice President, Spectrum, Sprint Nextel Corporation, to Kevin Martin, Chairman, FCC, filed Aug. 21, 2008 (Sprint Nextel Aug. 21 Ex Parte); Letter from Brian Fontes, CEO, NENA, Robert M. Gurss, Director, Legal & Gov't Affairs, APCO, and Robert W. Quinn, Jr., SVP – Federal Regulatory, AT&T, filed Aug. 25, 2008 (APCO/NENA/AT&T Aug. 25 Ex Parte); Letter from John T. Scott, III, Vice President and Deputy General Counsel – Regulatory Law, Verizon Wireless, to Marlene H. Dortch, Secretary, FCC, filed Sept. 5, 2008, at 1-2 (Verizon Sept. 5 Ex Parte); Letter from Joan Marsh, Vice President – Federal Regulatory, AT&T, to Marlene H. Dortch, Secretary, FCC, filed Sept. 5, 2008 at 2 (AT&T Sept. 5 Ex Parte); Letter from Robert M. Gurss, Director, Legal and Governmental Affairs, APCO International, and Brian Fontes, Chief Executive Officer, NENA, to Marlene Dortch, Secretary, FCC, filed on Sept. 9, 2008 at 1 (APCO/NENA Sept. 9 Ex Parte).

[15] Order Granting Mot. Rem. (Sept. 17, 2008).

7. On September 22, 2008, the Public Safety and Homeland Security Bureau (Bureau) released a Public Notice seeking comment on the proposals submitted in the *ex parte* letters.[16] The Bureau sought comment on the proposed changed accuracy requirements, including the benchmarks, limitations, and exclusions, for handset-based and network-based location technologies.[17] The Bureau also sought comment on pledges to convene industry groups to explore related issues, and whether the Commission should require the provision of confidence and uncertainty data, as well as any alternative modifications to location accuracy requirements.[18] The Bureau urged all interested parties to review the entirety of the *ex parte* letters.[19] A list of parties submitting comments in response to both the *Notice* and the *Bureau Public Notice* is attached as Appendix A.

8. On November 4, 2008, the Commission adopted two Orders approving applications for transfers of control, involving Verizon Wireless and ALLTEL Corporation, and Sprint Nextel and Clearwire Corporation, conditioned upon their voluntary agreements to abide by the conditions set forth in their respective *ex parte* letters, which are identical to the wireless E911 proposals they submitted in this proceeding. In each case, the Commission found that these conditions would "further ensure that consummation of the proposed merger serves the public interest, convenience and necessity."[20]

9. On November 20, 2009, in light of the passage of time, the Bureau released a Public Notice seeking to refresh the record.[21] Specifically, the Bureau sought comment on whether subsequent developments in the industry and technology may have affected parties' positions on the issues raised.[22] A list of parties submitting comments in response to the *Second Bureau Public Notice* is attached as Appendix A.

10. On June 16, 2010, T-Mobile USA, Inc. (T-Mobile) filed an *ex parte* letter stating that it would agree to comply with the benchmarks for network-based location technologies that were proposed in the APCO/NENA/AT&T Aug. 25 Ex Parte, with several modifications.[23] On June 30, 2010, the Rural Cellular Association (RCA) filed an *ex parte* letter stating that it supports the proposed modifications in the T-Mobile Ex Parte.[24] On July 7, 2010, APCO and NENA filed an *ex parte* letter stating that they do not object to the proposed modifications in the T-Mobile Ex Parte and urged the Commission to proceed

[16] Comment Sought on Proposals Regarding Service Rules for Wireless Enhanced 911 Phase II Location Accuracy and Reliability, PS Docket No. 07-114, *Public Notice*, 23 FCC Rcd 13797 (PSHSB Sept. 22, 2008) (*Bureau Public Notice*).

[17] *Id*. at 2.

[18] *Id*.

[19] *Id*.

[20] *See* Applications of Cellco Partnership d/b/a Verizon Wireless and Atlantis Holdings LLC, *Memorandum Opinion and Order and Declaratory Ruling*, 23 FCC Rcd. 17444, 17532-33 ¶¶ 198-201 (2008) (Verizon-ALLTEL Order); Sprint Nextel Corporation and Clearwire Corporation, *Memorandum Opinion and Order*, 23 FCC Rcd. 17570, 17612-14 ¶¶ 109-112 (2008) (Sprint-Clearwire Order).

[21] Public Safety and Homeland Security Bureau Seeks to Refresh the Record Regarding Service Rules for Wireless Enhanced 911 Phase II Location Accuracy and Reliability, PS Docket No. 07-114, *Public Notice*, 24 FCC Rcd 13677 (PSHSB 2009) (*Second Bureau Public Notice*).

[22] *Id.*

[23] Letter from Thomas J. Sugrue, Vice President, Government Affairs, T-Mobile, to Marlene H. Dortch, Secretary, FCC, filed June 16, 2010 (T-Mobile Ex Parte).

[24] Letter from Rebecca Murphy Thompson, General Counsel, RCA, to Marlene H. Dortch, Secretary, FCC, filed June 30, 2010 (RCA June 30 Ex Parte).

expeditiously to implement the modified proposals.[25] On July 29, 2010, General Communication, Inc. (GCI) filed an *ex parte* letter including proposals with specific application to rural and regional providers.[26]

11. This Second Report and Order represents our next step in a comprehensive examination of E911 location accuracy and reliability. Taken together, the APCO, NENA, AT&T, Sprint, T-Mobile, and Verizon Wireless proposals reflect agreement among leading 911 stakeholders for new E911 accuracy requirements for both handset-based and network-based location technologies. In the context of our review of the entire record in this proceeding, we find that these consensus proposals from national public safety organizations and major industry representatives will provide public safety agencies with necessary information during emergencies, and benefit consumers, in a manner that is technologically achievable. Moreover, the timeframe for compliance and permitted exclusions will serve to minimize the economic impact on small carriers while retaining significant benefits for public safety.

III. DISCUSSION

A. Compliance with Section 20.18(h) at the County Level or PSAP Level

12. The rule changes we are adopting today further our long-standing public safety and homeland security goals in this proceeding. First, they ensure that all stakeholders – including public safety entities, wireless carriers, technology providers, and the public – will benefit from an appropriate and consistent compliance methodology.[27] Second, by making clear that location accuracy compliance may not be achieved on an averaged basis over large geographical areas, the revised rules ensure that PSAPs receive meaningful, accurate location information from wireless 911 callers in order to dispatch local emergency responders to the correct location. As a direct result, the new rules will minimize potentially life-threatening delays that may ensue when first responders cannot be confident that they are receiving accurate location information.[28] As discussed below, major wireless carriers either already are subject to most elements of the *ex parte* proposals as a result of merger conditions, or indicate they can comply with the changed location accuracy requirements based on existing location technologies. These carriers also indicate that it is feasible for them to comply with our new requirement that they provide confidence and uncertainty data to PSAPs, which is widely supported by the public safety community. Also, as explained below, we provide for certain exclusions reflective of the technical limitations of existing location technologies. Furthermore, carriers facing unique circumstances may seek waiver relief based on certain factors.

13. As an initial matter, some commenters have urged the Commission to forego any rulemaking, advocating instead that the Commission establish an industry advisory group to draft new rules relating to location accuracy.[29] Further, some technology companies presented alternate views. For example, Polaris Wireless, Inc. (Polaris) states that the *ex parte* proposals maintain the status quo for handset-based carriers and "spark a migration to predominately handset-based technologies even for

[25] Letter from Richard Mirgon, President, APCO, and Steve O'Conor, President, NENA, to Marlene H. Dortch, Secretary, FCC, filed July 7, 2010 (APCO/NENA July 7 Ex Parte).

[26] Letter from Christopher Nierman, Director, Federal Regulatory Affairs, General Communication Inc., to Marlene H. Dortch, Secretary, FCC, filed July 29, 2010 (GCI Ex Parte).

[27] *See First Report and Order* at 1 ¶ 2.

[28] *See id*. at 4 ¶ 9.

[29] *See, e.g.* Motorola Comments to *Bureau Public Notice* at 4; NTCA Comments to *Bureau Public Notice* at 2-3; Nokia Comments to *Bureau Public Notice* at 2; USCC Reply Comments to *Bureau Public Notice* at 3.

network-based carriers."[30] Therefore, Polaris argues that "this proposed framework will not drive the adoption of the best E911 Phase II technologies available today, such as hybrid systems, nor will it achieve the greatest or fastest possible outcome for the American public."[31] S5 Wireless, Inc. (S5) "believes it is currently possible to implement newer technologies, such as that which S5 offers, and easily achieve the Commission's accuracy standards."[32]

14. We decline to delay taking Commission action, because of the importance to public safety of minimizing the potentially life-threatening delays that may ensue when first responders cannot be confident that they are receiving accurate location information. Further, while other technologies may hold promise for enhanced location accuracy, we find that acting now to adopt clear new geographic requirements based on the existing location accuracy calculations is the best course for the near-term. In our companion proceeding adopted today, we explore how differing technology approaches may improve wireless location accuracy going forward.

15. *Comments*. A number of commenters generally support requiring compliance with section 20.18(h) at the county or PSAP-level.[33] However, a few commenters held opposing views. Corr Wireless Communications, LLC (Corr) advocates using the Metropolitan Statistical Area as a "more useful measuring stick for this kind of service."[34] Corr, however, indicates that it would support a county-based metric provided that the Commission "make an exception in its accuracy requirement to account for the impossibility or extreme difficulty in meeting that standard in rural areas."[35] Furthermore, a number of commenters argue that complying with the county-level standard would be prohibitively expensive.[36] For example, the National Telecommunications Cooperative Association (NTCA) argues that "it is expected that the new standards will impose prohibitive costs on many rural wireless carriers, if compliance is even possible."[37] The Rural Telecommunications Group (RTG), citing to its August 20, 2007 comments, notes that rural carriers "may need to construct an extraordinary number of additional antenna sites," and that, "[w]ith fewer customers than large carriers serving urban areas, RTG members and other rural wireless carriers are unable to recover the substantial cost of constructing a large number

[30] Polaris Comments to *Bureau Public Notice* at 4.

[31] Polaris Comments to *Second Bureau Public Notice* at 4.

[32] S5 Comments to *Second Bureau Public Notice* at 2.

[33] AT&T Comments to *Bureau Public Notice* at 3; AT&T Comments to *Second Bureau Public Notice* at 1; Nokia Comments to *Bureau Public Notice* at 2; Sprint Nextel Comments to *Bureau Public Notice* at 2; Sprint Nextel Comments to *Second Bureau Public Notice* at 3; Corr Comments to *Bureau Public Notice* at 1; Motorola Comments to *Bureau Public Notice* at 1; Verizon Comments to *Bureau Public Notice* at 2; Verizon Comments to *Second Bureau Public Notice* at 5; RCC Comments to *Bureau Public Notice* at 1 (filed Oct. 9, 2008); USCC Reply Comments to *Bureau Public Notice* at 1; APCO Pennsylvania Chapter Comments to *Second Bureau Public Notice* at 1; NENA Comments to *Second Bureau Public Notice* at 7; L. Robert Kimball and Associates Comments to *Second Bureau Public Notice* at 1.

[34] Corr Wireless Comments to Bureau Public Notice at 2.

[35] *Id*. at 2-3.

[36] *See e.g.* NTCA Comments to *Bureau Public Notice* at 2; NTCA Reply Comments to *Second Bureau Public Notice* at 2; Blooston Rural Carriers Comments to *Bureau Public Notice* at 2; Blooston Rural Carriers Reply Comments to *Second Bureau Public Notice* at 2; SouthernLINC Reply Comments to *Second Bureau Public Notice* at 4; RTG Comments to *Bureau Public Notice* at 3, Andrews LLC Comments to *Bureau Public Notice* at 2 (citing Andrews LLC August 2007 Comments); Nokia Reply Comments to *Bureau Public Notice* at 2.

[37] NTCA Comments to *Bureau Public Notice* at 2.

of additional cell sites solely to triangulate location data."[38] GCI argues that the county-based metric does "not take into account the technological and economic realities of providing service to low-density, topographically challenged service areas, like Alaska," adding that "strict adherence to th[e] proposed metrics [w]ould have the perverse result of stifling deployments to areas most in need of wireless infrastructure investment."[39] NENA and APCO favor "a waiver process to the wholesale 'exceptions' for rural carriers proposed by Corr Wireless which would essentially only require Phase I in many parts of the country."[40]

16. *Discussion*. Based on the complete record in this proceeding, we revise the wireless location accuracy rules to require county-level or PSAP-level compliance. We agree with APCO and NENA and find that requiring compliance at the county level reflects recent consolidation efforts by PSAPs to mirror county boundaries.[41] In addition, we agree that counties "are more easily defined than PSAPs and are not prone to administrative boundary changes."[42] We find that compliance at the county level can be achieved with currently available technology, particularly in conjunction with the revisions we make to section 20.18(h) discussed below, including the permitted exclusions. Accordingly, we find that a county-level compliance standard provides an appropriate, consistent, and achievable compliance methodology with respect to wireless location accuracy standards. We conclude that a county-level compliance standard will ensure that PSAPs receive accurate and meaningful location information in most cases. Moreover, nothing in the record persuades us that such costs will be prohibitive for participating wireless carriers, including smaller carriers. The commenters expressing these concerns provide no quantification of the cost of meeting these requirements. As discussed below, however, we afford certain exclusions and note that financial considerations, among others, will be taken into account should a service provider request waiver relief.

17. We also find that there continues to be merit in a PSAP service area-based compliance standard. As APCO and NENA indicate, "county-level accuracy would in many cases be identical to PSAP-level accuracy."[43] In many areas, PSAP service areas are coterminous with county boundaries. Where PSAP service areas are larger than counties, however, providing location accuracy at the PSAP level would be beneficial to the public safety community since the reported accuracy would match the exact boundary of the PSAP's service area. Conversely, where PSAPs are smaller than counties, providing location accuracy information at the PSAP level could be of even more value to the PSAP and the public safety community since the information would be provided on a more granular basis than that achieved at the larger county level. Various public safety organizations continue to express support for PSAP-level compliance in comments filed with the Commission.[44]

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[38] RTG Comments to *Bureau Public Notice*, attaching and incorporating by reference RTG Comments to *Notice at* 4-5 (filed Aug. 20, 2007 in response to *Notice*, Part III.B).

[39] GCI Comments to *Second Bureau Public Notice* at 3-4.

[40] NENA/APCO Reply Comments to *Bureau Public Notice* at 5.

[41] *See* APCO/NENA July 14 Ex Parte at 1.

[42] APCO/NENA Sept. 9 Ex Parte at 1.

[43] *Id*.

[44] *See* Johnson County Comments to *Bureau Public Notice* at 2; Lufkin Police Department Comments to *Bureau Public Notice* at 1; New York City Police Comments to *Bureau Public Notice* at 2-3; Onandaga County Comments to *Bureau Public Notice* at 2; Orange County Comments to *Bureau Public Notice* at 2; San Juan County Comments to *Bureau Public Notice* at 2; Syosset Fire District Comments to *Bureau Public Notice* at 3; Texas 9-1-1 Alliance Comments to *Bureau Public Notice* at 2; Waukesha County Comments to *Bureau Public Notice* at 2; City of Wichita Falls Comments to *Bureau Public Notice* at 2; WSCDC Comments to *Bureau Public Notice* at 2 (all (continued….)

18. We therefore find that both PSAP-level compliance and county-level compliance are beneficial towards meeting the needs of PSAPs and public safety first responders, and we will allow carriers to choose which standard better meets their needs. Such an approach will permit carriers to analyze carrier-specific factors like natural and network topographies (for example, foliage levels, terrain characteristics, cell site density, overall system technology requirements, etc.) while, in either case, ensuring that public safety responders receive timely and accurate location information.

B. Handset-Based Location Technologies

19. On August 20, 2008, NENA, APCO, and Verizon Wireless filed a joint proposal for "compliance measurements for handset-based technologies."[45] Specifically, they propose the following new rules:

> Two years after the Commission adopts new rules, on a county-by-county basis, 67% of Phase II calls must be accurate to within 50 meters in all counties; 80% of Phase II calls must be accurate to within 150 meters in all counties, provided, however, that a carrier may exclude up to 15% of counties from the 150 meter requirement based upon heavy forestation that limits handset-based technology accuracy in those counties.
>
> Eight years after the Commission adopts new rules, on a county-by-county basis, 67% of Phase II calls must be accurate to within 50 meters in all counties; 90% of Phase II calls must be accurate to within 150 meters in all counties, provided, however, that a carrier may exclude up to 15% of counties from the 150 meter requirement based upon heavy forestation that limits handset-based technology accuracy in those counties.[46]

20. Verizon Wireless explains that, "the greatest technical barrier to the accuracy of handset-based E911 technologies is the presence of terrain obstructions, whether natural or manmade…Where, for example, an area's topology is characterized by forest, the likelihood of a good location fix is reduced because the tree cover obstructs the transmission path between the satellites and the handset. The more extensive the tree cover, the greater the difficulty the system has in generating a GPS-based fix."[47] To that end, Verizon Wireless states that its joint proposal with NENA and APCO compensates for these "technical realities."[48]

21. The parties also pledged "to convene, within 180 days of the Commission's order, an industry group to evaluate methodologies for assessing wireless 9-1-1 location accuracy for calls originating indoors and report back to the Commission within one year."[49] On August 21, 2008, Sprint submitted a letter in support of the NENA, APCO, and Verizon Wireless proposal, stating:

> The proposed accuracy standard meets the concerns of public safety while acknowledging the limitations of current technology. Although setting the accuracy standard at the county level will impose significant testing costs and require substantial time to complete, the accuracy standards

(Continued from previous page)
supporting PSAP-level compliance with Section 20.18(h)). *See also* St. Tammany Parish Communications District Comments to *Bureau Public Notice* at 1 (although PSAP-level compliance is preferred, accuracy testing should be done at a level no larger than county/parish boundaries).

[45] NENA/APCO/Verizon Aug. 20 Ex Parte at 1.

[46] *Id*.

[47] Letter from John T. Scott, III, Vice President and Deputy General Counsel – Regulatory Law, Verizon Wireless, to Marlene H. Dortch, Secretary, FCC, filed Sept. 5, 2008, at 1-2 (Verizon Sept. 5 Ex Parte).

[48] *See id*. at 2.

[49] NENA/APCO/Verizon Aug. 20 Ex Parte at 2.

articulated should be achievable. Sprint commends all those involved in the work required to produce this proposal and urges the Commission to adopt this compromise.[50]

22. As mentioned above, the Commission previously adopted two Orders approving applications for transfers of control, involving Verizon and ALLTEL Corporation and Sprint Nextel and Clearwire Corporation, conditioned upon their voluntary agreements to abide by the conditions set forth in their respective *ex parte* letters, which are identical to the wireless E911 proposals they submitted in this proceeding.[51]

23. *Comments*. Sprint Nextel, a handset-based carrier, continues to support the NENA, APCO, and Verizon Wireless proposal. Sprint Nextel views these benchmarks as "furthering the goals of public safety; both by holding carriers to a higher standard and by ensuring that carriers are optimizing their networks at the local level."[52] Sprint Nextel adds that, "one of the significant benefits of the compromise will be the extensive testing required at the local level."[53] Sprint Nextel notes that "[t]o date the Commission has adopted new accuracy requirements for two wireless carriers, Sprint and Verizon Wireless" and the Commission should therefore "work toward developing regulations to apply to the industry as a whole."[54] NTELOS, however, expresses "concerns that any new testing and reporting requirements would be burdensome since we are a small, regional carrier and do not have the expertise within the company to accomplish this task."[55] NTELOS notes that it "depends heavily on outside vendors for support in our accuracy testing," and "the unknown cost of reporting requirements that would accompany any rule change could have significant repercussions for smaller carriers."[56] RCA states that "as currently proposed, the [handset based] location accuracy standards provided by Verizon Wireless and public safety groups are not technically and economically feasible for the Tier II and Tier III carriers that RCA represents. Tier II carriers will need at least an additional six months after the effective date of any new rules to meet the 67%/80% requirement proposed by Verizon Wireless. Tier III carriers will need at least an additional 12 months."[57] SouthernLINC Wireless (SouthernLINC) maintains that the proposals "fail to give any consideration to the circumstances and operational realities faced by the nation's smaller regional and rural wireless carriers."[58] SouthernLINC therefore argues for the "adoption of alternative benchmarks for small and mid-size Tier II and Tier III carriers,"[59] and proposes its own benchmarks in order to "provide Tier II and Tier III carriers sufficient time to implement the measures necessary to conduct county-level testing."[60] Finally, SouthernLINC notes that "for regional and rural carriers, the impact of any new location accuracy requirements is an issue of both the cost of acquiring and deploying

[50] Sprint Nextel Aug. 21 Ex Parte at 1.

[51] *See* Verizon-ALLTEL Order at ¶¶ 198-201; Sprint-Clearwire Order at ¶¶ 109-112.

[52] Letter from Charles W. McKee, Director, Governmental Affairs, Sprint Nextel Corporation, to Marlene Dortch, Secretary, FCC, filed Sept. 24, 2008 at 2 (Sprint Nextel Sept. 24 Ex Parte) .

[53] *Id*.

[54] Sprint Nextel Comments to *Second Bureau Public Notice* at 5.

[55] NTELOS Comments to *Bureau Public Notice* at 1.

[56] *Id*.

[57] RCA Reply Comments to *Bureau Public Notice* at 2-3.

[58] SouthernLINC Reply Comments to *Second Bureau Public Notice* at 4.

[59] SouthernLINC Reply Comments to *Bureau Public Notice* at 12.

[60] *Id*. at 13-14.

additional technology…and the cost of conducting statistically valid testing on a county-by-county basis to determine accuracy at the county level."[61]

24. Specifically with respect to the parties' proposal to exclude fifteen percent of counties based upon heavy forestation, Sprint Nextel argues that the exclusion "acknowledges the technical limitations of current technology and does not penalize carriers for those exceptionally challenging cases."[62] However, Motorola suggests rather than excluding 15 percent of counties based on forestation, the Commission should adopt AT&T's requirement for network-based location technologies and allow 85 percent compliance at the final benchmark.[63] Motorola argues that "doing so would provide carriers the flexibility for exclusions based not only on forestation, but also other situations such as urban canyons and urban/rural buildouts that limit handset-based technology accuracy."[64] RCA argues that "the percentage of counties that can be excluded from the 150 meter requirement based upon 'heavy forestation' should be raised to twenty-five percent for purposes of meeting the 67%/80% requirement and twenty percent for the proposed 67%/90% requirement,"[65] and the Commission "should…make clear that the ['heavy forestation'] exception includes all terrain obstructions."[66] United States Cellular Corp. (USCC) states that, "[t]o date, neither APCO, NENA nor Verizon Wireless have explained the rationale for setting the exclusion limit at 15 percent nor have they explained why this exclusion only applies in counties with heavy forestation."[67] SouthernLINC recommends that the term "heavy forestation" be "changed to 'challenging environment' in order to clarify the nature of the of the 15-percent exclusion and avoid any confusion as to the exclusion's applicability."[68] Verizon Wireless "supports an industry-wide rule that permits any carrier employing a handset-based solution (including Verizon Wireless) to exclude up to 15 percent of counties for any reason, not solely because of "heavy forestation."[69] APCO and NENA disagree with including other terrain obstructions into the fifteen percent exception, arguing that this "would be unacceptable as it could lead to the exclusion of large metropolitan counties."[70] Rather, they state that they wish to restrict the exception only to forestation "on the expectation that it would apply in most cases to very sparsely populated counties."[71] APCO and NENA also noted that "a

[61] *Id.* at 6.

[62] Letter from Charles W. McKee, Director, Governmental Affairs, Sprint Nextel Corporation, to Marlene Dortch, Secretary, FCC, filed Sept. 24, 2008 at 2.

[63] *See* Motorola Comments to *Bureau Public Notice* at 3.

[64] *Id.*

[65] RCA Reply Comments to *Bureau Public Notice* at 2-3.

[66] *Id. at* 5. *See also* Motorola Reply Comments to *Bureau Public Notice* at 2; T-Mobile Reply Comments *to Bureau Public Notice* at 14.

[67] USCC Reply Comments to *Bureau Public Notice* at 3.

[68] SouthernLINC Reply Comments to *Bureau Public Notice* at 21.

[69] Letter from Tamara Preiss, Vice President, Federal Regulatory Affairs, Verizon Wireless, to Marlene Dortch, Secretary, FCC, filed Sept. 13, 2010 at 2. Subsequently, Verizon "expressed support for generally applicable E-911 rules consistent with technical feasibility and competitive neutrality," citing as one example "the different treatment of network-based and handset-based carriers with respect to the exclusion of up to 15 percent of counties." Letter from Tamara Preiss, Vice President, Federal Regulatory Affairs, Verizon Wireless, to Marlene Dortch, Secretary, FCC, filed Sept. 16, 2010 at 1.

[70] Letter from Robert M. Gurss, Director, Legal and Governmental Affairs, APCO, and Brian Fontes, Chief Executive Officer, NENA, to Marlene Dortch, Secretary, FCC, filed Oct. 17, 2008.

[71] *Id*.

broader exclusion could lead to substantial areas receiving substandard location accuracy for E911 calls."[72]

25. *Discussion*. We find that the consensus plan, based on the agreement of important E911 stakeholders, comprehensively addresses location accuracy criteria in connection with handset-based location technology. These proposals ensure that carriers using handset-based location technologies are subject to appropriate and consistent compliance methodology that may not be based on averaging over large geographical areas. Additionally, we believe that the important public safety issues at stake outweigh the potential cost impact of imposing these regulations. As we previously noted, SouthernLINC argues that the regulations would impose a significant strain on smaller carriers; however, SouthernLINC does not provide a quantification of the cost of meeting these requirements. Moreover, as discussed below, financial considerations, among others, will be taken into account should a service provider request waiver relief. Further, we conclude that the proposed compliance timeframes, limitations, and exemptions will provide carriers with a sufficient measure of flexibility to account for technical and cost-related concerns. Indeed, the approximately two year's passage of time since carriers first had an opportunity to raise concerns about the timing of the benchmarks negates the request of some carriers to extend the benchmarks for up to an additional year. Further, the rule changes we adopt today effectively relax the existing handset-based requirements by immediately reducing, for two years after the effective date, the 150 meter requirement from 95 percent of all calls to 80 percent of all calls. Moreover, even after eight years, the 150 meter requirement rises only to 90 percent.

26. The proposals also represent an acknowledgement by the public safety and commercial communities that they can address the critical need to provide public safety agencies with meaningful information in the event of an emergency in a technically achievable manner. The voluntary commitments to abide by the same proposals by Verizon, with respect to its transaction with ALLTEL (a Tier II wireless carrier), and Sprint, with respect to Clearwire, is further evidence of the flexibility and feasibility afforded by these criteria to enable carriers to meet these criteria even in the context of significant transactions. Thus, we require wireless licensees subject to section 20.18(h) of the Commission's rules who use handset-based location technology to satisfy these standards either at a county-based geographic level or at the PSAP service area level.

27. Because of the geographical and topographical differences that characterize different counties and PSAP service areas, we find that we should permit carriers using handset-based location technology to exclude up to 15 percent of counties or PSAP service areas from the 150 meter requirement based upon heavy forestation, consistent with the *ex parte* proposals. In this regard, we agree with NENA and APCO that any expansion of this exclusion, whether to an increased percentage or based on factors in addition to forestation, would excuse compliance to an unacceptable level of risk to public safety. We find that among the challenges faced by handset-based technologies, forestation is a substantial contributor and that other terrain issues typically would overlap with forestation concerns. Therefore, we expect that many of these other terrain issues will be addressed through the forestation exclusion. The more open-ended approach advocated by commenters may lead to overuse or abuse of exceptions and potentially harm public safety. The waiver process is thus much more suitable to address individual or unique problems, where we can analyze the particular circumstances and the potential impact to public safety. Some commenters recommended specific criteria for Tier III carrier waivers.[73] We address waiver requests in more detail below.

[72] Letter from Robert M. Gurss, Regulatory Counsel, APCO, and Brian Fontes, CEO, NENA, to Marlene Dortch, Secretary, FCC, filed Sept. 15, 2010 at 1.

[73] *See e.g.* SouthernLINC Reply Comments to *Bureau Public Notice* at 15-16; SouthernLINC Reply Comments to *Second Bureau Public Notice* at 7.

28. In order to ensure that the public safety community and the general public are aware of these instances where carriers cannot meet the Phase II location accuracy requirements, and prevent overuse of this exclusion, we will require carriers to file a list of those specific counties or PSAP service areas where they are utilizing this exclusion, within ninety days following approval from the Office of Management and Budget (OMB) for the related information collection. This list must be submitted electronically into the docket of this proceeding, and copies sent to NENA, APCO, and the National Association of State 9-1-1 Administrators (NASNA) in paper or electronic form. Further, carriers must submit in the same manner any changes to their exclusion lists within thirty days of discovering such changes.[74] We find that permitting this exclusion, subject to these reporting requirements, properly but narrowly accounts for the known technical limitations of handset-based location accuracy technologies, while ensuring that the public safety community and the public at large are sufficiently informed of these limitations. We expect that carriers failing to meet any particular benchmark will promptly inform the Commission and submit an appropriately supported waiver request. Further, we will monitor progress at each benchmark and may request status information if necessary.

29. We also encourage the parties to meet as a group to evaluate methodologies for assessing wireless 911 location accuracy for indoor calls.[75] Because indoor use poses unique obstacles to handset-based location technologies, and in light of the expressed interest of both the public safety and commercial wireless communities to further explore this issue, we clarify that these standards apply to outdoor measurements only. Further, we are seeking comment in our companion FNPRM/NOI on how best to provide automatic location identification (ALI) in technically challenging environments, including indoors.

C. Network-Based Location Technologies

30. On August 25, 2008, NENA, APCO, and AT&T submitted an *ex parte* letter proposing new compliance measurements specifically addressing network-based technologies.[76] NENA, APCO, and AT&T initially explain their proposal as follows:

> As network-based providers will be unable to meet the new proposed county-level accuracy standards in all areas relying solely upon current network-based technology solutions, carriers who employ network-based location solutions may be expected to deploy handset-based solutions as an overlay to existing network-based solutions in order to meet the more stringent county-level requirements set forth below. To encourage the improvements in location accuracy that may be achieved using both network and handset based solutions, this proposal provides that network-based carriers may elect to use a system of blended reporting for accuracy measurements, as defined below. Carriers also may elect to report accuracy in any county based solely on the handset-based accuracy standards.[77]

[74] *Cf*. 47 C.F.R. § 1.65 (requiring applicants to furnish additional or corrected information within thirty days).

[75] Intrado suggests that indoor calls not be treated separately from the location accuracy standards that we adopt here. *See* Intrado Comments to *Bureau Public Notice* at 1-2 (asserting that, for example, "distinctions such as 'outdoor use case' [and] 'indoor use case' . . . . should not be as though each exists in a vacuum"). Although Intrado indicates an "upward trend" in 911 indoor calls from wireless devices, we believe that addressing indoor calls here is not pertinent to the proposals on which we sought comment in the *Bureau Public Notice*. *See* Intrado Comments to *Bureau Public Notice* at 5-6. We defer considering this issue as the parties continue to evaluate methodologies and until we consider the other location accuracy issues that are within the scope of Part III. B of the *Notice*.

[76] APCO/NENA/AT&T Aug. 25 Ex Parte.

[77] *Id*. at 1-2.

31. The parties next propose the following as the accuracy standards for network-based carriers:

> 67%/100M: 67 percent of all calls, measured at the county level, shall be located within 100 meters in each county by the end of year 5, in accordance with the interim benchmarks below; and
>
> 90%/300M: 90 percent of all calls, measured at the county level, shall be located within 300 meters in 85 percent of all counties by the end of year 8, in accordance with the interim benchmarks below.[78]

32. In complying with the above, the parties provide the following limitation:

> The county-level location accuracy standards will be applicable to those counties, on an individual basis, for which a network-based carrier has deployed Phase II in at least one cell site located within a county's boundary. Compliance with the 67 percent standard and compliance with the 90 percent standard in a given county shall be measured and reported independently (*i.e.* the list of compliant counties for the 67 percent standard may be different than for the 90 percent standard).[79]

33. Further, consistent with the opening explanation of their proposal, the parties propose employing a "blended" approach for meeting the above accuracy standards. Under this approach, carriers may take into account the impact of introducing "aGPS" (assisted GPS) handsets into their customer bases. Specifically, the parties state:

> Accuracy data from both a network-based solution and a handset-based solution may be blended to meet the network-based standard. Such blending shall be based on weighting accuracy data in the ratio of aGPS handsets to non-aGPS handsets in the carrier's subscriber base. The weighting ratio shall be applied to the accuracy data from each solution and measured against the network-based standards.[80]

34. In their filing, the parties offer an example of blended reporting assuming 60% penetration of aGPS devices in the network. In effect, the result of this example is a "blended average" for each county that achieves better accuracy than a network-based approach alone would achieve.[81] AT&T states that environmental factors can "render the achievement of the current network-based location standards infeasible at the county level."[82] However, AT&T suggests that "these challenges can be mitigated or overcome through the deployment of aGPS technology."[83] AT&T concludes, "[a]ccordingly, using both network-based and handset-based E911 technologies in concert will allow all carriers over time to significantly improve E911 accuracy performance across the majority of service areas."[84]

35. The NENA, APCO, and AT&T proposal also sets the following network-based solution compliance benchmarks:

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[78] *Id*. at 2.

[79] *Id*.

[80] *Id*.

[81] *See id*.

[82] AT&T Sept. 5 Ex Parte at 2.

[83] *Id*.

[84] *Id*.

36. First, for the 67%/100 meter standard:

End of Year 1[85]: Carriers shall comply in 60% of counties, which counties shall cover at least 70% of the POPs covered by the carrier, network-wide. Compliance will be measured on a per county basis using existing network-based accuracy data.

End of Year 3: Carriers shall comply in 70% of counties, which counties shall cover at least 80% of the POPs covered by the carrier, network-wide. Compliance will be measured on a per county basis, using, at the carrier's election, either (i) network-based accuracy data; or (ii) blended reporting.

End of Year 5: Carriers shall comply in 100% of counties. Compliance will be measured on a per county basis, using, at the carrier's election, either: (i) network-based accuracy data; (ii) blended reporting; or (iii) subject to the following caveat, solely handset-based accuracy data (at handset-based accuracy standards). [86]

A carrier may rely solely on handset-based accuracy data in any county if at least 95% of its subscribers, network-wide, use an aGPS handset, or if it offers subscribers in that county who do not have an aGPS device an aGPS handset at no cost to the subscriber. [87]

37. Second, for the 90%/300 meter standard:

End of Year 3: Carriers shall comply in 60% of counties, which counties shall cover at least 70% of the POPs covered by the carrier, network-wide. Compliance will be measured on a per county basis using, at the carrier's election, either: (i) network-based accuracy data; or (ii) blended reporting.

End of Year 5: Carriers shall comply in 70% of counties, which counties shall cover at least 80% of the POPs covered by the carrier, network-wide. Compliance will be measured on a per county basis using, at the carrier's election, either (i) network-based accuracy data; or (ii) blended reporting.

End of Year 8: Carriers shall comply in 85% of counties. Compliance will be measured on a per county basis using, at the carrier's election, either: (i) network-based accuracy data; (ii) blended reporting; or (iii) subject to the caveat above, solely handset-based accuracy data (at handset-based accuracy standards). [88]

38. Further, similar to the NENA, APCO, and Verizon Wireless proposal regarding stakeholder efforts to address location accuracy for wireless calls originating indoors, APCO, NENA, and AT&T propose the establishment of an E911 Technical Advisory Group (ETAG) that would "work with the E911 community to address open issues within this framework (*e.g.*, updated outdoor and indoor accuracy measurement methodologies, tactics for improving accuracy performance in challenged areas, testing of emerging technology claims, E911 responsibilities in an open-access environment, the development of hybrid network- A-GPS technologies, etc.)."[89] AT&T continues to support the creation of an ETAG and notes that "[t]he Commission has successfully leveraged such working groups in the past to

[85] "Benchmarks intervals such as "Year 1" are to be measured from the effective date of any order adopting these proposed new location accuracy rules." APCO/NENA/AT&T Aug. 25 Ex Parte at note 1.

[86] *Id*. at 2-3.

[87] *Id*. at 3.

[88] *Id*.

[89] *Id*.

drive policy forward, particularly in the public safety area, where the Commission's objectives are clear but the technical path forward requires further research and development before implementation is possible."[90]

39. *Comments*. In response to the *Bureau Public Notice*, T-Mobile and RCA argued that "[b]ecause as a practical matter a carrier must implement A-GPS and reach certain handset penetration levels in order to meet some of the proposed benchmarks, and because implementation of A-GPS for GSM carriers is directly tied to implementation of 3G service, several of the proposed benchmarks will not be technically and economically feasible for carriers other than AT&T unless these other carriers have a more nearly comparable period from the introduction of their own 3G services to meet the benchmarks."[91] Specifically, T-Mobile and RCA advocated deferring the first benchmark by six months for Tier I and Tier II carriers and deferring the first benchmark by one year for Tier III carriers.[92] In addition, they argued that "[f]or T-Mobile,…the second, third and fourth benchmarks need to be delayed by at least two years in order for T-Mobile to have a timeline from 3G deployment similar [to] AT&Ts. For RCA members, the second, third, and fourth benchmarks need to be delayed further as their deployment of 3G services and AGPS handsets has not yet begun."[93] Nokia agreed with this approach, arguing that it would "allow for a more technically and commercially feasible approach for all affected carriers, including carriers who are in initial stages of deploying 3G across their networks."[94] RCA also noted that "Tier II and Tier III carriers do not necessarily have access to the same array or types of handsets…as Tier I carriers…due, in large part, to the growing use of exclusivity arrangements between the nation's largest wireless carriers and handset manufacturers."[95] NENA and APCO, however, noted that T-Mobile's plan would "probably require more than seven years [to reach the third benchmark] as they would link the start-date to the deployment of A-GPS handsets."[96] Moreover, NENA and APCO noted that variations among carriers in their deployment of next generation technologies "might be among the factors that could be considered in a waiver process."[97] Further, AT&T argued that "[t]he flexibility built into the joint proposal…will enable carriers to meet the joint proposal's ultimate requirements and interim benchmarks through a variety of means and incorporating the technologies that are best suited to their network and their particular deployment strategy… Particularly in light of that flexibility, AT&T is confident that the APCO/NENA/AT&T joint proposal is technically feasible for carriers that currently rely on network-based solutions."[98]

40. In response to the *Second Bureau Public Notice*, T-Mobile, RCA, and RTG maintained that upon revisiting their previously submitted proposal, "with the benefit of additional experience…it still may not be flexible enough to recognize reality."[99] As such, T-Mobile, RCA, and RTG requested the Commission "simply to require that all 3G handsets manufactured in or imported into the United States

[90] AT&T Comments to *Second Bureau Public Notice* at 12.

[91] T-Mobile and RCA Comments to *Bureau Public Notice* at 3.

[92] *See id*. at 5.

[93] *Id.* at 3-4.

[94] Nokia Reply Comments to *Bureau Public Notice* at 3.

[95] RCA Reply Comments to *Bureau Public Notice* at 2-3.

[96] APCO/NENA Reply Comments to *Bureau Public Notice* at 4.

[97] *Id.* at 5.

[98] AT&T Reply Comments to *Bureau Public Notice* at 2.

[99] T-Mobile/RCA/RTG Comments to *Second Bureau Public Notice* at 7.

be A-GPS-capable after a date certain."[100] T-Mobile, RCA, and RTG also requested the Commission to require "after an appropriate transition period, carriers [to] enable their entire network to be able to handle and to provide to PSAPs GPS-based location data from an A-GPS-capable handset, rather than locating these handsets using network-based technology."[101] According to T-Mobile, RCA, and RTG, "[t]his handset requirement approach is simpler than the complex combinations of benchmarks and exclusions in virtually all of last year's proposals, can be easily monitored and enforced, and would ultimately produce the best technically feasible results for these "hard-to-estimate" areas."[102] The Blooston Rural Carriers supported the T-Mobile/RCA/RTG proposal and noted that "it would help move network-based carriers toward development of handset-based technology in a rapid but realistic timeframe."[103] NTCA believes that the T-Mobile/RCA/RTG proposal "accomplishes the Commission's objectives and makes sense for small carriers."[104] NENA and APCO opposed the T-Mobile/RCA/RTG proposal, however, and "think the better answer is to establish a timeframe for compliance, reporting on efforts to meet elements of the timeframe and, where necessary, seek waivers based [on] current information and facts."[105]

41. Corr Wireless proposes that the Commission "adopt the county-based metric but make an exception in its accuracy requirement to account for the impossibility or extreme difficulty of meeting that standard in a rural area."[106] Specifically, Corr advocates that "in areas or counties where a network-solution carrier has fewer than four overlapping cell contours…only Phase I accuracy would be required."[107] Corr argues that "this exception is likely to be temporary in nature since Corr agrees with AT&T that the deployment in the near future of 'A-GPS' technology will enable even network-solution carriers to achieve high levels of location accuracy."[108] However, Corr also states that, "in order for small carriers like Corr to improve E911 accuracy through the deployment of advanced A-GPS handsets, they must have access to those handsets."[109] Therefore, Corr argues that "the Commission should require handset manufacturers to make all handsets available on a non-discriminatory basis."[110] T-Mobile disagrees, arguing that "this will not meaningfully accelerate deployment of A-GPS handsets. Carriers will already be driven by the benchmarks to incorporate A-GPS into their handsets… Thus Corr's proposed mandate is duplicative and unnecessary."[111] GCI Communications, in a later *ex parte*, proposes that "Tier III carriers in Alaska be required to measure compliance with the interim and final benchmarks only for those areas within a four-mile radius circle that includes at least five cell sites, where the test location within such circle has a usable signal level greater than -104 dBm to all cell sites within the

[100] *Id.* at 8.

[101] *Id*.

[102] *Id.*

[103] Blooston Rural Carriers Reply Comments to *Second Bureau Public Notice* at 2.

[104] NTCA Reply Comments to *Second Bureau Public Notice* at 2.

[105] NENA and APCO Reply Comments to *Second Bureau Public Notice* at 2.

[106] Corr Wireless Comments to *Bureau Public Notice* at 2-3.

[107] *Id*. at 3.

[108] *Id*.

[109] *Id*. at 4.

[110] *Id*.

[111] T-Mobile and RCA Reply Comments to *Bureau Public Notice* at 12.

circle."[112] GCI Communications also notes that any new benchmarks applicable to network-based carriers should "at the very least exclude any geographic area designated for measurement (like county or borough) where fewer than three cell sites are deployed and any community, or part of a community, where at least three cell sites are not viewable to a handset."[113] Finally, a number of commenters support the creation of an industry advisory group to further study and provide recommendations related to location accuracy.[114]

42. In a later filed *ex parte*, T-Mobile stated that it would agree to comply with the NENA/APCO/AT&T Aug. 25 Ex Parte for network-based carriers, with the following modifications.[115]

> First, "[w]hen using network-based measurements as a component of the county-level compliance calculation (*i.e.*, if the carrier is using network-only measurements or blending network and A-GPS measurements)," the Commission should permit the carrier to "exclude that county if it has fewer than 3 cell sites."[116]
>
> Second, the Commission should "[p]ermit a carrier to use "blending" as well as "network-only" measurements at the first benchmark."[117]
>
> Third, the Commission should "[a]llow a carrier to comply with the Year 5 (third) benchmark using only handset-based measurements so long as it has achieved at least 85% (rather than 95%) AGPS handset penetration among its subscribers."[118]

In response, RCA "expressed its support" for the exclusion of counties with less than three cell sites,[119] and APCO and NENA submitted a joint letter supporting T-Mobile's modifications, and urging prompt resolution of this proceeding.[120]

43. *Discussion*. As with the county level location accuracy proposal received from handset-based carriers, we find that the NENA, APCO, and AT&T proposals, as modified by the T-Mobile Ex Parte, represent a consensus from important E911 stakeholders, which comprehensively addresses location accuracy criteria in connection with network-based technologies. We find that these proposals

[112] Letter from Tina Pidgeon, Vice-President, Federal Regulatory Affairs, and Brian M. Lowinger, Director, Federal Regulatory Affairs, GCI, to Marlene H. Dortch, Secretary, FCC, filed on December 9, 2008 at 2.

[113] GCI Comments to *Second Bureau Public Notice* at 5.

[114] *See* AT&T Comments to *Bureau Public Notice* at 4-5; AT&T Reply Comments to *Second Bureau Public Notice* at 4-5; Letter from Russell D. Lukas, Counsel for Rural Cellular Association, and Thomas Sugrue, Counsel for T-Mobile., to Marlene H. Dortch, Secretary, FCC, filed Sept. 19, 2008 at 2 (RCA/T-Mobile Ex Parte); Telecommunications Industry Association Comments to *Bureau Public Notice* at 2; Motorola Comments to *Bureau Public Notice* at 4; Alliance for Telecommunications Industry Solutions' Emergency Services Interconnection Forum Comments to *Bureau Public Notice* at 1; NTCA Comments to *Bureau Public Notice* at 2-3; Nokia Comments to *Bureau Public Notice* at 2; SouthernLINC Reply Comments to *Bureau Public Notice* at 22-23; SouthernLINC Reply Comments to *Bureau Public Notice* at 9; CTIA Comments to *Second Bureau Public Notice* at 4; Rosum Corporation Reply Comments to *Second Bureau Public Notice* at 5-6.

[115] Letter from Thomas J. Sugrue, Vice President, Government Affairs, T-Mobile, Inc., to Marlene H. Dortch, Secretary, FCC, filed on June 16, 2010 (T-Mobile Ex Parte).

[116] T-Mobile Ex Parte at 2.

[117] *Id.*

[118] *Id.*

[119] RCA June 30 Ex Parte at 2.

[120] APCO/NENA July 7 Ex Parte.

ensure that carriers using network-based location technologies are subject to appropriate and consistent compliance methodology that no longer may be based on nationwide averaging. Also like the handset-based consensus, the proposals represent an acknowledgement by members of both the public safety and commercial communities that they can address the critical need to provide public safety agencies with meaningful information in the event of an emergency in a technically achievable manner. We reject earlier proposals by T-Mobile and RCA that would extend the compliance benchmarks. We agree with NENA and APCO, and find that extending the compliance benchmarks would disserve the important public safety goals of this proceeding. Consistent with the views of AT&T, we find that the proposed compliance timeframes, limitations, and exemptions will allow carriers a sufficient measure of flexibility to account for technical and cost-related concerns.

44. We also find that the T-Mobile Ex Parte includes modifications that are reasonable under the circumstances. First, in regard to T-Mobile's request to exclude counties with fewer than three cell sites, we note that it is not technically possible for a carrier to triangulate a caller's location with only one or two cell sites. Moreover, we are concerned that the absence of an appropriate exception may have the unintended consequence of carriers choosing to eliminate service where they are unable to triangulate position. In such circumstances, clearly the availability of wireless service to enable a caller to reach 911 in the first instance outweighs the potential lack of ALI capability, at least until blending of A-GPS-enabled handsets permits ALI. At the same time, we want to make sure that any exclusion we adopt is (1) not overly or unnecessarily employed, (2) specifically targeted to the inability, as a technical matter, to determine position through triangulation, and (3) time-limited, transparent, and regularly revisited. Simply focusing on a county-based exclusion may fail to account for all situations.[121] A county-based exclusion may be over-inclusive by failing to account for cell sites outside a county that can be used to triangulate. Some counties, boroughs, parishes, etc. may so large that, even though containing three or more cell sites, may still present technical challenges in achieving ALI.[122] This can occur when cell sites are configured to provide coverage to specific communities that are at great distances from each other, or where mountainous or other terrain features prohibit triangulation of cell sites that absent such features could permit triangulation. On the other hand, triangulation may be possible in only certain portions of a county, or due to the proximity of towers available in an adjacent county. All the while, the need for this exclusion specific to network-based location technologies should diminish over time as carriers blend A-GPS handsets into their customer base.

45. Accordingly, we will permit network-based carriers to exclude from compliance particular counties, or portions of counties, where triangulation is not technically possible, such as locations where at least three cell sites are not sufficiently visible to a handset. Similar to the 15 percent county exclusion we permit for handset-based carriers above, in order to ensure that the public safety community and the general public are aware of these instances where carriers cannot meet the Phase II location accuracy requirements, and prevent overuse of this exclusion, we will require carriers to file a list of those specific counties, or portions thereof, where they are utilizing this exclusion, within ninety days following approval from OMB for the related information collection. This list must be submitted electronically into the docket of this proceeding, and copies sent to NENA, APCO, and NASNA in paper or electronic form. Further, carriers must submit in the same manner any changes to their exclusion lists within thirty days of discovering such changes.[123]

[121] *See* GCI Ex Parte at 3 ("Because of their vast size, most Alaska boroughs contain three or more sites; that is, at least three communities within the borough will be each served with a single site. The distance between communities requires that communications be carried via satellite link, such that mobile traffic between communities is not transmitted directly via cell sites.").

[122] For simplicity, we will refer to all counties, boroughs, parishes, and similar political boundaries as "counties."

[123] *Cf*. 47 C.F.R. § 1.65 (requiring applicants to furnish additional or corrected information within thirty days).

46. At the same time, we find it appropriate to place a time limit on this exclusion, because the need for this exclusion will diminish over time as network-based carriers incorporate A-GPS handsets into their subscriber bases. Accordingly, we will sunset this exclusion eight years after the effective date of this Order. Eight years following the effective date is the period of time by which the revised network-based requirements become fully effective. Network-based carriers that continue to lack the technical ability to triangulate position in certain areas upon the sunset date may seek extended relief from the Commission at that time. We find that permitting this exclusion, subject to the initial reporting requirement, the obligation to update the list of excluded areas, and the sunset period, properly but narrowly accounts for the known technical limitations of network-based location accuracy technologies, while ensuring that the public safety community and the public at large are sufficiently informed of these limitations.

47. T-Mobile also requests that the Commission "[p]ermit a carrier to use 'blending' as well as 'network-only' measurements at the first benchmark."[124] We find that in terms of the blending element, there is no reason to differentiate among the compliance mechanisms for the three benchmarks. Thus, we will permit a carrier to blend accuracy data from both a network-based solution and a handset-based solution to meet the network-based standard at the first benchmark. Lastly, T-Mobile requests that the Commission "[a]llow a carrier the option to comply with the Year 5 (third) benchmark using only handset-based measurements so long as it has achieved at least 85% (rather than 95%) A-GPS handset penetration among its subscribers."[125] We agree with T-Mobile that this approach "is more consistent with a phased transition to 95% A-GPS handset penetration over the entire 8-year period."[126] We also note that without this modification, a carrier's percentage of low-end customers could significantly affect its ability to meet the benchmarks. As T-Mobile and RCA point out, "[l]ow-end customers are less likely to move rapidly to the new 3G services and A-GPS handsets."[127] Accordingly, we will permit a network-based carrier to comply with the third benchmark using only handset-based measurements, as long as it has achieved at least 85% A-GPS handset penetration among its subscribers.

48. Taking into consideration our goals for this proceeding and the entire record, we amend the network-based location accuracy rules consistent with the NENA, APCO and AT&T proposals, as modified by the T-Mobile Ex Parte, and as modified as discussed above with respect to the permitted exclusions where triangulation is not technically achievable. Accordingly, we require wireless licensees subject to Section 20.18(h) of the Commission's rules using network-based location technology to satisfy these standards either at a county-based or PSAP-based geographic level. We clarify that these standards apply to outdoor measurements only. As described above, and modified by the T-Mobile Ex Parte, we will also allow accuracy data from both a network-based solution and a handset-based solution to be blended to meet the network-based standard. We agree with AT&T that allowing this type of blending can mitigate perceived challenges associated with providing accurate location identification in certain areas.[128] As before concerning the handset-based requirements, we expect that carriers failing to meet any particular benchmark will promptly inform the Commission and submit an appropriately supported waiver request. Further, we will monitor progress at each benchmark and may request status information if necessary.

[124] T-Mobile Ex Parte at 2.

[125] *Id*.

[126] *Id.*

[127] T-Mobile and RCA Comments to *Bureau Public Notice* at 19.

[128] *See* AT&T Sept. 5 Ex Parte at 3.

49. Finally, as we previously noted, AT&T commits to creating an ETAG that would further examine related E911 issues. We encourage this effort, as well as Verizon's offer to convene an industry group to explore location accuracy for indoor calls as discussed above. Our companion FNPRM/NOI also seeks comment on these issues.

D. Confidence and Uncertainty Data

50. In the *Notice*, we tentatively concluded that carriers should automatically provide accuracy data to PSAPs.[129] We asked how and in what format that data should be transferred to each applicable PSAP.[130] We also asked how often it should be reported or provided and whether it should be provided as part of the call information/ALI.[131] Finally, we asked what the appropriate level of granularity for such accuracy data should be.[132]

51. NENA, APCO, and AT&T include in their *ex parte* submission a proposal with respect to the provision of confidence and uncertainty data to PSAPs. Specifically:

> Confidence and uncertainty data shall be provided on a per call basis upon PSAP request. This requirement shall begin at the end of Year 2, to allow testing to establish baseline confidence and uncertainty levels at the county level. Once a carrier has established baseline confidence and uncertainty levels in a county, ongoing accuracy shall be monitored based on the trending of uncertainty data and additional testing shall not be required.[133]

52. This proposal is widely welcomed by the public safety community, as well as by representatives of industry. In its original request for declaratory ruling, APCO stated, "[r]egardless of the geographic area over which accuracy is measured, it is critical for PSAPs to know just how accurate the information is that they do receive."[134] APCO later explained:

> PSAPs need to know the level of E9-1-1 accuracy to facilitate appropriate dispatching of emergency responders. For example, responders need to know what to do if they arrive at the 'wrong address' or are unable to see the emergency upon arrival. If the call was delivered with a high degree of accuracy, the search for the actual emergency can be narrowed without requiring additional personnel. However, if the accuracy levels are actually low, then responders need to be prepared for a wider area search, and additional scarce resources may need to be dispatched.[135]

APCO and NENA also stress that providing confidence and uncertainty data on a per call basis "will greatly improve the ability of PSAPs to utilize accuracy data and manage their 9-1-1 calls."[136] Industry representatives have similarly expressed the importance of confidence and uncertainty data. In this respect, we agree with AT&T that "the delivery of confidence and uncertainty data on a per-call basis will markedly improve 911 call takers' ability to assess the validity of each call's location information and deploy public safety resources accordingly."[137] Sprint Nextel notes that "the uncertainty factor provides

[129] *Notice* at 10612 ¶ 16.

[130] *Id*.

[131] *Id*.

[132] *Id*.

[133] APCO/NENA/AT&T Aug. 25 Ex Parte at 4.

[134] APCO Request for Declaratory Ruling at 5.

[135] *Id*. at 5-6.

[136] APCO/NENA Sept. 9 Ex Parte.

[137] AT&T Sept. 5 Ex Parte at 3.

PSAPs with real time information about the quality of location calculation and removes the need to make their own assessment regarding the relative reliability of any particular fix."[138]

53. *Comments*. AT&T argues that "wireless carriers are well positioned to develop and transmit C/U data, and our discussions with public safety organizations have made clear that, by enabling first responders to more accurately identify the relevant search data, the data can be very useful for PSAPs that are equipped to receive and utilize it."[139] AT&T adds that "it is important that the C/U data delivered by carriers adhere to a single, common standard...AT&T and other carriers have reached consensus that uncertainty estimates will be provided by carriers at a confidence level corresponding to one standard deviation ('one sigma') from the mean" (or a confidence level of approximately 68 percent).[140] Sprint Nextel supports the proposal to transmit confidence and uncertainty data upon PSAP request, but states that this is dependent on LECs forwarding this data to PSAPs and that "the Commission must require owners of E911 networks to take the steps necessary to accommodate such data."[141] AT&T likewise notes that, "for the data to provide value…the local exchange carrier must deliver that [confidence and uncertainty] data to the PSAP, and the PSAP must be equipped to receive and use it."[142] Verizon states that "in some cases, the emergency services provider does not have the capability to transmit confidence and uncertainty information" and that the Commission should "require wireless carriers to include confidence and uncertainty information in the call location information they provide to the emergency services providers."[143] NENA and APCO state that "[f]or those [System Service Providers] who do not pass uncertainty data to PSAPs, the burden should be on the SSP to demonstrate that they do not pass uncertainty data at the request of the PSAP or because of technical infeasibility, in which case a waiver may be warranted."[144] However, Telecommunications Systems, Inc. states that the Commission should "reject the unspoken mandate to require extensive initial baseline ground truth testing and examine the benefits of using horizontal uncertainty as the initial and primary criteria for meeting location accuracy standards and the location information provided to PSAPs."[145]

54. *Discussion*. Regardless of whether a carrier employs handset-based or network-based location technology, we require wireless carriers to provide confidence and uncertainty data on a per call basis upon PSAP request beginning at the end of year two. Although the NENA, APCO and AT&T proposal specifically applies to network-based location technologies, the record supports a finding that confidence and uncertainty data is useful for PSAPs in all cases, and that it is both technologically feasible and in the public interest to require both handset-based and network-based carriers to provide confidence and uncertainty data in the manner proposed. Further, as Telecommunications Systems, Inc. notes in its comments, implementation of its proposed alternative process would require "further cooperative study."[146] We thus decline to adopt its proposal, but do not preclude future consideration.

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[138] Sprint Nextel Comments to *Bureau Public Notice* at 16-17.

[139] AT&T Comments to *Bureau Public Notice* at 6.

[140] AT&T Reply Comments to *Bureau Public Notice* at 5.

[141] Sprint Nextel Comments to *Bureau Public Notice* at 6.

[142] AT&T Comments to *Bureau Public Notice* at 7. *See also* Verizon Comments to *Bureau Public Notice* at 5 ("in nearly all situations, wireless carriers route E911 information to the local exchange carrier that in turn relays the information to the PSAP").

[143] Verizon Comments to *Bureau Public Notice* at 5.

[144] NENA/APCO Reply Comments to *Bureau Public Notice* at 2.

[145] Telecommunications Systems, Inc. Comments to *Bureau Public Notice* at 2.

[146] *Id. at* 4.

55. In addition, in light of the importance and usefulness of confidence and uncertainty data to public safety as demonstrated in the record, we take additional steps to ensure that the requirements we impose on wireless carriers are meaningful. Thus, to ensure that confidence and uncertainty data is made available to requesting PSAPs, we also require entities responsible for transporting this data between the wireless carriers and PSAPs, including LECs, CLECs, owners of E911 networks, and emergency service providers (collectively, System Service Providers (SSPs)), to implement any modifications to enable the transmission of confidence and uncertainty data provided by wireless carriers to the requesting PSAPs. Additionally, we agree with APCO and NENA that an SSP that does not pass confidence and uncertainty data to PSAPs must demonstrate in a request for waiver relief that it cannot pass this data to the PSAPs due to technical infeasibility.

E. Waiver Requests

56. Some commenters recommended specific criteria for Tier III carrier waivers.[147] We decline at this time to adopt any changes to the Commission's existing waiver criteria, which have been sufficient to date in addressing particular circumstances on a case-by-case basis and remain available to all carriers.[148] Further, we expect that the rule changes we adopt today should minimize the need for waiver relief. For handset-based carriers, we are permitting an exclusion of fifteen percent of counties due to heavy forestation and similar terrain features that impede the ability to obtain accurate location information. For network-based carriers, we are permitting exclusion of counties or portions of counties where cell site triangulation is not technically possible. In addition, the revised benchmarks are based on an eight-year compliance period, with the earliest benchmark not taking effect until one year following the effective date of this Order. Finally, we make clear that the revised location accuracy requirements do not apply to indoor use cases.

IV. PROCEDURAL MATTERS

A. Final Regulatory Flexibility Analysis

57. As required by the Regulatory Flexibility Act (RFA),[149] an Initial Regulatory Flexibility Analysis (IRFA) was incorporated into the *Notice*.[150] The Commission sought written public comment on the possible significant economic impact on small entities regarding the proposals addressed in the *Notice*, including comments on the IFRA. Pursuant to the RFA, a Final Regulatory Flexibility Analysis is set forth in Appendix B.

B. Paperwork Reduction Act of 1995 Analysis

58. This document contains proposed new information collection requirements. The Commission, as part of its continuing effort to reduce paperwork burdens, invites the general public and the OMB to comment on the information collection requirements contained in this document, as required by the Paperwork Reduction Act of 1995, Public Law 104-13. In addition, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, *see* 44 U.S.C. § 3506(c)(4), we seek

[147] *See e.g.* SouthernLINC Reply Comments to *Bureau Public Notice* at 15-16; SouthernLINC Reply Comments to *Second Bureau Public Notice* at 7.

[148] *See* Letter from Tamara Preiss, Vice President, Federal Regulatory Affairs, Verizon Wireless, to Marlene Dortch, Secretary, FCC, filed Sept. 16, 2010 at 2 ("[w]hether a carrier uses handset- or network-based Phase II technologies and regardless of size, each carrier should be afforded the same opportunity for waiver relief.").

[149] *See* 5 U.S.C. § 603.

[150] *See Notice*, 22 FCC Rcd at 10619-32 (Appendix).

specific comment on how we might "further reduce the information collection burden for small business concerns with fewer than 25 employees."

C. Congressional Review Act

59. The Commission will send a copy of this Second Report and Order in a report to be sent to Congress and the Government Accountability Office pursuant to the Congressional Review Act, *see* 5 U.S.C. § 801(a)(1)(A).

D. Accessible Formats

60. To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty). Contact the FCC to request reasonable accommodations for filing comments (accessible format documents, sign language interpreters, CARTS, *etc*.) by e-mail: FCC504@fcc.gov; phone: (202) 418-0530 (voice), (202) 418-0432 (TTY).

V. ORDERING CLAUSES

61. Accordingly, IT IS ORDERED, pursuant to Sections 1, 4(i), and 332 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i), 332, that the Second Report and Order in PS Docket No. 07-114 IS ADOPTED, and that Part 20 of the Commission's Rules, 47 C.F.R. Part 20, is amended as set forth in Appendix C. The Second Report and Order shall become effective 60 days after publication in the Federal Register, subject to OMB approval for new information collection requirements.

62. IT IS FURTHER ORDERED that the Request for Declaratory Ruling filed by APCO IS GRANTED IN PART AND DENIED IN PART to the extent indicated herein.

63. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this Second Report and Order, including the Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

APPENDIX A

List of Commenters to *Notice* and *Bureau Public Notice*

Comments	Abbreviation
Alliance for Telecommunications Industry Solutions	ATIS
Andrew LLC, a CommScope Company	Andrew LLC
Association of Public-Safety Communications Officials-International, Inc.	APCO
AT&T Inc.	AT&T
Blooston Rural Carriers	Blooston
Caddo Parish Communications District Number One	Caddo Parish
Cincinnati Bell Wireless LLC	Cincinnati Bell
City of Los Angeles	City of Los Angeles
City of Wichita Falls, Texas Police Department	City of Wichita Falls
Corr Wireless Communications, LLC	Corr
CTIA – The Wireless Association	CTIA
Independent Telephone and Telecommunications Alliance	ITTA
Intrado Inc.	Intrado
Johnson County, KS Emergency Communications	Johnson County
King County E911 Program	King County
Lufkin, Texas Police Department	Lufkin Police
The Mid-America Regional Council	MARC
Motorola, Inc.	Motorola
National Association of Telecommunications Officers and Advisors, National Association of Counties, National League of Cities, and U.S. Conference of Mayors	NATOA
National Emergency Number Association	NENA
National Telecommunications Cooperative Association	NTCA
New York City Police Department	NYPD
Nokia	Nokia
Nsighttel Wireless, LLC	NSighttel
nTelos	NTELOS
Office of United Communications, Washington, DC	OUC
Onondaga County Department of Emergency Communications	Onondaga County
Orange County 9-1-1 Administration, Florida	Orange County
Polaris Wireless, Inc.	Polaris
QUALCOMM Incorporated	QUALCOMM
RCC Consultants, Inc.	RCC
Rural Cellular Association	RCA
Rural Telecommunications Group	RTG
S5 Wireless, Inc.	S5
St. Tammany Parish Communications District	St. Tammany Parish
San Juan County Communications Authority, New Mexico	San Juan County
Sprint Nextel Corporation	Sprint Nextel
State of Montana Department of Administration, Information Technology Services Division	State of Montana

Comments	Abbreviation
Alliance for Telecommunications Industry Solutions	ATIS
Andrew LLC, a CommScope Company	Andrew LLC
State of New York Department of Public Service	New York DPS
State of Washington Enhanced 911 Program	Washington 911
SunCom Wireless, Inc.	SunCom
Syosset Fire District	Syosset Fire District
TechnoCom Corporation	TechnoCom
Telecommunications Industry Association	TIA
Telecommunications Systems, Inc.	Telecommunications Systems
The Texas 9-1-1 Alliance	Texas 9-1-1 Alliance
T-Mobile USA, Inc.	T-Mobile
TruePosition, Inc.	TruePosition
United States Cellular Corp.	USCC
Verizon Wireless	Verizon Wireless
Voice on the Net Coalition	VON Coalition
Walls, Carlton B.	Carlton Walls
Waukesha County, Wisconsin Department of Emergency Preparedness	Waukesha County
West Surburban Consolidated Dispatch Center	WSCDC
Wireless Communications Association International, Inc.	Wireless Communications Association International
Wireless Werx	Wireless Werx

Reply Comments

Replies	Abbreviation
Association of Public-Safety Communications Officials-International, Inc.	APCO
AT&T Inc.	AT&T
GCI Communication Corp.	GCI
Motorola	Motorola
National Emergency Number Association	NENA
Nokia	Nokia
Polaris Wireless, Inc.	RCA
SouthernLINC	RCA
T-Mobile	RTG
SouthernLINC Wireless	SouthernLINC
Sprint Nextel	Sprint Nextel
TechnoCom Corporation	TechnoCom
T-Mobile USA, Inc.	T-Mobile
United States Cellular Corporation	USCC
Verizon Wireless	Verizon Wireless

Ex Parte Comments

Ex Partes	Abbreviation
Association of Public-Safety Communications Officials-International, Inc.	APCO
AT&T Inc.	AT&T
GCI Communications Corp	GCI
National Emergency Number Association	NENA
SouthernLINC Wireless	SouthernLINC
Sprint Nextel	Sprint Nextel
T-Mobile USA, Inc.	T-Mobile
Verizon Wireless	Verizon Wireless

List of Commenters to *Second Bureau Public Notice*

Comments	Abbreviation
AT&T Inc.	AT&T
Blooston Rural Carriers	Blooston
CTIA – The Wireless Association	CTIA
GCI Communication Corp.	GCI
Intrado Inc.	Intrado
L. Robert Kimball and Associates	L. Robert Kimball
National Emergency Number Association	NENA
Pennsylvania Chapter, APCO	Pennsylvania Chapter, APCO
Polaris Wireless, Inc.	Polaris
Rural Cellular Association	RCA
Rural Telecommunications Group	RTG
S5 Wireless, Inc.	S5
Sprint Nextel Corporation	Sprint Nextel
Telecommunications Systems, Inc.	Telecommunications Systems
T-Mobile USA, Inc.	T-Mobile

Reply Comments

Replies	Abbreviation
Association of Public-Safety Communications Officials-International, Inc.	APCO
AT&T Inc.	AT&T
Blooston Rural Carriers	Blooston
EmFinders, Inc.	EmFinders
National Emergency Number Association	NENA
National Telecommunications Cooperative Association	NTCA
Polaris Wireless, Inc.	Polaris
Rosum Corporation	Rosum
Rural Cellular Association	RCA
Rural Telecommunications Group	RTG
SouthernLINC Wireless	SouthernLINC

Sprint Nextel	Sprint Nextel
T-Mobile USA, Inc.	T-Mobile
TruePosition, Inc.	TruePosition
Verizon Wireless	Verizon Wireless

Ex Parte Comments

Ex Partes	**Abbreviation**
Association of Public-Safety Communications Officials-International, Inc.	APCO
Andrew LLC, a CommScope Company	Andrew LLC
AT&T Inc.	AT&T
Commlabs, Inc.	Commlabs
GCI Communications Corp.	GCI
Intrado Inc.	Intrado
National Emergency Number Association	NENA
Polaris Wireless, Inc.	Polaris
Rural Cellular Association	RCA
SouthernLINC Wireless	SouthernLINC
Sprint Nextel	Sprint Nextel
T-Mobile USA, Inc.	T-Mobile
TruePosition, Inc.	TruePosition
Verizon Wireless	Verizon Wireless
Vonage Holdings Corp.	Vonage

APPENDIX B

Final Regulatory Flexibility Analysis

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA)[151] an Initial Regulatory Flexibility Analysis (IRFA) was included in the *Public Notice* in PS Docket No. 07-114 (*Notice*).[152] The Commission sought written public comment on the proposals in these dockets, including comment on the IRFA. This Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA.[153]

A. Need for, and Objectives of, the Proposed Rules

2. In the *Notice*, we sought comment on how to best ensure that public safety answering points (PSAPs) receive location information that is as accurate as possible for all wireless E911 calls. The objective was to ensure that PSAPs receive reliable and accurate location information irrespective of the location of the caller or the technology that may be used.

3. The Second Report and Order adopts rules to best ensure that public safety answering points (PSAPs) receive location information that is as accurate as possible for all wireless E911 calls. The Commission requires that Commercial Mobile Radio Service (CMRS) carriers comply with section 20.18(h) of the Commission's rules at the county-level or PSAP-level service area and adopts interim benchmarks to achieve this level of compliance. Specifically, the Order adopts rules requiring network-based technologies to provide location accuracy of 100 meters for 67 percent of calls in 60 percent of counties or PSAP service areas one year from the effective date of the Order; in 70 percent of counties or PSAP service areas three years from the Order; and in 100 percent of counties or PSAP service areas within five years of the effective date of the Order. Additionally, network-based technologies must meet the 300 meter/90 percent standard in 60 percent of counties or PSAP service areas within three years of the effective date of the Order; in 70 percent of counties or PSAP service areas within five years of the Order; and in 85 percent of counties or PSAP service areas within eight years of the Order. Accuracy data from both network-based solutions and handset-based technologies may be blended to measure compliance. Additionally, carriers are allowed to exclude particular counties, or portions of counties, where triangulation is not technically possible.

4. The Order also adopts rules requiring handset-based technologies to meet the 50 meters/67 percent standard and 150 meters/80 percent standard two years from the effective date of the Order, allowing carriers to exclude up to 15 percent of counties or PSAP areas from the 150 meter requirement based upon heavy forestation. Handset-based technologies must meet the 50 meters/67 percent standard and 150 meters/90 percent standard within eight years of the Order, allowing for 15 percent exclusions in heavily forested areas.

5. Finally, the Order adopts rules requiring carriers to provide confidence and uncertainty data on a per-call basis upon the request of a PSAP two years after the effective date of the Order.

B. Summary of Significant Issues Raised by Public Comments in Response to the IRFA

6. RCA states that "[t]he Commission fails to comply with Regulatory Flexibility Act requirements in its IRFA…the Commission cannot point to any 'small business alternatives' that it has

[151] *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. § 601 – 612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

[152] *See* Comment Sought on Proposals Regarding Service Rules for Wireless Enhanced 911 Phase II Location Accuracy and Reliability, PS Docket 07-114, *Public Notice*, 23 FCC Rcd 13797 (PSHSB Sept. 22, 2008) (*Notice*).

[153] *See* 5 U.S.C. § 604.

considered or that it has provided to commenters to consider in reaching its proposed approach."[154]

7. SouthernLINC proposes certain "alternative approaches" that it states "alleviate any potential burdens on small entities."[155]

8. GCI argues in an *ex parte* that, "because the adoption of the AT&T Proposal without adjustment will have a significant negative impact on Tier III carriers…the Commission must provide adjustments that respond to the challenges of these providers and the areas they serve."[156]

9. No commenter provided a quantification of the cost of meeting the requirements adopted in this order. In response to the issues raised by public comments, we concluded that the proposed timeframes, limitations, and exemptions provided carriers, including small businesses, with a sufficient measure of flexibility to account for technical and cost-related concerns. The rule changes we have adopted effectively relax the existing handset-based requirements by immediately reducing, for two years after the effective date, the 150 meter requirement from 95 percent of all calls to 80 percent of all calls. Moreover, even after eight years, the 150 meter requirement rises only to 90 percent. Finally, financial considerations, among others, will be taken into account should a service provider request waiver relief. As noted in the Second Report and Order, in the event that small entities face unique circumstances that restrict their ability to comply with the Commission's rules, these will be addressed through the waiver process. We have determined that the final rules adopt the best alternatives for promoting accurate location accuracy data.

C. Description and Estimate of the Number of Small Entities to Which the Proposed Rules Would Apply

10. The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules.[157] The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[158] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[159] A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).[160]

11. Nationwide, there are a total of approximately 22.4 million small businesses, according to SBA data.[161] A "small organization" is generally "any not-for-profit enterprise which is independently

[154] RCA Reply Comments to Bureau Public Notice at 20-21.

[155] SouthernLINC Reply Comments to Bureau Public Notice at 11.

[156] Letter from Tina Pidgeon, Vice-President, Federal Regulatory Affairs, and Brian M. Lowinger, Director, Federal Regulatory Affairs, GCI Communications Corp., to Marlene H. Dortch, Secretary, FCC, filed on December 9, 2008 at 3.

[157] 5 U.S.C. §§ 603(b)(3), 604(a)(3).

[158] 5 U.S.C. § 601(6).

[159] 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such terms which are appropriate to the activities of the agency and publishes such definitions(s) in the Federal Register."

[160] 15 U.S.C. § 632.

[161] *See* SBA, Programs and Services, SBA Pamphlet No. CO-0028, at page 40 (July 2002).

owned and operated and is not dominant in its field."[162] Nationwide, as of 2002, there were approximately 1.6 million small organizations.[163] The term "small governmental jurisdiction" is defined generally as "governments of cities, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand."[164] Census Bureau data for 2002 indicate that there were 87,525 local governmental jurisdictions in the United States.[165] We estimate that, of this total, 84,377 entities were "small governmental jurisdictions."[166] Thus, we estimate that most governmental jurisdictions are small.

1. Telecommunications Service Entities

a. Wireless Telecommunications Service Providers

12. Pursuant to 47 C.F.R. § 20.18(a), the Commission's 911 Service requirements are only applicable to Commercial Mobile Radio Service (CMRS) "[providers], excluding mobile satellite service operators, to the extent that they: (1) Offer real-time, two way switched voice service that is interconnected with the public switched network; and (2) Utilize an in-network switching facility that enables the provider to reuse frequencies and accomplish seamless hand-offs of subscriber calls. These requirements are applicable to entities that offer voice service to consumers by purchasing airtime or capacity at wholesale rates from CMRS licensees."

13. Below, for those services subject to auctions, we note that, as a general matter, the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Also, the Commission does not generally track subsequent business size unless, in the context of assignments or transfers, unjust enrichment issues are implicated.

14. *Wireless Telecommunications Carriers (except Satellite)*. Since 2007, the Census Bureau has placed wireless firms within this new, broad, economic census category. Prior to that time, such firms were within the now-superseded categories of "Paging" and "Cellular and Other Wireless Telecommunications." Under the present and prior categories, the SBA has deemed a wireless business to be small if it has 1,500 or fewer employees. Because Census Bureau data are not yet available for the new category, we will estimate small business prevalence using the prior categories and associated data. For the category of Paging, data for 2002 show that there were 807 firms that operated for the entire year. Of this total, 804 firms had employment of 999 or fewer employees, and three firms had employment of 1,000 employees or more. For the category of Cellular and Other Wireless Telecommunications, data for 2002 show that there were 1,397 firms that operated for the entire year. Of this total, 1,378 firms had employment of 999 or fewer employees, and 19 firms had employment of 1,000 employees or more. Thus, we estimate that the majority of wireless firms are small.

15. *Wireless Service Providers*. The SBA has developed a small business size standard for wireless firms within the two broad economic census categories of "Paging" and "Cellular and Other

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[162] 5 U.S.C. § 601(4).

[163] Independent Sector, The New Nonprofit Almanac & Desk Reference (2002).

[164] 5 U.S.C. § 601(5).

[165] U.S. Census Bureau, Statistical Abstract of the United States: 2006, Section 8, page 272, Table 415.

[166] We assume that the villages, school districts, and special districts are small, and total 48,558. *See* U.S. Census Bureau, Statistical Abstract of the United States: 2006, section 8, page 273, Table 417. For 2002, Census Bureau data indicate that the total number of county, municipal, and township governments nationwide was 38,967, of which 35,819 were small. *Id.*

Wireless Telecommunications." Under both categories, the SBA deems a wireless business to be small if it has 1,500 or fewer employees. For the census category of Paging, Census Bureau data for 2002 show that there were 807 firms in this category that operated for the entire year. Of this total, 804 firms had employment of 999 or fewer employees, and three firms had employment of 1,000 employees or more. Thus, under this category and associated small business size standard, the majority of firms can be considered small. For the census category of Cellular and Other Wireless Telecommunications, Census Bureau data for 2002 show that there were 1,397 firms in this category that operated for the entire year. Of this total, 1,378 firms had employment of 999 or fewer employees, and 19 firms had employment of 1,000 employees or more. Thus, under this second category and size standard, the majority of firms can, again, be considered small.

16. *Incumbent LECs.* Neither the Commission nor the SBA has developed a small business size standard specifically for incumbent LECs. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees. According to Commission data, 1,311 carriers have reported that they are engaged in the provision of incumbent local exchange services. Of these 1,311 carriers, an estimated 1,024 have 1,500 or fewer employees and 287 have more than 1,500 employees. Consequently, the Commission estimates that most providers of incumbent local exchange service are small businesses that may be affected by our action.

17. *Competitive LECs, Competitive Access Providers (CAPs), "Shared-Tenant Service Providers," and "Other Local Service Providers."* Neither the Commission nor the SBA has developed a small business size standard specifically for these service providers. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees. According to Commission data, 1,005 carriers have reported that they are engaged in the provision of either competitive access provider services or competitive LEC services. Of these 1,005 carriers, an estimated 918 have 1,500 or fewer employees and 87 have more than 1,500 employees. In addition, 16 carriers have reported that they are "Shared-Tenant Service Providers," and all 16 are estimated to have 1,500 or fewer employees. In addition, 89 carriers have reported that they are "Other Local Service Providers," and all 89, have 1,500 or fewer employees. Consequently, the Commission estimates that most providers of competitive local exchange service, competitive access providers, "Shared-Tenant Service Providers," and "Other Local Service Providers" are small entities.

18. *Broadband Personal Communications Service*. The broadband Personal Communications Service (PCS) spectrum is divided into six frequency blocks designated A through F, and the Commission has held auctions for each block. The Commission has created a small business size standard for Blocks C and F as an entity that has average gross revenues of less than $40 million in the three previous calendar years. For Block F, an additional small business size standard for "very small business" was added and is defined as an entity that, together with its affiliates, has average gross revenues of not more than $15 million for the preceding three calendar years. These small business size standards, in the context of broadband PCS auctions, have been approved by the SBA. No small businesses within the SBA-approved small business size standards bid successfully for licenses in Blocks A and B. There were 90 winning bidders that qualified as small entities in the C Block auctions. A total of 93 "small" and "very small" business bidders won approximately 40 percent of the 1,479 licenses for Blocks D, E, and F. In 1999, the Commission reauctioned 155 C, D, E, and F Block licenses; there were 113 small business winning bidders.

19. In 2001, the Commission completed the auction of 422 C and F Broadband PCS licenses in Auction 35. Of the 35 winning bidders in this auction, 29 qualified as "small" or "very small" businesses. Subsequent events concerning Auction 35, including judicial and agency determinations, resulted in a total of 163 C and F Block licenses being available for grant. In 2005, the Commission completed an auction of 188 C block licenses and 21 F block licenses in Auction 58. There were 24

winning bidders for 217 licenses. Of the 24 winning bidders, 16 claimed small business status and won 156 licenses. In 2007, the Commission completed an auction of 33 licenses in the A, C, and F Blocks in Auction 71. Of the 14 winning bidders, six were designated entities. In 2008, the Commission completed an auction of 20 Broadband PCS licenses in the C, D, E and F block licenses in Auction 78.

20. *Narrowband Personal Communications Service*. In 1994, the Commission conducted an auction for Narrowband PCS licenses. A second auction was also conducted later in 1994. For purposes of the first two Narrowband PCS auctions, "small businesses" were entities with average gross revenues for the prior three calendar years of $40 million or less. Through these auctions, the Commission awarded a total of 41 licenses, 11 of which were obtained by four small businesses. To ensure meaningful participation by small business entities in future auctions, the Commission adopted a two-tiered small business size standard in the Narrowband PCS Second Report and Order. A "small business" is an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than $40 million. A "very small business" is an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than $15 million. The SBA has approved these small business size standards. A third auction was conducted in 2001. Here, five bidders won 317 (Metropolitan Trading Areas and nationwide) licenses. Three of these claimed status as a small or very small entity and won 311 licenses.

21. *Specialized Mobile Radio*. The Commission awards "small entity" bidding credits in auctions for Specialized Mobile Radio (SMR) geographic area licenses in the 800 MHz and 900 MHz bands to firms that had revenues of no more than $15 million in each of the three previous calendar years. The Commission awards "very small entity" bidding credits to firms that had revenues of no more than $3 million in each of the three previous calendar years. The SBA has approved these small business size standards for the 900 MHz Service. The Commission has held auctions for geographic area licenses in the 800 MHz and 900 MHz bands. The 900 MHz SMR was completed in 1996. Sixty bidders claiming that they qualified as small businesses under the $15 million size standard won 263 geographic area licenses in the 900 MHz SMR band. The 800 MHz SMR auction for the upper 200 channels was conducted in 1997. Ten bidders claiming that they qualified as small businesses under the $15 million size standard won 38 geographic area licenses for the upper 200 channels in the 800 MHz SMR band. A second auction for the 800 MHz band was conducted in 2002 and included 23 BEA licenses. One bidder claiming small business status won five licenses.

22. The auction of the 1,050 800 MHz SMR geographic area licenses for the General Category channels was conducted in 2000. Eleven bidders won 108 geographic area licenses for the General Category channels in the 800 MHz SMR band qualified as small businesses under the $15 million size standard. In an auction completed in 2000, a total of 2,800 Economic Area licenses in the lower 80 channels of the 800 MHz SMR service were awarded . Of the 22 winning bidders, 19 claimed "small business" status and won 129 licenses. Thus, combining all three auctions, 40 winning bidders for geographic licenses in the 800 MHz SMR band claimed status as small business.

23. In addition, there are numerous incumbent site-by-site SMR licensees and licensees with extended implementation authorizations in the 800 and 900 MHz bands. We do not know how many firms provide 800 MHz or 900 MHz geographic area SMR pursuant to extended implementation authorizations, nor how many of these providers have annual revenues of no more than $15 million. One firm has over $15 million in revenues. In addition, we do not know how many of these firms have 1500 or fewer employees. We assume, for purposes of this analysis, that all of the remaining existing extended implementation authorizations are held by small entities, as that small business size standard is approved by the SBA.

24. *AWS Services (1710–1755 MHz and 2110–2155 MHz bands (AWS-1); 1915–1920 MHz, 1995–2000 MHz, 2020–2025 MHz and 2175–2180 MHz bands (AWS-2); 2155–2175 MHz band (AWS-3))*. For the AWS-1 bands, the Commission has defined a "small business" as an entity with average

annual gross revenues for the preceding three years not exceeding $40 million, and a "very small business" as an entity with average annual gross revenues for the preceding three years not exceeding $15 million. For AWS-2 and AWS-3, although we do not know for certain which entities are likely to apply for these frequencies, we note that the AWS-1 bands are comparable to those used for cellular service and personal communications service. The Commission has not yet adopted size standards for the AWS-2 or AWS-3 bands but proposes to treat both AWS-2 and AWS-3 similarly to broadband PCS service and AWS-1 service due to the comparable capital requirements and other factors, such as issues involved in relocating incumbents and developing markets, technologies, and services.

25. *Rural Radiotelephone Service*. The Commission has not adopted a size standard for small businesses specific to the Rural Radiotelephone Service. A significant subset of the Rural Radiotelephone Service is the Basic Exchange Telephone Radio System ("BETRS"). In the present context, we will use the SBA's small business size standard applicable to Wireless Telecommunications Carriers (except Satellite), i.e., an entity employing no more than 1,500 persons.[167] There are approximately 1,000 licensees in the Rural Radiotelephone Service, and the Commission estimates that there are 1,000 or fewer small entity licensees in the Rural Radiotelephone Service that may be affected by the rules and policies adopted herein.

26. *Wireless Communications Services*. This service can be used for fixed, mobile, radiolocation, and digital audio broadcasting satellite uses in the 2305-2320 MHz and 2345-2360 MHz bands. The Commission defined "small business" for the wireless communications services (WCS) auction as an entity with average gross revenues of $40 million for each of the three preceding years, and a "very small business" as an entity with average gross revenues of $15 million for each of the three preceding years. The SBA has approved these definitions. The Commission auctioned geographic area licenses in the WCS service. In the auction, which commenced on April 15, 1997 and closed on April 25, 1997, there were seven bidders that won 31 licenses that qualified as very small business entities, and one bidder that won one license that qualified as a small business entity.

27. *220 MHz Radio Service – Phase I Licensees*. The 220 MHz service has both Phase I and Phase II licenses. Phase I licensing was conducted by lotteries in 1992 and 1993. There are approximately 1,515 such non nationwide licensees and four nationwide licensees currently authorized to operate in the 220 MHz Band. The Commission has not developed a definition of small entities specifically applicable to such incumbent 220 MHz Phase I licensees. To estimate the number of such licensees that are small businesses, we apply the small business size standard under the SBA rules applicable to Wireless Telecommunications Carriers (except Satellite). This category provides that a small business is a wireless company employing no more than 1,500 persons. The Commission estimates that most such licensees are small businesses under the SBA's small business standard.

28. *220 MHz Radio Service – Phase II Licensees*. The 220 MHz service has both Phase I and Phase II licenses. The Phase II 220 MHz service is a new service, and is subject to spectrum auctions. In the 220 MHz Third Report and Order, the Commission adopted a small business size standard for defining "small" and "very small" businesses for purposes of determining their eligibility for special provisions such as bidding credits and installment payments. This small business standard indicates that a "small business" is an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding $15 million for the preceding three years. A "very small business" is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues that do not exceed $3 million for the preceding three years. The SBA has approved these small size standards. Auctions of Phase II licenses commenced on and closed in 1998. In the first auction, 908 licenses were auctioned in three different sized geographic areas: three nationwide licenses, 30 Regional

[167] NAICS Code 51210.

Economic Area Group (EAG) Licenses, and 875 Economic Area (EA) Licenses. Of the 908 licenses auctioned, 693 were sold. Thirty-nine small businesses won 373 licenses in the first 220 MHz auction. A second auction included 225 licenses: 216 EA licenses and 9 EAG licenses. Fourteen companies claiming small business status won 158 licenses. A third auction included four licenses: 2 BEA licenses and 2 EAG licenses in the 220 MHz Service. No small or very small business won any of these licenses. In 2007, the Commission conducted a fourth auction of the 220 MHz licenses. Bidding credits were offered to small businesses. A bidder with attributed average annual gross revenues that exceeded $3 million and did not exceed $15 million for the preceding three years ("small business") received a 25 percent discount on its winning bid. A bidder with attributed average annual gross revenues that did not exceed $3 million for the preceding three years received a 35 percent discount on its winning bid ("very small business"). Auction 72, which offered 94 Phase II 220 MHz Service licenses, concluded in 2007. In this auction, five winning bidders won a total of 76 licenses. Two winning bidders identified themselves as very small businesses won 56 of the 76 licenses. One of the winning bidders that identified themselves as a small business won 5 of the 76 licenses won.

29. *700 MHz Guard Band Licenses*. In the 700 MHz Guard Band Order, the Commission adopted size standards for "small businesses" and "very small businesses" for purposes of determining their eligibility for special provisions such as bidding credits and installment payments. A small business in this service is an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding $40 million for the preceding three years. Additionally, a "very small business" is an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than $15 million for the preceding three years. SBA approval of these definitions is not required. In 2000, the Commission conducted an auction of 52 Major Economic Area ("MEA") licenses. Of the 104 licenses auctioned, 96 licenses were sold to nine bidders. Five of these bidders were small businesses that won a total of 26 licenses. A second auction of 700 MHz Guard Band licenses commenced and closed in 2001. All eight of the licenses auctioned were sold to three bidders. One of these bidders was a small business that won a total of two licenses.

30. *Upper 700 MHz Band Licenses*. In the 700 MHz Second Report and Order, the Commission revised its rules regarding Upper 700 MHz licenses. On January 24, 2008, the Commission commenced Auction 73 in which several licenses in the Upper 700 MHz band were available for licensing: 12 Regional Economic Area Grouping licenses in the C Block, and one nationwide license in the D Block. The auction concluded on March 18, 2008, with 3 winning bidders claiming very small business status (those with attributable average annual gross revenues that do not exceed $15 million for the preceding three years) and winning five licenses.

31. *Lower 700 MHz Band Licenses*. The Commission adopted criteria for defining three groups of small businesses for purposes of determining their eligibility for special provisions such as bidding credits. The Commission has defined a small business as an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding $40 million for the preceding three years. A very small business is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than $15 million for the preceding three years. Additionally, the Lower 700 MHz Band has a third category of small business status that may be claimed for Metropolitan/Rural Service Area (MSA/RSA) licenses. The third category is entrepreneur, which is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than $3 million for the preceding three years. The SBA has approved these small size standards. An auction of 740 licenses (one license in each of the 734 MSAs/RSAs and one license in each of the six Economic Area Groupings (EAGs)) commenced on August 27, 2002, and closed on September 18, 2002. Of the 740 licenses available for auction, 484 licenses were sold to 102 winning bidders. Seventy-two of the winning bidders claimed small business, very small business or entrepreneur status and won a total of 329 licenses. A second auction commenced on May 28, 2003, and closed on June 13, 2003, and included 256 licenses: 5 EAG licenses and 476 CMA

licenses. Seventeen winning bidders claimed small or very small business status and won sixty licenses, and nine winning bidders claimed entrepreneur status and won 154 licenses.

32. *Offshore Radiotelephone Service*. This service operates on several ultra high frequencies ("UHF") television broadcast channels that are not used for television broadcasting in the coastal areas of states bordering the Gulf of Mexico. There is presently 1 licensee in this service. We do not have information whether that licensee would qualify as small under the SBA's small business size standard for Wireless Telecommunications Carriers (except Satellite) services. Under that SBA small business size standard, a business is small if it has 1,500 or fewer employees.

33. *Wireless Telephony*. Wireless telephony includes cellular, personal communications services (PCS), and specialized mobile radio (SMR) telephony carriers. As noted, the SBA has developed a small business size standard for Wireless Telecommunications Carriers (except Satellite). Under that SBA small business size standard, a business is small if it has 1,500 or fewer employees. According to Trends in Telephone Service data, 434 carriers reported that they were engaged in wireless telephony. Of these, an estimated 222 have 1,500 or fewer employees and 212 have more than 1,500 employees. We have estimated that 222 of these are small under the SBA small business size standard.

34. *Satellite Telecommunications and All Other Telecommunications*. These two economic census categories address the satellite industry. The first category has a small business size standard of $13.5 million or less in average annual receipts, under SBA rules.[168] The second has a size standard of $23.5 million or less in annual receipts.[169] The most current Census Bureau data in this context, however, are from the (last) economic census of 2002, and we will use those figures to gauge the prevalence of small businesses in these categories.

35. The category of Satellite Telecommunications "comprises establishments primarily engaged in providing telecommunications services to other establishments in the telecommunications and broadcasting industries by forwarding and receiving communications signals via a system of satellites or reselling satellite telecommunications." For this category, Census Bureau data for 2002 show that there were a total of 371 firms that operated for the entire year. Of this total, 307 firms had annual receipts of under $10 million, and 26 firms had receipts of $10 million to $24,999,999. Consequently, we estimate that the majority of Satellite Telecommunications firms are small entities that might be affected by our action.

36. The second category of All Other Telecommunications comprises, inter alia, "establishments primarily engaged in providing specialized telecommunications services, such as satellite tracking, communications telemetry, and radar station operation. This industry also includes establishments primarily engaged in providing satellite terminal stations and associated facilities connected with one or more terrestrial systems and capable of transmitting telecommunications to, and receiving telecommunications from, satellite systems." For this category, Census Bureau data for 2002 show that there were a total of 332 firms that operated for the entire year. Of this total, 303 firms had annual receipts of under $10 million and 15 firms had annual receipts of $10 million to $24,999,999. Consequently, we estimate that the majority of All Other Telecommunications firms are small entities that might be affected by our action.

37. *Computer Systems Design and Related Services*. This industry comprises establishments primarily engaged in providing expertise in the field of information technologies through one or more of the following activities: (1) writing, modifying, testing, and supporting software to meet the needs of a particular customer; (2) planning and designing computer systems that integrate computer hardware,

[168] NAICS Code 517410.

[169] NAICS Code 517919.

software, and communication technologies; (3) on-site management and operation of clients' computer systems and/or data processing facilities; and (4) other professional and technical computer-related advice and services.

b. Wireline Carriers and Service Providers

38. We have included small incumbent local exchange carriers (LECs) in this present RFA analysis. As noted above, a "small business" under the RFA is one that, inter alia, meets the pertinent small business size standard (e.g., a telephone communications business having 1,500 or fewer employees) and "is not dominant in its field of operation." The SBA's Office of Advocacy contends that, for RFA purposes, small incumbent LECs are not dominant in their field of operation because any such dominance is not "national" in scope. We have therefore included small incumbent LECs in this RFA analysis, although we emphasize that this RFA action has no effect on Commission analyses and determinations in other, non-RFA contexts.

39. *Incumbent LECs.* Neither the Commission nor the SBA has developed a small business size standard specifically for incumbent LECs. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees. According to Commission data, 1,311 carriers have reported that they are engaged in the provision of incumbent local exchange services. Of these 1,311 carriers, an estimated 1,024 have 1,500 or fewer employees and 287 have more than 1,500 employees. Consequently, the Commission estimates that most providers of incumbent local exchange service are small businesses that may be affected by our action.

40. *Competitive LECs, Competitive Access Providers (CAPs), "Shared-Tenant Service Providers," and "Other Local Service Providers."* Neither the Commission nor the SBA has developed a small business size standard specifically for these service providers. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees. According to Commission data, 1,005 carriers have reported that they are engaged in the provision of either competitive access provider services or competitive LEC services. Of these 1,005 carriers, an estimated 918 have 1,500 or fewer employees and 87 have more than 1,500 employees. In addition, 16 carriers have reported that they are "Shared-Tenant Service Providers," and all 16 are estimated to have 1,500 or fewer employees. In addition, 89 carriers have reported that they are "Other Local Service Providers," and all 89, have 1,500 or fewer employees. Consequently, the Commission estimates that most providers of competitive local exchange service, competitive access providers, "Shared-Tenant Service Providers," and "Other Local Service Providers" are small entities.

c. Equipment Manufacturers

41. *Wireless Communications Equipment Manufacturing.* The Census Bureau defines this category as follows: "This industry comprises establishments primarily engaged in manufacturing radio and television broadcast and wireless communications equipment. Examples of products made by these establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment."[170] The SBA has developed a small business size standard for Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing, which is: all such firms having 750 or fewer employees.[171] According to Census Bureau data for 2002, there were a total of

[170] U.S. Census Bureau, 2002 NAICS Definitions, "334220 Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing"; http://www.census.gov/epcd/naics02/def/NDEF334.HTM#N3342.

[171] 13 C.F.R. § 121.201, NAICS code 334220.

1,041 establishments in this category that operated for the entire year.[172] Of this total, 1,010 had employment of under 500, and an additional 13 had employment of 500 to 999.[173] Thus, under this size standard, the majority of firms can be considered small.

42. *Semiconductor and Related Device Manufacturing.* These establishments manufacture "computer storage devices that allow the storage and retrieval of data from a phase change, magnetic, optical, or magnetic/optical media."[174] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees.[175] According to Census Bureau data for 1997, there were 1,082 establishments in this category that operated for the entire year.[176] Of these, 987 had employment of under 500, and 52 establishments had employment of 500 to 999.

D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities

43. In the Second Report and Order we require the provision of confidence and uncertainty data by carriers on a per call basis upon PSAP request beginning two years after the effective date of the order. Additionally, carriers must submit a list of specific counties or portions of counties where they utilize exclusions within 90 days following approval from the Office of Management and Budget for the related information collection. Some carriers may have to revise their internal recordkeeping procedures to comply with the Order's requirements, although the Order imposes no specific requirements in this regard.

E. Steps Taken to Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered

44. The RFA requires an agency to describe any significant, specifically small business alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): "(1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) and exemption from coverage of the rule, or any part thereof, for small entities."[177]

45. In the *Notice*, the Commission specifically considered the impact of potential revisions to the wireless E911 accuracy rules on small entities. The *Notice* asked whether certain classes of carriers

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[172] U.S. Census Bureau, American FactFinder, 2002 Economic Census, Industry Series, Industry Statistics by Employment Size, NAICS code 334220 (released May 26, 2005); http://factfinder.census.gov. The number of "establishments" is a less helpful indicator of small business prevalence in this context than would be the number of "firms" or "companies," because the latter take into account the concept of common ownership or control. Any single physical location for an entity is an establishment, even though that location may be owned by a different establishment. Thus, the numbers given may reflect inflated numbers of businesses in this category, including the numbers of small businesses. In this category, the Census breaks-out data for firms or companies only to give the total number of such entities for 2002, which was 929.

[173] *Id*. An additional 18 establishments had employment of 1,000 or more.

[174] U.S. Census Bureau, "2002 NAICS Definitions: 334413 Semiconductor and Related Device Manufacturing" (Feb. 2004) <www.census.gov>.

[175] 13 C.F.R. § 121.201, NAICS code 334413.

[176] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Semiconductor and Related Device Manufacturing ," Table 4, NAICS code 334413 (issued July 1999).

[177] 5 U.S.C. §§ 603(c)(1)-(c)(4).

and/or rural networks should be held to a uniform standard of accuracy if the Commission were to adopt one, and if so, by what date they should be required to come into compliance with a more stringent, uniform accuracy requirement.[178] The questions posed in the *Notice* enabled the Commission to assess whether similar concessions to small entities were warranted with respect to wireless E911 accuracy requirements.

46. The Commission has determined that the benefits of requiring all CMRS carriers to comply with the requirements of Section 20.18(h) at the county or PSAP service area level far outweigh any burdens associated with implementing these requirements. E911 represents a significant and valuable investment that enables emergency responders to reach the site of an emergency as quickly as possible. We acknowledge that compliance with the rule adopted in the order may impose cost burdens on small entities. However, given the great public interest benefits of the rules, we find that the public interest benefits outweigh the economic burdens of providing greater location accuracy. Furthermore, the order gives an ample amount of time – five years for network-based solutions and eight years for handset-based solutions - to come into compliance with section 20.18(h) at the county or PSAP level, in part because we have taken into account the specific economic and technological concerns that small entities face. We considered the alternative of requiring a shorter timeframe for compliance; however, the adopted timeframes were the best possible balance between the need for accurate location data and the economic and technological concerns of carriers. We also allowed for carriers to make exceptions for areas that lack triangulation ability and those that are heavily forested. This should allow smaller carriers the ability to mitigate any negative economic impacts that might affect their ability to comply in all areas that they serve.

47. Additionally, by allowing the option for carriers to comply at either the county or PSAP level, we permit carriers to take into account natural and network topographies (such as foliage levels, terrain, cell site density, etc.) and the respective impact of their location technologies choices. Therefore, permitting carriers the option to choose between PSAP-level compliance and county-level compliance maximizes the ability of carriers to use current technology to meet the location accuracy standard of section 20.18(h), further lessening the burden on small entities.

48. We addressed alternative rules in the Second Report and Order, and determined that the benefits afforded by the adoption of these rules would not be achieved under any alternatives rules. The rules adopted in the Second Report and Order include compliance timeframes, limitations and exemptions that will allow carriers a measure of flexibility to account for technical and cost-related concerns.[179]

49. Finally, in the event that small entities face unique circumstances with regard to these rules, such entities may request waiver relief from the Commission. Accordingly, we find that we have discharged our duty to consider the burdens imposed on small entities.

50. **Report to Congress:** The Commission will send a copy of the Second Report and Order, including this FRFA, in a report to be sent to Congress and the Government Accountability Office pursuant to the Congressional Review Act.[180] In addition, the Commission will send a copy of the Second Report and Order, including this FRFA, to the Chief Counsel for Advocacy of the SBA. A copy of the Second Report and Order and FRFA (or summaries thereof) will also be published in the Federal Register.[181]

[178] *See* Notice at 6 ¶ 13.

[179] *See* discussion at ¶¶ 25-27.

[180] *See* 5 U.S.C. § 801(a)(1)(A).

[181] *See* 5 U.S.C. § 604(b).

APPENDIX C

Final Rules

Part 20 of the Code of Federal Regulations is amended as follows:

PART 20 – COMMERCIAL MOBILE RADIO SERVICES

2. The authority for Part 20 remains unchanged.

3. Section 20.18(h) is amended to read as follows:

* * *

(h) *Phase II accuracy*. Licensees subject to this section shall comply with the following standards for Phase II location accuracy and reliability, to be tested and measured either at the county or at the PSAP service area geographic level, based on outdoor measurements only:

(1) Network-Based Technologies:

(A) 100 meters for 67 percent of calls, consistent with the following benchmarks:

(i) One year from [effective date of the Order], carriers shall comply with this standard in 60 percent of counties or PSAP service areas. These counties or PSAP service areas must cover at least 70 percent of the population covered by the carrier across its entire network. Compliance will be measured on a per-county or per-PSAP basis using, at the carrier's election, either (1) network-based accuracy data, or (2) blended reporting as provided in paragraph (h)(1)(D) of this section.

(ii) Three years from [effective date of the Order], carriers shall comply with this standard in 70 percent of counties or PSAP service areas. These counties or PSAP service areas must cover at least 80 percent of the population covered by the carrier across its entire network. Compliance will be measured on a per-county or per-PSAP basis using, at the carrier's election, either (1) network-based accuracy data, or (2) blended reporting as provided in paragraph (h)(1)(D) of this section.

(iii) Five years from [effective date of the Order], carriers shall comply with this standard in 100% of counties or PSAP service areas covered by the carrier. Compliance will be measured on a per-county or per-PSAP basis, using, at the carrier's election, either (1) network-based accuracy data, (2) blended reporting as provided in paragraph (h)(1)(D) of this section, or (3) handset-based accuracy data as provided in paragraph (h)(1)(E) of this section.

(B) 300 meters for 90 percent of calls, consistent with the following benchmarks:

(i) Three years from [effective date of the Order], carriers shall comply with this standard in 60 percent of counties or PSAP service areas. These counties or PSAP service areas must cover at least 70 percent of the population covered by the carrier across its entire network. Compliance will be measured on a per-county or per-PSAP basis using, at the carrier's election, either (1) network-based accuracy data, or (2) blended reporting as provided in paragraph (h)(1)(D) of this section.

(ii) Five years from [effective date of the Order], carriers shall comply in 70 percent of counties or PSAP service areas. These counties or PSAP service areas must cover at least 80 percent of the population covered by the carrier across its entire network. Compliance will be measured on a per-county or per-PSAP basis using, at the carrier's election, either (1) network-based accuracy data, or (2) blended reporting as provided in paragraph (h)(1)(D) of this section.

(iii) Eight years from [effective date of the Order], carriers shall comply in 85 percent of counties or PSAP service areas. Compliance will be measured on a per-county or per-PSAP basis using, at the carrier's election, either (1) network-based accuracy data, (2) blended reporting as provided in paragraph (h)(1)(D) of this section, or (3) handset-based accuracy data as provided in paragraph (h)(1)(E) of this section.

(C) County-level or PSAP-level location accuracy standards for network-based technologies will be applicable to those counties or PSAP service areas, on an individual basis, in which a network-based carrier has deployed Phase II in at least one cell site located within a county's or PSAP service area's boundary. Compliance with the requirements of paragraph (h)(1)(A) and paragraph (h)(1)(B) of this section shall be measured and reported independently.

(D) Accuracy data from both network-based solutions and handset-based solutions may be blended to measure compliance with the accuracy requirements of paragraph (h)(1)(A)(i)-(iii) and paragraph (h)(1)(B)(i)-(iii) of this section. Such blending shall be based on weighting accuracy data in the ratio of assisted GPS ("A-GPS") handsets to non-A-GPS handsets in the carrier's subscriber base. The weighting ratio shall be applied to the accuracy data from each solution and measured against the network-based accuracy requirements of paragraph (h)(1) of this section.

(E) A carrier may rely solely on handset-based accuracy data in any county or PSAP service area if at least 85 percent of its subscribers, network-wide, use A-GPS handsets, or if it offers A-GPS handsets to subscribers in that county or PSAP service area at no cost to the subscriber.

(F) A carrier may exclude from compliance particular counties, or portions of counties, where triangulation is not technically possible, such as locations where at least three cell sites are not sufficiently visible to a handset. Carriers must file a list of the specific counties or portions of counties where they are utilizing this exclusion within 90 days following approval from the Office of Management and Budget for the related information collection. This list must be submitted electronically into PS Docket No. 07-114, and copies must be sent to the National Emergency Number Association, the Association of Public-Safety Communications Officials-International, and the National Association of State 9-1-1 Administrators. Further, carriers must submit in the same manner any changes to their exclusion lists within thirty days of discovering such changes. This exclusion will sunset on [8 years after effective date].

(2) Handset-Based Technologies:

(A) Two years from [effective date of the Order], 50 meters for 67 percent of calls, and 150 meters for 80 percent of calls, on a per-county or per-PSAP basis. However, a carrier may exclude up to 15 percent of counties or PSAP service areas from the 150 meter requirement based upon heavy forestation that limits handset-based technology accuracy in those counties or PSAP service areas.

(B) Eight years from [effective date of the Order], 50 meters for 67 percent of calls, and 150 meters for 90 percent of calls, on a per-county or per-PSAP basis. However, a carrier may exclude up to 15 percent of counties or PSAP service areas from the 150 meter requirement based upon heavy forestation that limits handset-based technology accuracy in those counties or PSAP service areas. Carriers must file a list of the specific counties or PSAP service areas where they are utilizing this

exclusion within 90 days following approval from the Office of Management and Budget for the related information collection. This list must be submitted electronically into PS Docket No. 07-114, and copies must be sent to the National Emergency Number Association, the Association of Public-Safety Communications Officials-International, and the National Association of State 9-1-1 Administrators. Further, carriers must submit in the same manner any changes to their exclusion lists within thirty days of discovering such changes.

(3) Confidence and Uncertainty Data: Two years after [effective date of the Order], all carriers subject to this section shall be required to provide confidence and uncertainty data on a per-call basis upon the request of a PSAP. Once a carrier has established baseline confidence and uncertainty levels in a county or PSAP service area, ongoing accuracy shall be monitored based on the trending of uncertainty data and additional testing shall not be required. All entities responsible for transporting confidence and uncertainty between wireless carriers and PSAPs, including LECs, CLECs, owners of E911 networks, and emergency service providers (collectively, System Service Providers (SSPs)) must implement any modifications that will enable the transmission of confidence and uncertainty data provided by wireless carriers to the requesting PSAP. If an SSP does not pass confidence and uncertainty data to PSAPs, the SSP has the burden of proving that it is technically infeasible for it to provide such data.

STATEMENT OF
CHAIRMAN JULIUS GENACHOWSKI

RE: *Wireless E911 Location Accuracy Requirements, Second Report and Order*, PS Docket No. 07-114.

When Americans call 9-1-1- from their landlines, first responders receive location information that's accurate more than 98% of the time. When Americans call 9-1-1 from their mobile phones, first responders are about 50% less likely to receive precise information about your location. Fifty percent.

The inaccuracy is not just a few feet, but up to one or two miles—and sometimes no location information at all.

Meanwhile, more and more 9-1-1- calls are being made from mobile phones – over 425,000 mobile 9-1-1- calls every day, and rising.

What does that mean in practical terms?

Yesterday, I had a chance to visit with the men and women who answer 9-1-1 calls at the McConnell Public Safety Operations Center in Fairfax, Virginia – and I saw, up close, the challenge of dealing with increasingly mobile 9-1-1- calls.

The Officers I met with said that when they don't receive accurate location data as part of a wireless 9-1-1 call, it can cost the first responders six minutes in delay trying to locate the caller. Sometimes more. Precious minutes that can be the difference between life and death.

Now, mobile telephones play a vital and positive role in our emergency safety system. Mobile phones let people call 9-1-1- from places where there are no landlines readily available, enhancing public safety.

And like any new technology, they create new issues, like distracted driving and the location-accuracy issue we are tackling today.

The order we adopt today makes location-accuracy requirements more stringent for wireless service providers. This will give first responders a better chance at locating callers much faster. It will enhance the public's safety.

And we have more work to do. Our *Further Notice* launches an inquiry on how to improve *indoor* location accuracy, and our *NOI* accelerates our work on how new and developing broadband technologies can help Americans reach 9-1-1 wherever they may be.

Our actions today fulfill another recommendation of the National Broadband Plan.

One final point on mobile 9-1-1 location accuracy. When I was in Fairfax yesterday, the public safety officers described ways that people can help first responders, and themselves, when they are making 9-1-1 calls from mobile phones.

Try to pay attention to landmarks, and mile markers on highways for example; remember the floor you're on in a tall building.

I have instructed our Public Safety and Consumer Bureaus to develop, together with the public safety community, a fact sheet for consumers with helpful information on mobile 9-1-1 calls. We will soon

have this on our website and work together with the public safety community on ways to pursue this education initiative – to help mobile 9-1-1 callers better and more quickly locate them in times of emergency.

I thank the staff for its great and ongoing work in this area. I look forward to continuing to work very closely with the public safety community, wireless service providers, and consumer advocates to continue to harness technology to improve the 9-1-1 service.

STATEMENT OF
COMMISSIONER MICHAEL J. COPPS

RE: *Wireless E911 Location Accuracy Requirements, Second Report and Order*, PS Docket No. 07-114.

I welcome these steps forward as we work to enhance the safety of the American people—always Job One for the FCC. Enhanced 911 saves lives. Experience has shown us that. The steps we take today will further improve the ability of first responders accurately to locate wireless E911 callers in emergencies. We do so based on a solid record and with a practical approach that relies on currently available technologies. More importantly, our actions reflect a general consensus among important E911 stakeholders—including the Association of Public-Safety Communications Officials and the National Emergency Number Association—on how to get this job done. So it's action time and today we take action.

We have come a good long distance since I came to the agency in 2001. I arrived at a time when carriers were regularly missing deadlines for deploying E911, manufacturers were failing to make equipment and software available quickly enough, and technology was still pretty basic. The Commission has been generally aggressive in recent years in encouraging all stakeholders and players to push the envelope and accomplish what needs to be accomplished to make Enhanced E911 a reality. With life-critical technology like E911, we must always do better than "business as usual." We must make the extra effort, expend the necessary resources and keep the objective front-and-center. With the consensus adopted in today's Order, I think we are clearly on the right road.

While I support today's decision, including its recognition of the unique challenges facing rural and remote communities, I remain worried. We allow, for example, network-based carriers to exclude from location accuracy compliance those counties where triangulation is not technically feasible. I understand that the technology and infrastructure in a given area today may not allow a carrier to comply with the specific location accuracy targets we require. That said, locating emergency callers living in rural America is no less important than locating emergency callers in other parts of the country. I expect carriers, even in those areas excluded from location accuracy compliance, to take every step technologically possible to maximize location accuracy for E911 calls and to do it with the sense of urgency that the safety of the people compels. We must never lose sight of this particular challenge as we move forward with implementation of the National Broadband Plan and work to expand wireless infrastructure in rural America. More towers mean not only more broadband, but can also mean more accurate E911 . . . and more lives saved. I am pleased we recognize that rural Americans cannot be left in the lurch going forward. By setting a sunset date for the location accuracy exclusion, we encourage carriers and manufacturers to expand A-GPS handsets in their subscriber base, which will make the network-based exclusion unnecessary in the long term.

Today we also launch a separate and much-needed examination into the next phase of wireless E911 location accuracy and reliability. With the explosion of wireless usage, devices and applications, including those encompassing voice over Internet Protocol (VoIP), we seek comment on the ongoing evolution of wireless technologies and the implications for location accuracy. Consistent with the National Broadband Plan, we look at the impact of Next Generation 911 (NG911) deployment and its potential for location accuracy. The FCC should always be looking for ways to harness the benefits of technology advances to improve accuracy and speed of response in emergencies, and to provide more interoperable and integrated emergency response capabilities for PSAPs, hospitals and first responders.

The Chairman is to be commended for bringing this important item to the full Commission for consideration. I particularly want to thank the staff of the Public Safety and Homeland Security for their

hard work and thorough analysis. I look forward to working with my colleagues, with the staff and with all E911 stakeholders as we continue to strengthen E911 requirements and capabilities.

STATEMENT OF
COMMISSIONER ROBERT M. McDOWELL

RE: *Wireless E911 Location Accuracy Requirements, Second Report and Order*, PS Docket No. 07-114.

For some time now, I have strongly encouraged efforts to forge consensus on the technological challenges to improving the accuracy of locating wireless callers who face an emergency. I am delighted, therefore, that we have reached this day and I am pleased to support today's Report and Order. We are unanimously adopting rules that will satisfy the current needs of public safety personnel and the expectations of America's wireless consumers. I thank all the participants for sharing your expertise and knowledge on the complex issues discussed in this proceeding.

Given the great consumer demand for and constant technology upgrades to wireless services, the companion Further Notice of Proposed Rulemaking and Notice of Inquiry is the more important of the two documents we adopt today. We have an ongoing duty to ensure that consumers, industry and first responders will all benefit as more powerful products are developed and deployed.

I am pleased that the Commission is promoting a meaningful discussion on the longer term requirements for 911 capabilities. We are posing tough questions on the effect of location accuracy and automatic location identification improvements, including indoor testing capabilities, as well as the applicability of E911 requirements to additional wireless communications services, devices and applications, among other issues. As is reflected in the order we adopt today, harnessing the expertise of all interested stakeholders will serve the public interest and move all of us ahead to understand and solve these technological challenges in a straightforward, comprehensive and transparent manner.

Thank you to Jeff Cohen and Patrick Donovan for their leadership, as well as to the entire team in the Public Safety and Homeland Security Bureau for its important work.

STATEMENT OF
COMMISSIONER MIGNON L. CLYBURN

RE: *Wireless E911 Location Accuracy Requirements, Second Report and Order*, PS Docket No. 07-114.

As I have mentioned before, one of the top priorities of this agency should be the safety of consumers. The accuracy of wireless E-9-1-1 location services, has become an increasingly important public safety concern, because our citizens have become more dependent on their mobile wireless devices. This surge in the demand for mobile wireless services reflects, in large part, an increased demand for innovative broadband applications. But as the Fourteenth Report on Mobile Services highlights, this increased demand for mobile services, is also a result of more people opting to rely solely on their mobile wireless service for their communications needs. As the percentage of citizens who only rely on mobile services increases, so should our focus on improving the location accuracy of E-9-1-1 for emergency services.

The Order and Notices we adopt today, send important messages about the direction our communications industry should take with regard to improving E-9-1-1 services. As the history leading up to the Second Report and Order suggests, consensus by all stakeholders is a more effective way to make our citizens safer than litigation. I congratulate APCO, NENA, AT&T, Sprint, T-Mobile, and Verizon Wireless, for reaching a workable compromise on location accuracy standards, and for putting the safety of our citizens ahead of other interests.

The Further Notice of Proposed Rulemaking and Notice of Inquiry, demonstrate a comprehensive and balanced approach to promoting more accurate E-9-1-1 services. I was particularly pleased to see the Further Notice address the different problems that service providers face in challenging environments, such as certain rural areas. It may be the case, that all service providers, large and small, face technical challenges in providing E-9-1-1 services. It is also true however, that these problems are more acute in hard to serve areas, where 3G networks are not currently deployed. Therefore, we should promote improved location accuracy standards, while recognizing that different areas may require different approaches to achieving those standards. I was also pleased to see that both Notices recognize the importance of considering the interests of persons living with disabilities. I commend the parties, such as AT&T and CTIA, who urged all stakeholders to account for those interests in developing E-9-1-1 technical solutions.

The Notice of Inquiry properly asks about the feasibility of extending location accuracy requirements to the many new wireless devices and applications, that provide the equivalent of mobile telephony but because of technical classifications, are not subject to our E-9-1-1 rules. Consumers have come to expect, that they can make VoIP phone calls from their computers as well as from their iPhones and other smart phones. It is reasonable for them to expect that they can access E-9-1-1 services when using VoIP technology. The Commission should ensure that its E-9-1-1 rules adapt to keep pace with consumer expectations. I encourage large carriers, smaller service providers, and other stakeholders, to provide us with the relevant information we need to take a proper, thorough, look at this issue. I thank the staff of the Public Safety and Homeland Security Bureau for their hard work on these items.

STATEMENT OF
COMMISSIONER MEREDITH A. BAKER

RE: *Wireless E911 Location Accuracy Requirements, Second Report and Order*, PS Docket No. 07-114.

I am pleased to support today's *Second Report and Order*, *Further Notice of Proposed Rulemaking*, and *Notice of Inquiry*. More than a decade ago, one of the first bills I ever worked on in Washington made 911 the national emergency number for mobile as well as fixed numbers. Fast forward to today when one of every four American homes has *only* wireless telephone service and standardizing access to emergency response services has become even more critical.[182] And, even in households that have both fixed and wireless service, one in seven receives all or nearly all calls on wireless telephones.[183]

Americans aren't just *receiving* calls on their wireless phones, either. Comments in our record reveal that in states such as Virginia and Texas, large majorities of 911 calls were *placed* on wireless phones. Those consumers, and countless others in emergency situations, will be safer and more secure as we require heightened standards for wireless carriers to ensure effective location of 911 callers.

I applaud the industry-wide cooperation in making these standards a reality. I also support the Commission's practical approach in allowing a carrier to blend network-based location data with A-GPS handset-based accuracy data to achieve the new Phase II network-based benchmarks.

However, it is important to note that these standards apply only to calls made outdoors. Today's *FNPRM* rightly inquires about the state of location-based technology and whether the FCC should consider enhancing E911 services for consumers placing 911 calls from indoor and in-building locations. Heightened standards for locating emergency indoor callers could materially enhance the ability of first responders to provide assistance and save lives.

Today's *Notice of Inquiry* also asks whether to extend 911 and E911 requirements beyond interconnected VoIP services, as defined by the Commission, to portable VoIP services and additional IP-based devices, services and applications. While these are important questions, I am cautious about the extent of the Commission's jurisdiction in this area.

I want to thank the staff of the Public Safety and Homeland Security Bureau for its work on this item. I look forward to working with my Commission colleagues on continuing to improve E911 public safety initiatives.

[182] Stephen J. Blumberg & Julian V. Luke, *Wireless Substitution: Early Release of Estimates from the National Health Interview Survey, July-December 2009*, at 1 (May 12, 2010) National Center for Health Statistics, Centers for Disease Control and Prevention. (available at: http://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless200905.pdf) (Last visited September 22, 2010).

[183] *Wireless Substitution: Early Release of Estimates from the National Health Interview Study*, *supra*, at 5.

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
	)	

FURTHER NOTICE OF PROPOSED RULEMAKING AND NOTICE OF INQUIRY

Adopted: September 23, 2010 **Released: September 23, 2010**

Comment Date: [60 days after date of publication in the Federal Register]
Reply Comment Date: [90 days after date of publication in the Federal Register]

By the Commission: By the Commission: Chairman Genachowski and Commissioners Copps, McDowell, Clyburn, and Baker issuing separate statements.

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I. INTRODUCTION

1. As mobile communications technology evolves, one of the great potential benefits it provides is to enhance the public's ability to contact emergency services personnel during times of crisis. To ensure this benefit is realized, such technology must enable public safety personnel to obtain accurate information regarding the location of the caller. The Commission's existing Enhanced 911 (E911) rules require wireless carriers to meet standards for provision of location information when emergency calls are made via mobile telephone networks. In the companion Second Report and Order adopted today, we

strengthen these standards by requiring wireless carriers to provide more specific automatic location information to 911 call centers in areas where they have not done so in the past. In this Further Notice of Proposed Rulemaking (FNPRM) and Notice of Inquiry (NOI), as recommended in the National Broadband Plan,[1] we explore how to further improve the location capability of 911 and E911 services for existing and new voice communications technologies, including new broadband technologies associated with deployment of Next Generation 911 (NG911) networks. Our aim is to ensure that the Commission is doing everything within its power, in conjunction with the public safety community and service providers, to ensure that Americans have access to the most forward-thinking technologically advanced emergency response systems in the world.

2. Today we take additional steps to improve wireless E911 location accuracy and reliability by examining the next stage of potential regulations that would be commensurate with the surge in wireless usage, encompassing additional voice over Internet Protocol (VoIP) and wireless services, devices, and applications. In this FNPRM and NOI, we seek comment on several issues with regard to amending the Commission's wireless 911 and E911 requirements and extending 911 and E911 requirements to additional VoIP and wireless services. In our continuing endeavor to ensure that wireless E911 service meets the needs of the American people and public safety, we request comment on the ongoing evolution in the use of wireless devices and the development of location technologies. As recommended in the National Broadband Plan,[2] the issues we examine also address the impact of NG911 deployment on 911 and E911 location accuracy requirements. NG911 will integrate the core functions and capabilities of E911 while adding new 911 capabilities in multiple formats, such as texting, photos, video and e-mail. This will vastly improve the quality and speed of response, and provide a more interoperable and integrated emergency response capability for PSAPs, first responders, hospitals and other emergency response professionals.[3]

3. First, in the FNPRM, we seek comment on proposals to improve wireless location accuracy. In this regard, the FNPRM builds upon the second part of the preceding Notice of Proposed Rulemaking that the Commission released on June 1, 2007.[4] We seek comment on a number of issues initially raised in the *Location Accuracy NPRM*, including: whether we should consider more stringent location parameters in Section 20.18(h) of the Commission's rules, which specifies the standards for wireless E911 Phase II location accuracy and reliability; what methodology carriers should employ to verify compliance, both initially and during ongoing testing; the format in which accuracy data should be automatically provided to PSAPs; how to address location accuracy while roaming; how location information and accuracy can be improved in more challenging environments; and whether location accuracy standards should include an elevation (Z-axis) component.

4. In the NOI, we request comment on whether we should require interconnected VoIP service providers to automatically identify the geographic location of a customer without the customer's active cooperation. We also seek comment on what E911 obligations, if any, should apply to VoIP services that are not fully interconnected to the public switched telephone network (PSTN). Additionally, we seek comment on the impact of NG911 developments on location accuracy and automatic location identification (ALI). Finally, we request comment on the applicability of 911 and E911 requirements to

[1] Federal Communications Commission, National Broadband Plan: Connecting America, Recommendation 16.15, at 326 (rel. Mar. 16, 2010) (National Broadband Plan*)*.

[2] *Id.*

[3] *See id*. at 323.

[4] Wireless E911 Location Accuracy Requirements; Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems for IP-Enabled Service Providers, PS Docket No. 07-114, CC Docket No. 94-102, WC Docket No. 05-196, *Notice of Proposed Rulemaking,* 22 FCC Rcd 10609, 10613-16 ¶¶ 8-19 (2007) (*Location Accuracy NPRM*).

additional wireless communications services, devices and applications.

II. BACKGROUND

5. In this section, we review the prior Commission actions leading up to the present rules and proposals concerning 911 and E911 requirements for wireless and VoIP services. The Commission has adopted rules requiring commercial wireless carriers to provide both basic 911 service, which connects the caller to a PSAP, and E911 service, which provides call-back and location information. The E911 information requirements consist of two parts: Phase I – which requires wireless carriers to deliver to a PSAP the telephone number of the wireless 911 caller and the location of the cell site or base station that received the call, and Phase II – which requires wireless carriers to provide the location (latitude and longitude) of the caller within particular accuracy parameters, depending on the location technology that the carriers have chosen.[5] In its initial *E911 Report and Order*, released on July 26, 1996, the Commission adopted Section 20.18(h), which specifies the accuracy requirements for the provision of E911 by wireless carriers.[6] As amended by today's Second Report and Order, Section 20.18(h) requires licensees subject to the wireless E911 requirements, to ultimately comply with the following Phase II location accuracy and reliability standards at the county or PSAP service area level, based on certain benchmarks, limitations, and exclusions: for network-based technologies: 100 meters for 67 percent of calls, 300 meters for 90 percent of calls; for handset-based technologies: 50 meters for 67 percent of calls, 150 meters for 90 percent of calls.[7]

6. In April 2000, the Commission's Office of Engineering and Technology (OET) issued Bulletin No. 71 to provide assistance in determining whether wireless licensees comply with the accuracy standards set by the Commission.[8] The OET Bulletin did not establish mandatory procedures; rather, it stated that compliance with the OET guidelines would establish "a strong presumption that appropriate means have been applied to ensure that an ALI system complies with the Commission's Rules."[9] The OET Bulletin sets forth the Commission's expectations regarding location accuracy measurement and testing.

7. In June 2005, the Commission released a First Report and Order and Notice of Proposed Rulemaking (*VoIP 911 Order and VoIP 911 NPRM*) adopting rules requiring providers of interconnected VoIP service to supply E911 capabilities to their customers as a standard feature from wherever the customer is using the service.[10] The rules adopted by the *VoIP 911Order* apply only to providers of interconnected VoIP services, which are services that (1) enable real-time, two-way voice communications; (2) require a broadband connection from the user's location; (3) require Internet protocol-compatible customer premises equipment (CPE); and (4) permit users generally to receive calls

[5] *See* 47 C.F.R. § 20.18(d) (concerning the "Phase I enhanced 911 services" requirements); 47 C.F.R. § 20.18(e) (concerning the "Phase II enhanced 911 services" requirements).

[6] Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, CC Docket No. 94-10, *Report and Order and Further Notice of Proposed Rulemaking,* 11 FCC Rcd 18676, 18712 (1996) (*E911 Report and Order*).

[7] 47 C.F.R. § 20.18(h); *see also* Wireless E911 Location Accuracy Requirements, PS Docket No. 07-114, *Second Report and Order*, FCC 10-XXX (2010)(*Location Accuracy Second Report and Order*).

[8] *See* OET Bulletin No. 71, Guidelines for Testing and Verifying the Accuracy of Wireless E911 Location Systems (Apr. 12, 2000) at 2, available at http://www.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet71/oet71.pdf.

[9] *Id*.

[10] In the Matters of IP-Enabled Services; E911 requirements for IP-Enabled Service Providers, WC Docket No. 04-36, WC Docket No. 05-196, *First Report and Order and Notice of Proposed Rulemaking*, 20 FCC Rcd 10245, 10246 (2005) (*VoIP 911 Order and VoIP 911 NPRM).*

that originate on the PSTN and to terminate calls to the PSTN.[11] Interconnected VoIP service providers generally must provide consumers with E911 service and transmit all 911 calls, including Automatic Number Identification (ANI) and the caller's Registered Location for each call, to the PSAP, designated statewide default answering point, or appropriate local emergency authority.[12]

8. In the *VoIP 911 Order*, the Commission stated its intent to adopt a future order containing an advanced E911 solution for portable interconnected VoIP service, which would include a method for determining a user's location without assistance from the user as well as a firm implementation deadline.[13] To that end, the *VoIP 911 NPRM* sought comment on what additional steps should be taken to determine whether there may be ways to automatically identify the location of a user of a portable interconnected VoIP service, whether to extend the requirements to other VoIP services, such as services that are not fully interconnected to the PSTN but may permit users to make calls to or receive calls from landline and mobile phones, whether providers of wireless interconnected VoIP service would be more appropriately subject to the existing commercial mobile radio service (CMRS) 911/E911 rules (contained in Part 20), and whether there are any steps the Commission should take to ensure that people with disabilities who desire to use interconnected VoIP service can obtain access to E911 services.[14]

9. In June 2007, the Commission released the *Location Accuracy NPRM* seeking comment on several issues relating to wireless E911 location accuracy and reliability requirements, in addition to the issue that we address in the companion Second Report and Order, i.e. the geographic level at which wireless licensees have to meet the location accuracy requirements under Section 20.18(h).[15] The Commission requested comment on these additional issues to ensure that wireless E911 service meets the needs of public safety and the American people, while taking into account the evolution in the use of wireless devices and the further development of location technologies.[16] Specifically, the Commission sought comment on the capabilities and limitations of existing and new location technologies, the advantages of combining handset-based and network-based location technologies (a hybrid solution),[17] the prospect of adopting more stringent location accuracy requirements,[18] and compliance testing methodologies in regard to different environments, such as indoor versus outdoor use and rural areas.[19] Also, the Commission invited comment on how to address location accuracy issues for 911 calls placed when roaming, particularly between carriers employing different location technologies.[20] Further, the Commission requested comment on a number of tentative conclusions and proposals, including establishing a single location accuracy standard rather than the separate accuracy requirements for network and handset-based technologies,[21] adopting a mandatory schedule for accuracy testing,[22] and

[11] 47 C.F.R. § 9.3.

[12] 47 C.F.R. § 9.5(b). The Registered Location is "[t]he most recent information obtained by an interconnected VoIP service provider that identifies the physical location of an end user." 47 C.F.R. § 9.3.

[13] *See VoIP 911 Order*, 20 FCC Rcd at 10266 ¶36.

[14] *See VoIP 911 NPRM* at 10276-77, 10279 ¶¶ 56-59, 63.

[15] *See Location Accuracy NPRM*, 22 FCC Rcd at 10613-16 ¶¶ 8-19.

[16] *See id.*

[17] *See id*. at 10613-14 ¶ 11.

[18] *See id*. at 10614 ¶ 12.

[19] *See id*. at 10614 ¶ 14 (also requesting comment on whether the OET Bulletin No. 71 guideline should be made mandatory).

[20] *See id*. at 10615 ¶ 17.

[21] *See id*. at 10613 ¶¶ 9-10.

applying the same location accuracy standards that apply to circuit-switched CMRS services to interconnected VoIP services used in more than one location.[23]

10. In response to the *Location Accuracy NPRM*, a number of parties filed comments, including public safety organizations, commercial carriers, and location technology vendors. Comments regarding the prospect of adopting of a single location accuracy requirement varied,[24] with some supporting an open forum to gather more information.[25] In regard to the impact of advances in location technologies and the use of hybrid technologies on location accuracy, commenters noted the benefits and drawbacks of the underlying technologies for handset-based and network-based solutions.[26] Commenters provided a variety of specific suggestions regarding whether more stringent accuracy requirements should be adopted.[27] Also, commenters addressed whether the Commission should adopt different standards based on topographical environments.[28] Some commenters supported the inclusion of elevation standards[29] and others believed that there must be more research and development conducted before the Commission adopts standards for indoor settings, particularly in regard to high-rise buildings.[30]

11. In October 2008, the Commission released a Report and Order (*NET 911 Improvement Act Report and Order*) adopting rules providing "interconnected VoIP providers rights of access to any and all capabilities necessary to provide 911 and E911 service from entities that own or control those capabilities."[31] In the *NET 911 Improvement Act Report and Order,* the Commission declined to "issue highly detailed rules listing capabilities or entities with ownership or control of these capabilities" because the nation's 911 system varies depending on the locality and "overly specific rules would fail to

(Continued from previous page)

[22] *See id*. at 10614-15 ¶ 15.

[23] *See id*. at 10615-16 ¶ 18.

[24] Commenters generally supporting a single location accuracy requirement include the following: APCO Comments at 3; AT&T Comments at 8 (a single standard "may be achievable" but "adoption of [one] may be premature"); Intrado Inc. (Intrado) Comments at 4; NENA at 4 (supports a "unitary standard" with qualifications); Nsighttel Wireless, LLC Comments at 2-3; Rural Telecommunications Group (RTG) Comments at 6-7. Opposing commenters include the following: Rural Cellular Association (RCA) Comments at 5-6; Telecommunications Industry Association (TIA) Comments at 4; T-Mobile USA, Inc. (T-Mobile) Comments at 8, 10.

[25] *See generally* Alliance for Telecommunications Industry Solutions on behalf of the Emergency Services Interconnection Forum (ATIS) Comments at 4; CTIA – The Wireless Association (CTIA) Comments at 2-4; Motorola Comments at 3; Nokia Inc. and Nokia Siemens Networks at 2-3; Sprint Nextel Comments at 3, 7-8; Comments of the Texas 911 Alliance and the Texas Commission on Emergency Communications (Texas 9-1-1 Agencies) at 9.

[26] *See generally* Polaris Wireless, Inc. (Polaris) Comments at 6-10 (addressing benefits of hybrid technologies); TruePosition, Inc. (TruePosition) Comments at 3-4 (concerning benefits); Qualcomm Incorporated at 3-4 (noting drawbacks); Sprint Nextel Comments at 11 (noting drawbacks).

[27] *See generally* Sprint Nextel Comments at 12; Texas 9-1-1 Agencies at 8; TIA Comments at 5-7.

[28] *See generally* AT&T Comments at 9; RCA Comments at 4; T-Mobile Comments at 10.

[29] *See* APCO Comments 4; Intrado Comments at 6.

[30] *See* APCO Comments at 4; AT&T Comments at 9-10; ATIS Comments at 5; Texas 9-1-1 Agencies Comments at 8.

[31] Implementation of the NET 911 Improvement Act of 2008, WC Docket No. 08-171, *Report and Order*, 23 FCC Rcd 15884, 15885 (2008) (*NET 911 Improvement Act Report and Order*).

reflect these local variations."[32] The Commission also declined "to expand the applicability of the rights granted in the NET 911 Act to entities beyond those encompassed within that statute."[33]

12. In April 2009, we released a *Public Notice* seeking nominations for membership on the Communications Security, Reliability, and Interoperability Council (CSRIC).[34] CSRIC is a Federal Advisory Committee that provides guidance and expertise on the nation's communications infrastructure and public safety communications.[35] The committee's duties include recommending best practices and actions the Commission can take to ensure the security, reliability, operability and interoperability of public safety communications systems, and improve reliability and resiliency of communications infrastructure.[36] One of the Working Groups within CSRIC, Group 4C - Technical Options for E911 Location Accuracy, is responsible for examining E911 and public safety location technologies in use today, identifying current performance and limitations for use in next generation public safety applications, examining emerging E911 public safety location technologies, and recommending options to CSRIC for the improvement of E911 location accuracy timelines.

13. On March 16, 2010, the Commission delivered to Congress the National Broadband Plan in which it stated that the Commission should examine approaches for leveraging broadband technologies to enhance emergency communications with the public by moving towards NG911,[37] because NG911 will provide a "more interoperable and integrated emergency response capability for PSAPs, first responders, hospitals and other emergency response professionals."[38] Further, the National Broadband Plan notes that the Commission is "considering changes to its location accuracy requirements and the possible extension of…ALI…requirements to interconnected VoIP services," and recommends that the Commission "expand [the *Location Accuracy NPRM*] proceeding to explore how NG911 may affect location accuracy and ALI."[39]

III. FURTHER NOTICE OF PROPOSED RULEMAKING

14. As noted at the outset, today we adopted the *Location Accuracy Second Report and Order* that established an eight-year timeframe, consisting of interim benchmarks, requiring handset-based and network-based carriers to meet amended wireless location accuracy requirements at the county or PSAP-based level.[40] The rule changes we adopted in this companion order complete one of our proceedings and will lead to significant improvements in wireless location accuracy, thereby saving lives and property and improving emergency response. At the same time, we have more work to do to update and complete the remaining inquiries initiated by the Commission in 2007 to improve wireless E911 service, particularly as wireless communications continue to proliferate as the primary or sole means for many Americans to reach 911. Accordingly, consistent with our devotion to continually improving

[32] *NET 911 Improvement Act Report and Order*, 23 FCC Rcd at 15893 ¶ 22.

[33] *NET 911 Improvement Act Report and Order*, 23 FCC Rcd at 15894 n.66.

[34] FCC Seeks Nominations by May 11, 2009 for Membership on the Communications Security, Reliability, and Interoperability Council (CSRIC), DA 09-816, *Public Notice* (PSHSB April 10, 2009).

[35] *Id*. at 2.

[36] *Id.*

[37] *Id.,* Chapter 16, "Public Safety," Section 16.3, "Leveraging Broadband Technologies to Enhance Communications with the Public," at 313.

[38] *Id*.

[39] *Id*. at 326, Recommendation 16.15.

[40] *See Location Accuracy Second Report and Order*, at Appendix C (amending Section 20.18(h)(1) (for carriers using network-based location technologies) and Section 20.18(h)(2) (for carriers using handset-based location technologies)).

public safety and homeland security, this FNPRM expands upon the *Location Accuracy NPRM*, in order to ensure that wireless E911 service meets the needs of public safety and the American people, while taking into account the evolution in the use of wireless devices and the further development of location technologies. The following discussion includes proposals for improving wireless 911 location accuracy requirements.

15. *Existing and Prospective Location Technologies*. We begin by seeking current information on the state of wireless location technologies, particularly since the Commission explored these issues in 2007, as well as in light of market trends resulting in increasing consumer adoption of location-based services. We seek to develop a full understanding of the capabilities and limitations of existing location technologies, as well as any new technologies that may provide improvements in location accuracy. In response to the *Location Accuracy NPRM*, a few location technology vendors noted that improvements in location accuracy were possible with some modifications or additional investment.[41] While the existing location accuracy requirements, particularly when complied with at the county or PSAP service area level, often provide PSAPs with good indications of the location of a 911 caller, the limitations of existing location determining technologies in use by carriers can lead to variations of up to 300 meters, or more. How can location determination be improved upon? Are there existing location technologies available today that carriers can immediately adopt? If so, what are the relative quantitative advantages versus costs of deployment? What new or prospective location technologies might be utilized to improve accuracy? What would be the feasibility of incorporating newer technologies into wireless networks? What market incentives, such as for location-based services, might drive the need for improved accuracy technologies, and thus for application to 911? Commenters, particularly location technology vendors, should provide quantitative data that provides a basis for understanding the relative performance capabilities and commercial feasibility of the available and prospective location technologies. We also seek information concerning whether certain technologies are better suited or targeted to perform best in certain environments. As noted above, the CSRIC is exploring issues related to wireless location technologies. In this regard, we look forward to receiving the recommendations of this committee. We also want to ensure that our E911 policies properly consider the interests of people living with disabilities. Should we make any changes to our rules to better accommodate persons with disabilities who use E911 wireless services? Are there technologies that can help ensure that E911 services address the interests of those living with disabilities?

16. In today's *Location Accuracy Second Report and Order*, we also adopted confidence and uncertainty requirements sought by the PSAP community, which should permit improved expectations concerning the location information delivered with wireless 911 calls. How does the availability of this information impact the need for changes or improvements to location accuracy information?

17. *Potential Modifications to Accuracy Standard*. We seek comment on whether we should consider changing the current location accuracy requirements of Section 20.18(h). Should we modify the current location accuracy standard for network-based and handset-based providers? Should we adopt a single location accuracy standard, rather than maintaining the network/handset distinction? Would a single standard provide more consistency for PSAPs? The Commission previously sought comment on these issues in the *Location Accuracy NPRM*. In response, APCO noted that it "agrees with the Commission's inclination to require a 'uniform accuracy standard at least as stringent as that currently in

[41] *See* TruePosition Comments at 2-3; Polaris Comments at 5-6. *See also* Intrado Comments at 4-5 (asserting that "certain mobile technologies may not currently have the ability to discern whether an end user's device is located indoors, but with a phased development approach and the use of alternative addressing schemes, the desired end state is achievable."); S5Wireless, Inc. Reply Comments at 1-2; YMax Corporation Reply Comments at 2-4; Letter from Eliot J. Greenwald, Bingham McCutchen LLP, counsel for Andrew Solutions, a CommScope Company, to Marlene Dortch, Secretary, FCC, filed July 29, 2010, Attached Presentation at 8 (stating that (1) "Hybrid and Backup Technologies Can Improve Overall Performance [and] Increase Yield with Objective Accuracy" and (2) "4G Networks Permit Additional Enhancement of Location Methods[.]").

place for handset-based technologies'" and supported "the Commission's desire for even greater accuracy."[42] Sprint Nextel argued that, "while a single standard is an admirable goal, the reality is that wireless voice service is provided over numerous, ever-increasing varieties of networks and technologies."[43] T-Mobile stated that, "[u]nifying the CMRS accuracy requirements by requiring the network-based providers to meet handset-based standards would be grossly inequitable, ignoring the substantial benefits of network-based technologies."[44] We now seek to expand and update the record, particularly as the CMRS marketplace has evolved over the past few years with the deployment of advanced networks and devices.

18. We also seek comment on whether carriers can employ a combination of handset-based and network-based location technologies (a hybrid solution), rather than employing one or the other, to achieve improved location accuracies. As the Texas 9-1-1 Agencies noted, "handset solutions generally work better outdoors and in rural areas, while network solutions generally work better indoors and may have issues in rural areas."[45] TruePosition commented that "a hybrid network-GPS technology consisting of U-TDOA and A-GPS is well within the realm of technical feasibility and it would produce enhanced location accuracy."[46] Another technology vendor, Polaris, argued that "a hybrid system is the best long-term approach to improve location accuracy and consistency."[47] Polaris considers the ideal hybrid solution to be "the pairing of a network-based and a handset-based technology," which "leverages the strengths of two highly complementary technologies."[48] In addition to the use of both handset-based and network-based technologies in a single solution, what other technical features provide an appropriate basis for a definition of hybrid solutions? Are hybrid solutions better defined as location determination systems that can use multiple position location technologies either individually, or in combination, to achieve better performance, accuracy, or reliability? Would hybrid technologies provide greater location accuracy than either network-based or handset-based solutions alone? How can hybrid solutions improve location performance aspects other than accuracy, such as increased percentage yield of success of location determinations? Has the existence of different accuracy requirements for handset-based and network-based systems influenced the focus and direction of research and development in location based services and 911 technology solutions? How does the implementation of 3G and 4G networks, services, and devices impact wireless E911 requirements? For example, as indicated in today's *Location Accuracy Second Report and Order*, the roll-out of 3G networks incorporates A-GPS handsets, which will improve accuracy over time as they are blended into each carrier's subscriber base. How else might 3G, and 4G, technologies lead to improved means or methods of location accuracy? Are there any specific ways that burgeoning 4G networks, or subsequent technology releases, can be implemented that would achieve location benefits? What are 4G industry standards setting bodies considering for location identification, and how might such activities impact the Commission's flexibility in determining the best solution or solutions? Are there ways to provide incentives for wireless carriers to exceed the Commission's baseline location accuracy requirements? How should the Commission implement a changed location accuracy requirement? Should the Commission continue to define a particular minimum accuracy requirement, rather than specifying a particular solution?

19. *Compliance Testing*. We seek to refresh the record on what methodology carriers should

[42] APCO Comments at 4.

[43] Sprint Nextel Comments at 7.

[44] T-Mobile Comments at 16.

[45] Texas 9-1-1 Agencies at 7.

[46] *Id.* at 5.

[47] Polaris Comments at 5.

[48] *Id*.

employ to verify compliance, both initially and during ongoing testing. In response to the *Location Accuracy NPRM*, APCO and the Texas 9-1-1 Agencies argued that OET Bulletin No. 71 should be revised to increase the number of indoor test calls to at least 30 percent.[49] According to TruePosition, "[w]ith consumers increasingly substituting wireless devices for wireline service, approximately 40%-60% of E911 calls are now made indoors."[50] As a result, TruePosition argues that "the Commission's rules should require carrier E911 compliance testing to include measurements in indoor environments; a carrier's indoor test results for E911 location accuracy should be weighted in accordance with its estimated percentage of indoor E911 calls."[51] Qualcomm, however, argued that the Commission should neither convert OET Bulletin No. 71 guidelines into requirements, nor impose a specified level of indoor testing.[52] According to Qualcomm, "the mandate has always covered 67% and 95% of the calls to 911, period. The proportion of mobile phone calls to 911 placed from indoors varies from PSAP to PSAP, from town to town, from county to county, and from state to state. Accordingly, it would be the height of arbitrary decision making for the Commission to pick a particular level of indoor testing and to simply impose it, now, over a decade after it adopted the original mandate."[53] We seek comment on these views.

20. If we were to require compliance testing, should we use OET Bulletin No. 71 as the basis, which provides guidelines for testing and verifying the accuracy of wireless E911 location systems to verify compliance? Should we make OET Bulletin No. 71 mandatory? Should we establish a measurement procedure in our rules for testing and verifying the accuracy of wireless E911 location systems? If so, what measurement procedure would be appropriate? For example, should our rules specify a certain level of indoor versus outdoor testing in order to reflect the proportion of indoor versus outdoor use? Should the Commission update OET Bulletin No. 71 to include measurements in indoor environments? What percentage of wireless 911 calls is made indoors? What trends reflect the growing number of indoor 911 calls? How about testing in other challenging environments, such as dense urban settings, or heavily forested or mountainous terrain? Further, what mix of equipment (i.e., carrier-provided handsets, base stations, or other facilities) should be employed for accuracy testing? How many test points should we require within a PSAP service area and how should the test points be distributed? What special considerations, if any, should we establish for tests in rural areas? Should we impose other testing parameters to accurately assess a consumer's experience when using a carrier's E911 service?[54] As an alternative, would it beneficial to enable consumers to test wireless 911 and E911 capabilities, such as by making test calls and seeing the identified location data, as well as the PSAP that would receive the call?

21. *Schedule for Testing.* In the *Location Accuracy NPRM*, the Commission tentatively concluded that it would establish a mandatory schedule for accuracy testing, and sought comment on the appropriate schedule for such testing. Corr Wireless disagreed with the tentative conclusion and argued that, "[t]here is no need for periodic testing of E-911 compliance. Once accuracy levels are attained, the level of accuracy typically only gets better, not worse."[55] Is there any data to support this conclusion? We seek to refresh the record on the appropriate schedule for accuracy testing and the appropriate

[49] *See* APCO Comments at 4; Joint Initial Comments of the Texas 9-1-1 Agencies at 7.

[50] TruePosition Comments at 6.

[51] *Id*.

[52] *See* Qualcomm Comments at 5.

[53] *Id*. at 5.

[54] *See, e.g.*, Association of Public Safety Communications Officials-International, *An Assessment of the Value of Location Data Delivered to PSAPs with Enhanced Wireless 911 Calls (Project LOCATE)*, Final Report, April 2007, CC Docket No. 94-102 (filed Apr. 10, 2007).

[55] Corr Wireless Comments at 6.

statistical methodology for determining compliance. Should we require testing every two years, as APCO suggested,[56] or should we adopt a different schedule? As Phase II service is extended into new areas, at what point should carriers be required to conduct compliance testing? Should carriers be required to file compliance and maintenance testing data with the Commission, one or more national public safety organizations (such as NENA, APCO, and NASNA), local PSAPs, or some combination of these entities? Should test results be made available to the public? Should we treat this information in a confidential manner? Should carriers be required to provide consolidated performance statistics to illustrate accuracy levels for various topologies or for other reasons? Consistent with the *Location Accuracy NPRM*, we tentatively conclude that we should establish a mandatory schedule for accuracy testing.

22. *Challenging Environments*. We also seek to refresh the record on how location information and accuracy can be improved in more challenging environments, including indoor settings, urban canyons, buildings including high-rises, rural environments characteristic of heavy forestation, mountainous terrain, or sparsely located wireless towers. Do accuracy needs differ for indoor, outdoor, rural, and urban location determinations? Would it be appropriate to establish different threshold criteria depending on the environment? For example, whether a caller is located deep within a large building, or near a window, might have a significant impact on whether it is possible to achieve a location fix. How should trends in usage (such as increasing use of wireless inside buildings) impact accuracy requirements? What expectations do consumers hold in terms of the ability for PSAPs to locate them in various environments? Do some technologies perform better under certain challenging circumstances? What factors influence how well a particular accuracy solution performs? How best can the Commission spur innovation in location accuracy in both the short term and the future in challenging environments? What is a reasonable timeframe for carriers to significantly improve location accuracy in challenging environments? Would service providers be sufficiently motivated to achieve such improvements absent a regulatory deadline? How can technologies combine information from diverse sources, such as Wi-Fi access points or other ubiquitous sources, to improve location accuracy or other performance characteristics?[57] If a service provider provisions Wi-Fi access points for which it knows the address, should it use this information in lieu of end user-supplied location information?[58] We ask parties to comment on any other potential revisions to our current location accuracy requirements that could help carriers improve location accuracy in challenging environments.

23. *Vertical Location Information*. There has never been a requirement for service providers subject to the CMRS 911 rules to include vertical or z-axis information with location data. Of course, a third dimension of location information could greatly enhance accuracy, and have particular benefit in buildings in terms of identifying the floor where the 911 caller is located. We seek comment on how location information can include an accurate Z-axis component. In response to the *Location Accuracy NPRM*, APCO argued that, "the increased use of wireless phones in multiple-story buildings also requires potential inclusion of elevation information if technologically feasible."[59] ATIS stated that, ""[c]urrently no industry criterion exists for elevation and . . . before such information could be included in the location standard, greater research and development must occur."[60] The Texas 9-1-1 Agencies noted that,

[56] APCO Supplement at 4.

[57] *See* Paul Boutin, *How to Use Facebook's New Location Feature*, THE NEW YORK TIMES – GADGETWISE, Aug. 19, 2010, http://gadgetwise.blogs.nytimes.com/2010/08/19/how-to-use-facebooks-new-location-feature/?emc=eta1 ("Apple has built impressive location detection into its newer iPhones. They have GPS, plus they sniff the air for local Wi-Fi network names and compare them to a map of known network locations.")

[58] *See IP-Enabled Services; E911 Requirements for IP-Enabled Service Providers,* Petition of T-Mobile USA, Inc. for Clarification, WC Docket 04-36, WC Docket 05-196 (filed July 29, 2005) (T-Mobile Petition) at 4-5.

[59] APCO Comments at 4.

[60] ATIS Comments at 5.

"realizing the conceptual potential value of elevation, we would like to see more information on how 'elevation' would specifically be proposed for use in practice at the PSAP before it would be considered further to become a requirement."[61] What technologies incorporate the use of Z-axis components for location awareness? What levels of accuracy do these technologies support? Would an accuracy requirement for a vertical component need to be stringent enough to distinguish building floors? What is the state of industry standardization of Z-axis components in geolocation? How should evolving standards and consumer expectations guide future rules? If handsets employ a vertical sensor, such as an altimeter, how could such information be incorporated into location data sent to a PSAP? If delivering vertical information were possible, are PSAPs capable of using such information and, if not, what would be necessary to enable receipt of vertical information? What is a reasonable timeframe for carriers to include an accurate z-axis component with location data? Would service providers be sufficiently motivated to implement a vertical location component absent a regulatory deadline?

24. *Location Accuracy While Roaming*. We next seek to refresh the record with regard to location accuracy while roaming. As the Commission noted in the *Location Accuracy NPRM*, we are concerned that a wireless caller whose carrier employs one type of location technology may not be provided Phase II service at all when roaming on the network of another carrier that relies on a different technology, or when there is no roaming agreement between carriers using compatible technologies.[62] In response to the *Location Accuracy NPRM*, APCO stated that the Commission "should require that wireless carriers develop a viable technical solution to this [roaming] problem by a specific deadline."[63] NENA stated that, "[a]s a general matter, NENA believes the obligation to deliver 9-1-1 calls should be met for roamers as well as native subscribers, no matter what the differences in technologies."[64] Motorola, however, argued that full, seamless E911 roaming is not achievable in near term for carriers deploying disparate technologies.[65] Corr Wireless meanwhile argued that while different location technologies might not serve the needs of roamers, "adoption of a proposal to mandate AGPS technology…would effectively eliminate this issue;" however, it also noted that, "so long as there are incompatible technologies, it would plainly be irrational to expect or require carriers to provide a solution to roamers that their network is incapable of providing to their own customers."[66] How can these issues be addressed? Should we require carriers to ensure delivery of location information to PSAPs for every call handled on their networks, including calls made by customers of another carrier ("roaming calls") that has deployed a different technology in its own network or with whom the carrier handling the call has no automatic roaming relationship?

IV. NOTICE OF INQUIRY

25. In this NOI, we launch a broader inquiry into how we can ensure that providers of VoIP services can offer improved or expanded 911 service. We begin by focusing on whether we should require providers of interconnected VoIP services to provide location information to PSAPs without the

[61] Texas 9-1-1 Agencies Comments at 8.

[62] *See Location Accuracy NPRM*, 22 FCC Rcd at 10615 ¶ 17. We note that nothing in this item should be construed as addressing issues related to whether a provider has an obligation to enter into roaming arrangements with another provider and whether such obligation should be extended to non-interconnected services. These issues are addressed in a separate proceeding. *See* Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers and Other Providers of Mobile Data Services, WT Docket No. 05-265, *Order on Reconsideration and Second Further Notice of Proposed Rulemaking,* 25 FCC Rcd 4181 (2010).

[63] APCO Comments at 5.

[64] NENA Comments at 11.

[65] *See* Motorola Comments at 13.

[66] Corr Wireless Comments at 6.

customer's active cooperation. We also explore whether the Commission's 911 and E911 rules should apply to non-interconnected VoIP service providers. We next explore how location accuracy and ALI requirements will be impacted by the deployment of NG911 systems. Finally, we will seek comment on the applicability of 911 and E911 requirements to additional wireless communications services, devices, and applications.

A. 911 and E911 Requirements for VoIP Services

26. The Commission's E911 rules presently apply to interconnected VoIP services, specifically services that (1) enable real-time, two-way voice communications; (2) require a broadband connection from the user's location; (3) require Internet protocol-compatible customer premises equipment (CPE); and (4) permit users generally to receive calls that originate on the PSTN and to terminate calls to the PSTN.[67] In this section, we explore whether to impose additional requirements upon one subset of interconnected VoIP services – those that are portable, or "nomadic," meaning they can be used from any available broadband Internet access service connection.[68]

27. *Automatic Location Identification*. The Commission's rules currently do not require providers of portable interconnected VoIP service to automatically provide location information to PSAPs without the customer's active cooperation. In the *VoIP 911 NPRM*, the Commission requested comment on whether there may be ways for portable interconnected VoIP service providers to automatically identify the geographic location of a customer without the customer's active cooperation.[69] In the *Location Accuracy NPRM*, the Commission tentatively concluded that "to the extent that an interconnected VoIP service may be used in more than one location, providers must employ an automatic location technology that meets the same accuracy standards that apply to those CMRS services."[70]

28. Several commenters generally concurred with the Commission's tentative conclusion. For example, APCO stated that "where [an] interconnected VoIP service connects to a PSAP through a wireless network, then the location information should be delivered in the same form as required of other wireless service providers."[71] RCA noted that it "supports the position that standards for [VoIP] service should remain equivalent to those for CMRS [and it] is both reasonable and appropriate that these interconnected services be treated in the same manner as competing services."[72] However, a number of commenters opposed the tentative conclusion.[73] For example, TIA argued that "if the FCC decides to impose similar location accuracy standards on interconnected VoIP providers that are applicable to CMRS services, the Commission would be forced to regulate the entity providing the broadband Internet connection (i.e. restaurants, coffee shops, hotels, municipalities, etc.)."[74] Nokia stated that interconnected VoIP services "should not be subject to the Commission's CMRS E911 location requirements without ensuring that time is taken to study location technologies that can be used when a wireless 911 call is made using VoIP, standards are developed for delivering location technology over the Internet when a wireless VoIP 911 call is made, and technologies to be utilized for location are tested and finally

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[67] 47 C.F.R. § 9.3.

[68] *See VoIP 911 Order*, 20 FCC Rcd at 10259-60 ¶ 25 & n.80 (contrasting "fixed" VoIP services, which can be used at only one location, with "portable" VoIP services, which can be used from any broadband connection).

[69] *VoIP 911 NPRM*, 20 FCC Rcd at 10276-77 ¶ 57.

[70] *Location Accuracy NPRM*, 22 FCC Rcd at 10615-16 ¶ 18.

[71] APCO Comments at 5-6.

[72] RCA Comments at 7.

[73] *See, e.g.*, Comments of AT&T at 13-14; Sprint Nextel at 18-19; TIA at 7-9; Verizon at 1; VON at 2; Vonage at 7-11; NENA at 11; TCS at 2.

[74] TIA Comments at 8.

deployed."[75] WCA argued that the Commission "fails to appreciate the enormous technical, operational and economic challenges wireless broadband network operators and their equipment suppliers will face if [the Commission] prematurely imposes ALI and location accuracy requirements on interconnected VoIP service without further study."[76] A number of commenters recommended that the Commission form an advisory committee comprised of Commission staff, representatives of the VoIP industry, equipment vendors, state and local public safety officials, and consumer groups to study the technical, operational and economic issues related to the provision of ALI for interconnected VoIP services.[77]

29. In light of the passage of time, we seek to refresh the record and revisit the tentative conclusion from the *Location Accuracy NPRM*. Specifically, what advanced technologies, if any, permit portable interconnected VoIP service providers to provide ALI? Have portable interconnected VoIP service providers implemented any practices or methods to provide ALI? If not, what can the Commission do to facilitate the development of techniques for automatically identifying the geographic location of users of this service? Should interconnected VoIP service providers incorporate an ability to automatically detect a user's Internet connectivity, identify a user's location, and prompt a user to confirm his/her location, prior to enabling calling features? What technologies exist that could locate a VoIP user using a standard broadband Internet connection? Should we require the automatic detection of a subscriber's location prior to enabling calling features for a VoIP service, application, or device? Should the Commission clarify that CMRS operators providing interconnected VoIP services may deliver location information to a PSAP in the same manner as for CMRS, specifically, delivering longitude and latitude coordinates to the PSAP in lieu of a street address?[78]

30. What have PSAPs experienced when VoIP users move to a different location and do not update their address? Is this scenario common? When it does occur, does the PSAP receive incorrect location information? Would requiring interconnected VoIP service providers to provide ALI minimize the reporting of erroneous location information, whether mistakenly or intentionally? What is the experience of PSAPs in receiving incorrect registered location information? How frequently do PSAPs receive fraudulent or malicious calls from users of interconnected VoIP services that appear to intentionally report false registered location information? Do industry standards and commercial trends indicate that ALI technologies exist for interconnected VoIP services that would be technically feasible and commercially viable? What privacy concerns are posed by requiring the automatic detection of VoIP users' movement on Internet networks? Should we require that all terminal adapters or other equipment used in the provision of portable interconnected VoIP service sold as of a certain date be capable of providing location information automatically, whether embedded in other equipment or sold to customers at a separate price? Under what authority could the Commission take such actions? If the Commission were to develop an automatic location identification requirement for portable interconnected VoIP service providers, should it also establish a deadline for compliance and, if so, what should that deadline be?

31. *Additional VoIP Services*. Thus far, the Commission's VoIP 911 rules have been limited to providers of interconnected VoIP services. Since these rules were adopted, however, there has been a significant increase in the availability and use of portable VoIP services and applications that do not meet one or more prongs of the interconnected VoIP definition. In light of the increase in use of these services,

[75] Nokia Comments at 6.

[76] WCA Comments at 4.

[77] *See, e.g.*, Comments of WCA at 5; AT&T at 4, 13; CTIA at 9; Nokia Inc. and Nokia Siemens Networks at 6; TIA at 9; ATIS at 10; Center for Democracy and Technology/EFF Reply Comments at 2; T-Mobile Reply Comments at 8. *See also* Verizon at 4-5 ("Verizon has been part of an active industry effort through the Emergency Service Interconnection Forum (ESIF), a committee of the Alliance for Telecommunications Industry Solutions (ATIS), to develop a series of standards related to the provision of location information to PSAPs").

[78] T-Mobile Petition at 10.

we seek comment on whether we should extend 911 and E911 obligations to providers of VoIP services that are not currently covered by the rules. For instance, what 911/E911 obligations, if any, should apply to VoIP services that are not fully interconnected to the PSTN? Specifically, should 911/E911 obligations apply to VoIP services that enable users to terminate calls to the PSTN, but do not permit users to receive calls that originate on the PSTN? Should 911/E911 obligations apply to VoIP services that enable users to receive calls from the PSTN, but do not permit the user to make calls terminating to the PSTN? Should 911/E911 obligations apply to VoIP services that enable users to receive calls from the PSTN and terminate calls to the PSTN but as separately elective services? Even though such VoIP services do not fully meet the definition of "interconnected VoIP," should such service providers assume the same public safety responsibilities? Does it continue to make sense that because a VoIP service permits, for example, only out-bound calls to the PSTN, that there should be no 911 obligations? Is there a need to modify the definition of "interconnected VoIP" or create a new definition to cover the range of VoIP services that should be subject to 911/E911 requirements? How do consumer expectations, and the needs of PSAPs and emergency responders, factor into whether we should extend 911 and E911 obligations to additional VoIP services not meeting the interconnected definition? Would adopting additional 911 and E911 requirements for VoIP services help to further ensure that people with disabilities who desire to use interconnected VoIP service can obtain access to 911/E911 services? Would it be necessary to extend to non-interconnected VoIP providers rights of access to any and all capabilities necessary to provide 911 and E911 service from entities that own or control those capabilities? Would such extension of capabilities impact requirements for mobile handsets, terminal adapters or other equipment that may be outside the control of the non-interconnected VoIP service provider? What is a reasonable timeframe for providers of VoIP services and applications that do not meet the interconnected VoIP definition to comply with the Commission's 911 rules?

32. *Authority*. The *VoIP 911 Order* rested on ancillary jurisdiction principles in adopting 911 requirements for interconnected VoIP services.[79] Subsequently, the NET 911 Act required interconnected VoIP providers to comply with the rules the Commission adopted in 2005 "as such requirements may be modified by the Commission from time to time."[80] Accordingly, we seek comment on the FCC's jurisdiction to extend 911 requirements to VoIP services that would not meet the "interconnected VoIP" definition. Under what authority should the Commission adopt any such rules?

B. Impact of NG911 Deployments on Location Accuracy and ALI

33. The National Broadband Plan recommends that the Commission consider how NG911 deployments may affect location accuracy and ALI requirements.[81] We seek to examine how we may need to revise our location accuracy and ALI requirements to account for the deployment of NG911 systems. Although deployments of NG911 systems have been limited to date, we seek to build a record on the expected impact of NG911 deployments on the existing wireless location accuracy and ALI requirements. What has been the nature to date of NG911 deployments, and what currently might be in the planning or deployment stages? How will the identification and delivery of location information be incorporated by NG911 PSAPs? What technological or operational changes might service providers, applications developers, and device manufacturers implement that would complement NG911 capabilities? As the regulatory framework for wireless and VoIP E911 evolves, what specific considerations should the Commission heed as NG911 systems are deployed throughout the nation? Are there a minimum set of network, software and/or device criteria that would afford flexibility in providing location accuracy, but also meet consumers' expectations and facilitate the deployment of NG911?

[79] *See VoIP 911 Order*, 20 FCC Rcd at 10261-66 ¶¶ 26-35.

[80] New and Emerging Technologies 911 Improvement Act of 2008, Pub. L. No. 110-283, 122 Stat. 2620 (2008) (NET 911 Act) (amending Wireless Communications and Public Safety Act of 1999, Pub. L. No. 106-81, 113 Stat. 1286 (1999).

[81] National Broadband Plan at 326.

C. Applicability of 911 and E911 Requirements to Additional Wireless Communications Services, Devices and Applications

34. *IP-Based Voice Communications Services, Devices, and Applications*. The wireless 911 and E911 requirements currently apply only to CMRS carriers meeting the criteria of Section 20.18(a). However, many new forms of IP-based voice communications are being offered to consumers via a variety of wireless services, devices and applications[82] for use on a wide range of new devices.[83] These IP-based communications are being carried over CMRS circuit-switched and data networks, unlicensed Wi-Fi networks, or some combination of both.[84]

35. In its recent survey of "the current state of the [broadband] ecosystem," the National Broadband Plan found that "[d]evices continue to grow in number and variety as more computers, phones and other machines connect to the Internet. New devices have repeatedly revolutionized the personal computer (PC) market in the past three decades [and] about 80% of U.S. households have some sort of personal computer [and] although desktops initially dominated the market, 74% of all new personal computers sold today are laptops [and] over the next 5 years, growth in the netbook and tablet markets will far outpace growth in the traditional PC market."[85] Similarly, the National Broadband Plan reported that the "mobile phone market has also seen robust innovation. There were more than 850 different certified mobile products in the United States in 2009. In that same year, approximately 172 million mobile phones were sold in the United States. Of these, 27% were Internet-capable smartphones manufactured by a wide variety of firms, including Apple, HTC, LG, Motorola, Nokia, Palm, RIM, Samsung and Sony-Ericsson."[86] The distinguishing features of a smartphone are "an HTML browser that allows easy access to the full, open Internet; an operating system that provides a standardized interface and platform for application developers; and a larger screen size than a traditional handset."[87] Many smartphones also have touch screens and/or a QWERTY keypad, and "run an operating system that offers a standard platform for application developers to create and sell device software through an application store."[88] In contrast to traditional handsets with applications that include voice and messaging, smartphones have more user-friendly interfaces that facilitate access to the Internet and software applications.

36. The widespread and increasing availability and use of smartphones, mobile computing devices (*e.g.*, laptops, netbooks), and applications are leading to many new voice calling capabilities.[89]

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[82] Examples of mobile VoIP services and smartphone-based applications are Google Voice Mobile, Skype Mobile, Truphone, iSkoot, and Fring.

[83] Examples of these include wireless smartphones; small personal computers, such as netbooks and the Apple iPad; other Wi-Fi-enabled but non-phone devices such as the Apple iPod touch; and computer peripherals, such as wireless air cards.

[84] Other wireless technology standards exist, although perhaps without as strong a nexus to voice communications, such as Bluetooth and near field communication.

[85] National Broadband Plan at 18.

[86] National Broadband Plan at 18 (footnotes omitted).

[87] Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services, WT Docket No.09-66, *Fourteenth Report*, FCC 10-81 (rel. May 20, 2010) at ¶ 136 (14th Mobile Wireless Competition Report).

[88] *Id*.

[89] According to one study, mobile VoIP services will develop significantly faster in developed markets due to the direct correlation between 3G network deployments and the adoption of mobile VoIP by subscribers to those networks, although a high percentage of mobile VoIP carried over applications will be on Wi-Fi networks, (continued….)

We seek comment on what wireless devices, services and applications provide the equivalent of mobile telephony[90] or interconnected VoIP,[91] whether using CMRS, Wi-Fi or other combination of wireless connectivity, yet are not subject to the interconnected VoIP or CMRS 911 and E911 rules. For such voice-based services and applications, what are the expectations of consumers using such technologies in terms of being able to dial 911, and having the PSAP know where they are located? Would adopting 911 and E911 requirements for additional IP-based devices, services and applications help to further ensure that people with disabilities who desire to use such technologies can obtain access to E911 services? Which if any such devices, services and applications should be made subject to 911 and E911 requirements? What is a reasonable timeframe for providers of these services, devices, and applications to comply with the Commission's 911 rules? What would be the source of the Commission's jurisdiction to impose any such requirements?

37. If we were to apply 911 and E911 requirements to these additional broadband-enabled voice technologies, or to amend the rules that currently apply to interconnected VoIP services, what approach should we take? What technical and economic factors should we consider? For any new devices, services, and applications that would become subject to 911 and E911 requirements, would we need to extend rights of access to any and all capabilities necessary to provide 911 and E911 service from entities that own or control those capabilities? Should we distinguish the applicability of 911 and E911 requirements based on the device used, and if so, should any distinction be drawn between devices authorized for use under Parts 22, 24, 27 or 90 of the Commission's rules, which generally place the responsibility for compliance on the licensee, from devices authorized under Part 15, which places responsibility for compliance on manufacturers? Since a number of VoIP services and applications are offered by third party software developers, should we extend 911 and E911 requirements to such entities? We seek comment on whether the Commission has the jurisdiction to impose 911 and E911 requirements particularly upon software application developers. If we adopt new rules for these services, devices, and applications, should we impose these requirements after a date certain? How do consumer usage patterns, marketing practices, consumer expectations, and the needs of the public safety community, including PSAPs and first responders, impact whether these additional communication services should be required to provide access to emergency services? As an alternative to adopting regulatory requirements, should the Commission encourage industry solutions?[92] Would an industry-developed "model 911 voice app" be helpful? Could mobile voice applications be programmed to recognize a 911 attempt, and automatically engage the CMRS component of the device (if available)?

38. What particular capabilities or limitations might be presented by extending the wireless 911 and E911 requirements to additional voice communications methods? Would there always be a call-back number? Would it be necessary or helpful to distinguish those services, devices, and applications that utilize the macro CMRS network, as opposed to a Wi-Fi connection? If a Wi-Fi connection is utilized, does it further make a difference if the Wi-Fi connection is in-home, as opposed to a public hotspot, such as at a coffee shop, airport, bookstore, municipal park, etc.? Should devices supporting voice-based applications, including those that access the macro cellular network, Wi-Fi, or both, incorporate the capability to become location aware or require subscriber self-reporting of location? Should the Commission clarify that CMRS operators providing interconnected VoIP services may deliver location information to a PSAP in the same manner as for CMRS, specifically, delivering longitude and

(Continued from previous page)
bypassing operators' networks altogether. *See* VoIP.biz-news.com, *Juniper Research: Mobile VoIP Users to Exceed 100 Million by 2012*, June 11, 2010.

[90] *See* Section 20.15(b)(1) (defining "mobile telephony").

[91] *See* Section 9.3 (defining "interconnected VoIP service").

[92] *See* Tom Lookabaugh & Douglas C. Sicker, Self-Regulation of E911 for VoIP: Lessons for the Cable Industry from Environmental Voluntary Agreements, Address before 2005 Magness Institute Academic Seminar, 2005 National Cable Television Association Show (Apr. 2, 2005).

latitude coordinates to the PSAP in lieu of a street address.[93] Would incorporating A-GPS chips or passive CMRS wireless receivers be effective in triangulating position? What would be the costs of doing so?

39. *Consumer Disclosures*. Some IP-based voice services offered via an Internet connection, and/or as a smartphone application, contain various forms of disclosures indicating that such services do not provide access to emergency services.[94] For those voice-based communications services, devices, and applications that do not support 911, what disclosures are currently being provided to the public and PSAPs about the lack of 911 capability? What do consumers expect concerning 911 and E911 for voice-calling services and applications? Are such voice-based services and applications the sole means for certain consumers to place voice calls, and thus to access 911? Should we adopt disclosure requirements for certain types of communications services, devices, and applications if they do not support 911 access? If so, what type of disclosure requirements should we adopt? Is there a basis for distinguishing certain VoIP services, such as those offered over a standard broadband Internet connection, or those that are used with mobile smartphones, or other devices such as netbooks, etc.? What would be the Commission's best source of authority for adopting such consumer disclosure requirements?

40. *Emerging Network Devices*. In connection with the provision of existing CMRS offerings, wireless carriers are incorporating a variety of network components that enhance coverage, capacity, and spectrum efficiency. Examples include femtocells, picocells, microcells, and distributed antenna systems. A femtocell is a miniature base station that transmits in a wireless carrier's licensed spectrum and provides improved coverage within a subscriber's home. Femtocells typically use a subscriber's home broadband connection for backhaul.[95] A picocell offers a wider range of connectivity than a femtocell, but still has a limited range of connectivity and is often employed to provide coverage over an area such as a single floor of a building, a train station platform, or an airport terminal. A microcell offers a larger deployment footprint than a picocell, such as a residential neighborhood, an office complex, or an entire airport. A distributed antenna system is a network of spatially separated antenna sites called "nodes" connected to a common source that provides wireless service within a geographic area or structures.

41. Since carriers are deploying these network components, it may be very helpful to consider the prospect of leveraging these devices to enhance location accuracy. Therefore, we seek to understand the capabilities and limitations of imposing location accuracy requirements that utilize these types of network components. In what ways can these devices and technologies be used to improve location accuracy? For example, a femtocell could be viewed as typically installed in a semi-permanent manner at a particular home or office, that could thus be programmed with an exact address, or even have an embedded A-GPS chip. If that address could be transported with a 911 call, that would lead to significant improvement in location accuracy, akin to the location quality of wireline networks. Similarly, the location of a picocell alone could provide greater location accuracy for 911 calls handled by a picocell. Are there opportunities for these network elements to provide a means to transmit more accurate location information? If so, how can we best incorporate these capabilities into the location information transmitted with a wireless 911 call?

[93] T-Mobile Petition at 10.

[94] *See, e.g.,* Skype, *Product Features* (visited August 10, 2010) < http://www.skype.com/intl/en-us/features/>; Truphone, *Truphone Service Standard Terms and Conditions* (visited August 23, 2010) < http://www.truphone.com/about_us/legal.html >.

[95] Several major wireless operators are offering their subscribers femtocells for home use. *See* 14th Mobile Wireless Competition Report, at ¶ 350.

V. PROCEDURAL MATTERS

A. *Ex Parte* Rules – Permit-But-Disclose

42. This is a permit-but-disclose notice and comment rulemaking proceeding. *Ex parte* presentations are permitted, except during the Sunshine Agenda period, provided they are disclosed pursuant to the Commission's rules.[96]

B. Comment Period and Procedures

43. Pursuant to sections 1.415 and 1.419 of the Commission's rules, 47 C.F.R §§ 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. Comments may be filed using: (1) the Commission's Electronic Comment Filing System (ECFS), (2) the Federal Government's eRulemaking Portal, or (3) by filing paper copies. See Electronic Filing of Documents in Rulemaking Proceedings, 63 FR 24121 (1998).

44. *Electronic Filers*: Comments may be filed electronically using the Internet by accessing the ECFS: http://www.fcc.gov/cgb/ecfs/ or the Federal eRulemaking Portal: http://www.regulations.gov. Filers should follow the instructions provided on the website for submitting comments. All comments shall be filed in PS Docket No. 07-114 and WC Docket No. 05-196. In completing the transmittal screen, filers should include their full name, U.S. Postal Service mailing address, and the applicable docket or rulemaking number. Parties may also submit an electronic comment by Internet e-mail. To get filing instructions, filers should send an e-mail to ecfs@fcc.gov, and include the following words in the body of the message, "get form." A sample form and directions will be sent in response.

45. *Paper Filers*: Parties who choose to file by paper must file an original and four copies of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number. Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail (although we continue to experience delays in receiving U.S. Postal Service mail). All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission. The Commission's contractor will receive hand-delivered or messenger-delivered paper filings for the Commission's Secretary at 236 Massachusetts Avenue, NE, Suite 110, Washington, DC 20002. The filing hours at this location are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes must be disposed of before entering the building. Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743. U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12th Street, SW, Washington DC 20554.

46. *People with Disabilities*: To request materials in accessible formats for people with disabilities (Braille), large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

47. The public may view the documents filed in this proceeding during regular business hours in the FCC Reference Information Center, Federal Communications Commission, 445 12th Street, S.W., Room CY-A257, Washington, D. C. 20554, and on the Commission's Internet Home Page: <http://www.fcc.gov>. Copies of comments and reply comments are also available through the Commission's duplicating contractor: Best Copy and Printing, Inc., 445 12th Street, SW, Room CY-B402, Washington, DC, 20554, 1-800-378-3160.

[96] *See generally* 47 C.F.R. §§ 1.1202, 1.1203, 1.1206.

C. Initial Regulatory Flexibility Analysis

48. As required by the Regulatory Flexibility Act of 1980 (RFA),[97] the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on small entities of the policies and rules proposed in the *NPRM* portion of this document. The analysis is found in the Appendix. We request written public comment on the analysis. Comments must be filed by the same dates as listed in the first page of this document, and must have a separate and distinct heading designating them as responses to the IRFA. The Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, will send a copy of this *NPRM*, including the IRFA, to the Chief Counsel for Advocacy of the Small Business Administration.

D. Initial Paperwork Reduction Analysis

49. This document does not contain proposed information collection(s) subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13. In addition, therefore, it does not contain any new or modified "information collection burden for small business concerns with fewer than 25 employees," pursuant to the Small Business Paperwork Relief Act of 2002.[98]

E. Further Information

50. For further information concerning this rulemaking proceeding, contact Patrick Donovan, Public Safety and Homeland Security Bureau, at (202) 418-2413, Federal Communications Commission, 445 12th Street, S.W., Washington, D.C. 20554; or via the Internet to Patrick.Donovan@fcc.gov.

VI. ORDERING CLAUSES

51. Accordingly, IT IS ORDERED, pursuant to Sections 1, 2, 4(i), 7, 10, 201, 214, 251(e), 301, 302, 303, 307, 308, 309, 310, 319, 324, 332 and 333 of the Communications Act of 1934, 47 U.S.C. §§ 151, 152, 154(i), 157, 160, 201, 214, 251(e), 301, 302, 303, 307, 308, 309, 310, 319, 324, 332, 333, that this Notice of Proposed Rulemaking and Notice of Inquiry is hereby ADOPTED.

52. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this Further Notice of Proposed Rulemaking and Notice of Inquiry, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

53. IT IS FURTHER ORDERED that pursuant to applicable procedures set forth in Sections 1.415 and 1.419 of the Commission's rules, 47 C.F.R. §§ 1.415, 1.419, interested parties may file comments on this Further Notice of Proposed Rulemaking and Notice of Inquiry on or before 60 days after publication in the Federal Register, and reply comments on or before 90 days after publication in the Federal Register.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

[97] 5 U.S.C. § 603.

[98] Public Law 107- 198; *see* 44 U.S.C. § 3506(c)(4).

APPENDIX

Initial Regulatory Flexibility Analysis

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),[99] the Commission has prepared this present Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact of the proposal described in the attached Further Notice of Proposed Rulemaking and Notice of Inquiry on small entities. Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments in the Further Notice of Proposed Rulemaking and Notice of Inquiry. The Commission will send a copy of the Further Notice of Proposed Rulemaking and Notice of Inquiry, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).[100] In addition, the Further Notice of Proposed Rulemaking and Notice of Inquiry and IRFA (or summaries thereof) will be published in the Federal Register.[101]

A. Need for, and Objectives of, the Proposed Rules

2. The Further Notice of Proposed Rulemaking and Notice of Inquiry seek comments on how to ensure that wireless E911 service meets the needs of public safety and the American people, while taking into account the evolution in the use of wireless devices and the further development of location technologies. The Further Notice of Proposed Rulemaking part of this item seeks comment on the impact of technological changes in the use of wireless devices and the further development in the capabilities of location technologies on the standards for E911 Phase II location accuracy and reliability under Section 20.18(h) of the Commission's rules. As amended by the companion Second Report and Order, Section 20.18(h) requires licensees subject to the Commission's E911 requirements to meet those standards at the county or PSAP-based level.

3. The Further Notice of Proposed Rulemaking expands upon the second part of the preceding Notice of Proposed Rulemaking that the Commission released on June 1, 2007 (*Location Accuracy NPRM*) and seeks to update the other inquiries and tentative conclusions that the Commission initiated and reached, respectively. Specifically, the Further Notice of Proposed Rulemaking seeks comment on a number of issues raised in the *Location Accuracy NPRM*, including the following tentative conclusions by the Commission.

4. The Further Notice of Proposed Rulemaking tentatively concludes that the Commission should establish a mandatory testing and compliance regime and invites comment on the format in which accuracy data should be automatically provided to PSAPs.

5. The Further Notice of Proposed Rulemaking also tentatively concludes that "to the extent that an interconnected VoIP service may be used in more than one location, providers must employ an automatic location technology that meets the same accuracy standards that apply to those CMRS services," and asks for updated comment on whether the Commission should require carriers to ensure delivery of location information to PSAPs for every call handled on their networks, including calls made by customers of another carrier ("roaming calls") that has deployed a different technology in its own network or with whom the carrier handling the call has no automatic roaming relationship. The Commission seeks comment on the foregoing tentative conclusions.

6. Additionally, the Commission seeks comment on the other issues related to E911 location

[99] *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. § 601 – 612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

[100] *See* 5 U.S.C. § 603(a).

[101] *See* 5 U.S.C. § 603(a).

accuracy on which it previously sought comment in the *Location Accuracy NPRM*.

B. Legal Basis

7. The legal basis for any action that may be taken pursuant to this Further Notice of Proposed Rulemaking and Notice of Inquiry is contained in Sections 4(i) and 332 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 332.

C. Description and Estimate of the Number of Small Entities to Which the Proposed Rules Would Apply

8. The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules.[102] The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[103] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[104] A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).[105]

9. Nationwide, there are a total of approximately 22.4 million small businesses, according to SBA data.[106] A "small organization" is generally "any not-for-profit enterprise which is independently owned and operated and is not dominant in its field."[107] Nationwide, as of 2002, there were approximately 1.6 million small organizations.[108] The term "small governmental jurisdiction" is defined generally as "governments of cities, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand."[109] Census Bureau data for 2002 indicate that there were 87,525 local governmental jurisdictions in the United States.[110] We estimate that, of this total, 84,377 entities were "small governmental jurisdictions."[111] Thus, we estimate that most governmental jurisdictions are small.

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[102] 5 U.S.C. §§ 603(b)(3), 604(a)(3).

[103] 5 U.S.C. § 601(6).

[104] 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such terms which are appropriate to the activities of the agency and publishes such definitions(s) in the Federal Register."

[105] 15 U.S.C. § 632.

[106] *See* SBA, Programs and Services, SBA Pamphlet No. CO-0028, at page 40 (July 2002).

[107] 5 U.S.C. § 601(4).

[108] Independent Sector, The New Nonprofit Almanac & Desk Reference (2002).

[109] 5 U.S.C. § 601(5).

[110] U.S. Census Bureau, Statistical Abstract of the United States: 2006, Section 8, page 272, Table 415.

[111] We assume that the villages, school districts, and special districts are small, and total 48,558. *See* U.S. Census Bureau, Statistical Abstract of the United States: 2006, section 8, page 273, Table 417. For 2002, Census Bureau data indicate that the total number of county, municipal, and township governments nationwide was 38,967, of which 35,819 were small. *Id.*

1. Telecommunications Service Entities

a. Wireless Telecommunications Service Providers

10. Pursuant to 47 C.F.R. § 20.18(a), the Commission's 911 Service requirements are only applicable to Commercial Mobile Radio Service (CMRS) "[providers], excluding mobile satellite service operators, to the extent that they: (1) Offer real-time, two way switched voice service that is interconnected with the public switched network; and (2) Utilize an in-network switching facility that enables the provider to reuse frequencies and accomplish seamless hand-offs of subscriber calls. These requirements are applicable to entities that offer voice service to consumers by purchasing airtime or capacity at wholesale rates from CMRS licensees."

11. Below, for those services subject to auctions, we note that, as a general matter, the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Also, the Commission does not generally track subsequent business size unless, in the context of assignments or transfers, unjust enrichment issues are implicated.

12. *Wireless Telecommunications Carriers (except Satellite)*. Since 2007, the Census Bureau has placed wireless firms within this new, broad, economic census category. Prior to that time, such firms were within the now-superseded categories of "Paging" and "Cellular and Other Wireless Telecommunications." Under the present and prior categories, the SBA has deemed a wireless business to be small if it has 1,500 or fewer employees. Because Census Bureau data are not yet available for the new category, we will estimate small business prevalence using the prior categories and associated data. For the category of Paging, data for 2002 show that there were 807 firms that operated for the entire year. Of this total, 804 firms had employment of 999 or fewer employees, and three firms had employment of 1,000 employees or more. For the category of Cellular and Other Wireless Telecommunications, data for 2002 show that there were 1,397 firms that operated for the entire year.

13. *Broadband Personal Communications Service*. The broadband Personal Communications Service (PCS) spectrum is divided into six frequency blocks designated A through F, and the Commission has held auctions for each block. The Commission defined "small entity" for Blocks C and F as an entity that has average gross revenues of $40 million or less in the three previous calendar years.[112] For Block F, an additional classification for "very small business" was added and is defined as an entity that, together with its affiliates, has average gross revenues of not more than $15 million for the preceding three calendar years."[113] These standards defining "small entity" in the context of broadband PCS auctions have been approved by the SBA.[114] No small businesses, within the SBA-approved small business size standards bid successfully for licenses in Blocks A and B. There were 90 winning bidders that qualified as small entities in the Block C auctions. A total of 93 small and very small business bidders won approximately 40 percent of the 1,479 licenses for Blocks D, E, and F.[115] On March 23, 1999, the Commission re-auctioned 347 C, D, E, and F Block licenses. There were 48 small business

[112] *See Amendment of Parts 20 and 24 of the Commission's Rules – Broadband PCS Competitive Bidding and the Commercial Mobile Radio Service Spectrum Cap*, WT Docket No. 96-59, Report and Order, 11 FCC Rcd 7824, 61 FR 33859 (July 1, 1996) (*PCS Order*); *see also* 47 C.F.R. § 24.720(b).

[113] *See PCS Order*, 11 FCC Rcd 7824.

[114] *See, e.g.*, *Implementation of Section 309(j) of the Communications Act – Competitive Bidding*, PP Docket No. 93-253, Fifth Report and Order, 9 FCC Rcd 5332, 59 FR 37566 (July 22, 1994).

[115] FCC News, Broadband PCS, D, E and F Block Auction Closes, No. 71744 (rel. Jan. 14, 1997); *see also Amendment of the Commission's Rules Regarding Installment Payment Financing for Personal Communications Services (PCS) Licenses*, WT Docket No. 97-82, Second Report and Order, 12 FCC Rcd 16436, 62 FR 55348 (Oct. 24, 1997).

winning bidders. On January 26, 2001, the Commission completed the auction of 422 C and F Broadband PCS licenses in Auction No. 35. Of the 35 winning bidders in this auction, 29 qualified as "small" or "very small" businesses. Subsequent events, concerning Auction 35, including judicial and agency determinations, resulted in a total of 163 C and F Block licenses being available for grant.

14. *Narrowband Personal Communications Services.* To date, two auctions of narrowband personal communications services (PCS) licenses have been conducted. For purposes of the two auctions that have already been held, "small businesses" were entities with average gross revenues for the prior three calendar years of $40 million or less. Through these auctions, the Commission has awarded a total of 41 licenses, out of which 11 were obtained by small businesses. To ensure meaningful participation of small business entities in future auctions, the Commission has adopted a two-tiered small business size standard in the *Narrowband PCS Second Report and Order*.[116] A "small business" is an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than $40 million. A "very small business" is an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than $15 million. The SBA has approved these small business size standards.[117] In the future, the Commission will auction 459 licenses to serve Metropolitan Trading Areas (MTAs) and 408 response channel licenses. There is also one megahertz of narrowband PCS spectrum that has been held in reserve and that the Commission has not yet decided to release for licensing. The Commission cannot predict accurately the number of licenses that will be awarded to small entities in future auctions. However, four of the 16 winning bidders in the two previous narrowband PCS auctions were small businesses, as that term was defined. The Commission assumes, for purposes of this analysis, that a large portion of the remaining narrowband PCS licenses will be awarded to small entities. The Commission also assumes that at least some small businesses will acquire narrowband PCS licenses by means of the Commission's partitioning and disaggregation rules.

15. *Specialized Mobile Radio***.** The Commission awards "small entity" bidding credits in auctions for Specialized Mobile Radio (SMR) geographic area licenses in the 800 MHz and 900 MHz bands to firms that had revenues of no more than $15 million in each of the three previous calendar years.[118] The Commission awards "very small entity" bidding credits to firms that had revenues of no more than $3 million in each of the three previous calendar years.[119] The SBA has approved these small business size standards for the 900 MHz Service.[120] The Commission has held auctions for geographic area licenses in the 800 MHz and 900 MHz bands. The 900 MHz SMR auction was completed in 1996. Sixty bidders claiming that they qualified as small businesses under the $15 million size standard won 263 geographic area licenses in the 900 MHz SMR band. The 800 MHz SMR auction for the upper 200 channels was conducted in 1997. Ten bidders claiming that they qualified as small businesses under the $15 million size standard won 38 geographic area licenses for the upper 200 channels in the 800 MHz

[116] *Amendment of the Commission's Rules to Establish New Personal Communications Services, Narrowband PCS*, Docket No. ET 92-100, Docket No. PP 93-253, Second Report and Order and Second Further Notice of Proposed Rulemaking, 15 FCC Rcd 10456, 65 FR 35875 (June 6, 2000).

[117] *See* SBA Dec. 2, 1998 Letter.

[118] 47 C.F.R. § 90.814(b)(1).

[119] *Id*.

[120] *See* Letter to Thomas Sugrue, Chief, Wireless Telecommunications Bureau, Federal Communications Commission, from Aida Alvarez, Administrator, Small Business Administration, dated August 10, 1999. We note that, although a request was also sent to the SBA requesting approval for the small business size standard for 800 MHz, approval is still pending.

SMR band.[121] A second auction for the 800 MHz band was conducted in 2002 and included 23 BEA licenses. One bidder claiming small business status won five licenses.[122]

16. The auction of the 1,050 800 MHz SMR geographic area licenses for the General Category channels began was conducted in 2000. Eleven bidders won 108 geographic area licenses for the General Category channels in the 800 MHz SMR band qualified as small businesses under the $15 million size standard.[123] In an auction completed in 2000, a total of 2,800 Economic Area licenses in the lower 80 channels of the 800 MHz SMR service were awarded.[124] Of the 22 winning bidders, 19 claimed "small business" status and won 129 licenses. Thus, combining all three auctions, 40 winning bidders for geographic licenses in the 800 MHz SMR band claimed status as small business.

17. In addition, there are numerous incumbent site-by-site SMR licensees and licensees with extended implementation authorizations in the 800 and 900 MHz bands. We do not know how many firms provide 800 MHz or 900 MHz geographic area SMR pursuant to extended implementation authorizations, nor how many of these providers have annual revenues of no more than $15 million. One firm has over $15 million in revenues. In addition, we do not know how many of these firms have 1500 or fewer employees.[125] We assume, for purposes of this analysis, that all of the remaining existing extended implementation authorizations are held by small entities, as that small business size standard is approved by the SBA.

18. *Mobile Satellite Service Carriers***.** Neither the Commission nor the U.S. Small Business Administration has developed a small business size standard specifically for mobile satellite service licensees. The appropriate size standard is therefore the SBA standard for Satellite Telecommunications, which provides that such entities are small if they have $13.5 million or less in annual revenues.[126] Currently, the Commission's records show that there are 31 entities authorized to provide voice and data MSS in the United States. The Commission does not have sufficient information to determine which, if any, of these parties are small entities. The Commission notes that small businesses are not likely to have the financial ability to become MSS system operators because of high implementation costs, including construction of satellite space stations and rocket launch, associated with satellite systems and services.

19. *220 MHz Radio Service – Phase I Licensees*. The 220 MHz service has both Phase I and Phase II licenses. Phase I licensing was conducted by lotteries in 1992 and 1993. There are approximately 1,515 such non-nationwide licensees and four nationwide licensees currently authorized to operate in the 220 MHz Band. The Commission has not developed a definition of small entities specifically applicable to such incumbent 220 MHz Phase I licensees. To estimate the number of such licensees that are small businesses, we apply the small business size standard under the SBA rules applicable to Wireless Telecommunications Carriers (except Satellite).[127] This category provides that a small business is a wireless company employing no more than 1,500 persons.[128] The Commission

[121] *See* "Correction to Public Notice DA 96-586 'FCC Announces Winning Bidders in the Auction of 1020 Licenses to Provide 900 MHz SMR in Major Trading Areas,'" *Public Notice*, 18 FCC Rcd 18367 (WTB 1996).

[122] *See* "Multi-Radio Service Auction Closes," *Public Notice*, 17 FCC Rcd 1446 (WTB 2002).

[123] *See* "800 MHz Specialized Mobile Radio (SMR) Service General Category (851-854 MHz) and Upper Band (861-865 MHz) Auction Closes; Winning Bidders Announced," *Public Notice*, 15 FCC Rcd 17162 (2000).

[124] *See*, "800 MHz SMR Service Lower 80 Channels Auction Closes; Winning Bidders Announced," *Public Notice*, 16 FCC Rcd 1736 (2000).

[125] *See generally* 13 C.F.R. § 121.201, NAICS code 517210.

[126] 13 C.F.R. § 121.201, North American Industry Classification System ("NAICS") code 517410.

[127] *Id.*

[128] *Id.*

estimates that most such licensees are small businesses under the SBA's small business standard.

20. *220 MHz Radio Service – Phase II Licensees.* The 220 MHz service has both Phase I and Phase II licenses. The Phase II 220 MHz service is a new service, and is subject to spectrum auctions. In the *220 MHz Third Report and Order*, the Commission adopted a small business size standard for defining "small" and "very small" businesses for purposes of determining their eligibility for special provisions such as bidding credits and installment payments.[129] This small business standard indicates that a "small business" is an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding $15 million for the preceding three years.[130] A "very small business" is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues that do not exceed $3 million for the preceding three years.[131] The SBA has approved these small size standards.[132] Auctions of Phase II licenses commenced on and closed in 1998.[133] In the first auction, 908 licenses were auctioned in three different-sized geographic areas: three nationwide licenses, 30 Regional Economic Area Group (EAG) Licenses, and 875 Economic Area (EA) Licenses. Of the 908 licenses auctioned, 693 were sold.[134] Thirty-nine small businesses won 373 licenses in the first 220 MHz auction. A second auction included 225 licenses: 216 EA licenses and 9 EAG licenses. Fourteen companies claiming small business status won 158 licenses.[135] A third auction included four licenses: 2 BEA licenses and 2 EAG licenses in the 220 MHz Service. No small or very small business won any of these licenses.[136] In 2007, the Commission conducted a fourth auction of the 220 MHz licenses.[137] Bidding credits were offered to small businesses. A bidder with attributed average annual gross revenues that exceeded $3 million and did not exceed $15 million for the preceding three years ("small business") received a 25 percent discount on its winning bid. A bidder with attributed average annual gross revenues that did not exceed $3 million for the preceding three years received a 35 percent discount on its winning bid ("very small business"). Auction 72, which offered 94 Phase II 220 MHz Service licenses, concluded in 2007.[138] In this auction, five winning bidders won a total of 76 licenses. Two winning bidders identified themselves as very small businesses won 56 of the 76 licenses. One of the winning bidders that identified themselves as a small business won 5 of the 76 licenses won.

21. *Wireless Telephony*. Wireless telephony includes cellular, personal communications services (PCS), and specialized mobile radio (SMR) telephony carriers. As noted, the SBA has developed

[129] Amendment of Part 90 of the Commission's Rules to Provide For the Use of the 220-222 MHz Band by the Private Land Mobile Radio Service, *Third Report and Order*, 12 FCC Rcd 10943, 11068-70 ¶¶ 291-295 (1997).

[130] *Id.* at 11068 ¶ 291.

[131] *Id.*

[132] *See* Letter to Daniel Phythyon, Chief, Wireless Telecommunications Bureau, Federal Communications Commission, from Aida Alvarez, Administrator, Small Business Administration, dated January 6, 1998.

[133] *See generally* "220 MHz Service Auction Closes," *Public Notice*, 14 FCC Rcd 605 (WTB 1998).

[134] *See* "FCC Announces It is Prepared to Grant 654 Phase II 220 MHz Licenses After Final Payment is Made," *Public Notice*, 14 FCC Rcd 1085 (WTB 1999).

[135] *See* "Phase II 220 MHz Service Spectrum Auction Closes," *Public Notice*, 14 FCC Rcd 11218 (WTB 1999).

[136] *See* "Multi-Radio Service Auction Closes," *Public Notice*, 17 FCC Rcd 1446 (WTB 2002).

[137] *See* "Auction of Phase II 220 MHz Service Spectrum Scheduled for June 20, 2007, Notice and Filing Requirements, Minimum Opening Bids, Upfront Payments and Other Procedures for Auction 72, *Public Notice,* 22 FCC Rcd 3404 (2007).

[138] *See* "Auction of Phase II 220 MHz Service Spectrum Licenses Closes, Winning Bidders Announced for Auction 72, Down Payments due July 18, 2007, FCC Forms 601 and 602 due July 18, 2007, Final Payments due August 1, 2007, Ten-Day Petition to Deny Period, *Public Notice,* 22 FCC Rcd 11573 (2007).

a small business size standard for Wireless Telecommunications Carriers (except Satellite).[139] Under the SBA small business size standard, a business is small if it has 1,500 or fewer employees.[140] According to *Trends in Telephone Service* data, 434 carriers reported that they were engaged in wireless telephony.[141] Of these, an estimated 222 have 1,500 or fewer employees and 212 have more than 1,500 employees.[142] We have estimated that 222 of these are small under the SBA small business size standard.

22. *Rural Radiotelephone Service***.** The Commission has not adopted a size standard for small businesses specific to the Rural Radiotelephone Service.[143] A significant subset of the Rural Radiotelephone Service is the Basic Exchange Telephone Radio System ("BETRS").[144] In the present context, we will use the SBA's small business size standard applicable to Wireless Telecommunications Carriers (except Satellite), *i.e*., an entity employing no more than 1,500 persons.[145] There are approximately 1,000 licensees in the Rural Radiotelephone Service, and the Commission estimates that there are 1,000 or fewer small entity licensees in the Rural Radiotelephone Service that may be affected by the rules and policies adopted herein.

23. *Air-Ground Radiotelephone Service.* The Commission has previously used the SBA's small business definition applicable to Wireless Telecommunications Carriers (except Satellite), *i.e*., an entity employing no more than 1,500 persons.[146] There are approximately 100 licensees in the Air-Ground Radiotelephone Service, and under that definition, we estimate that almost all of them qualify as small entities under the SBA definition. For purposes of assigning Air-Ground Radiotelephone Service licenses through competitive bidding, the Commission has defined "small business" as an entity that, together with controlling interests and affiliates, has average annual gross revenues for the preceding three years not exceeding $40 million.[147] A "very small business" is defined as an entity that, together with controlling interests and affiliates, has average annual gross revenues for the preceding three years not exceeding $15 million.[148] These definitions were approved by the SBA.[149] In 2006, the Commission completed an auction of nationwide commercial Air-Ground Radiotelephone Service licenses in the 800 MHz band (Auction 65). Later in 2006, the auction closed with two winning bidders winning two Air-Ground Radiotelephone Services licenses. Neither of the winning bidders claimed small business status.

24. *Offshore Radiotelephone Service.* This service operates on several UHF television broadcast channels that are not used for television broadcasting in the coastal areas of states bordering the

[139] 13 C.F.R. § 121.201, NAICS code 517210.

[140] *Id*.

[141] "Trends in Telephone Service" at Table 5.3.

[142] "Trends in Telephone Service" at Table 5.3.

[143] The service is defined in § 22.99 of the Commission's Rules, 47 C.F.R. § 22.99.

[144] BETRS is defined in §§ 22.757 and 22.759 of the Commission's Rules, 47 C.F.R. §§ 22.757 and 22.759.

[145] 13 C.F.R. § 121.201, NAICS code 517210.

[146] 13 C.F.R. § 121.201, NAICS codes 517210.

[147] Amendment of Part 22 of the Commission's Rules to Benefit the Consumers of Air-Ground Telecommunications Services, Biennial Regulatory Review—Amendment of Parts 1, 22, and 90 of the Commission's Rules, Amendment of Parts 1 and 22 of the Commission's Rules to Adopt Competitive Bidding Rules for Commercial and General Aviation Air-Ground Radiotelephone Service, WT Docket Nos. 03-103, 05-42, *Order on Reconsideration and Report and Order*, 20 FCC Rcd 19663, paras. 28–42 (2005).

[148] *Id.*

[149] *See* Letter from Hector V. Barreto, Administrator, SBA, to Gary D. Michaels, Deputy Chief, Auctions and Spectrum Access Division, Wireless Telecommunications Bureau, FCC (filed Sept. 19, 2005).

Gulf of Mexico.[150] There is presently 1 licensee in this service. We do not have information whether that licensee would qualify as small under the SBA's small business size standard for Wireless Telecommunications Carriers (except Satellite) services.[151] Under that SBA small business size standard, a business is small if it has 1,500 or fewer employees.[152]

25. The Commission has not developed a small business size standard specifically for providers of international service. The appropriate size standards under SBA rules are for the two broad census categories of "Satellite Telecommunications" and "All Other Telecommunications." Under both categories, such a business is small if it has $13.5 million or less in average annual receipts.[153]

26. *Satellite Telecommunications and All Other Telecommunications*. These two economic census categories address the satellite industry. The first category has a small business size standard of $13.5 million or less in average annual receipts, under SBA rules. The second has a size standard of $23.5 million or less in annual receipts. The most current Census Bureau data in this context, however, are from the (last) economic census of 2002, and we will use those figures to gauge the prevalence of small businesses in these categories.

27. The category of Satellite Telecommunications "comprises establishments primarily engaged in providing telecommunications services to other establishments in the telecommunications and broadcasting industries by forwarding and receiving communications signals via a system of satellites or reselling satellite telecommunications." For this category, Census Bureau data for 2002 show that there were a total of 371 firms that operated for the entire year. Of this total, 307 firms had annual receipts of under $10 million, and 26 firms had receipts of $10 million to $24,999,999. Consequently, we estimate that the majority of Satellite Telecommunications firms are small entities that might be affected by our action.

28. The second category of Other Telecommunications "comprises establishments primarily engaged in (1) providing specialized telecommunications applications, such as satellite tracking, communications telemetry, and radar station operations; or (2) providing satellite terminal stations and associated facilities operationally connected with one or more terrestrial communications systems and capable of transmitting telecommunications to or receiving telecommunications from satellite systems."[154] For this category, Census Bureau data for 2002 show that there were a total of 332 firms that operated for the entire year.[155] Of this total, 303 firms had annual receipts of under $10 million and 15 firms had annual receipts of $10 million to $24,999,999.[156] Consequently, we estimate that the majority of Other Telecommunications firms are small entities that might be affected by our action.

b. Equipment Manufacturers

29. *Wireless Communications Equipment Manufacturing.* The Census Bureau defines this category as follows: "This industry comprises establishments primarily engaged in manufacturing radio and television broadcast and wireless communications equipment. Examples of products made by these

[150] This service is governed by Subpart I of Part 22 of the Commission's rules. *See* 47 C.F.R. §§ 22.1001-22.1037.

[151] 13 C.F.R. § 121.201, NAICS code 517210.

[152] *Id*.

[153] 13 C.F.R. § 121.201, NAICS codes 517410 and 517910.

[154] U.S. Census Bureau, 2002 NAICS Definitions, "517910 Other Telecommunications"; http://www.census.gov/epcd/naics02/def/NDEF517.HTM.

[155] U.S. Census Bureau, 2002 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 517910 (issued Nov. 2005).

[156] *Id*. An additional 14 firms had annual receipts of $25 million or more.

establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment."[157] The SBA has developed a small business size standard for Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing, which is: all such firms having 750 or fewer employees.[158] According to Census Bureau data for 2002, there were a total of 1,041 establishments in this category that operated for the entire year.[159] Of this total, 1,010 had employment of under 500, and an additional 13 had employment of 500 to 999.[160] Thus, under this size standard, the majority of firms can be considered small.

30. *Semiconductor and Related Device Manufacturing.* These establishments manufacture "computer storage devices that allow the storage and retrieval of data from a phase change, magnetic, optical, or magnetic/optical media."[161] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees.[162] According to Census Bureau data for 1997, there were 1,082 establishments in this category that operated for the entire year.[163] Of these, 987 had employment of under 500, and 52 establishments had employment of 500 to 999.

31. *Computer Storage Device Manufacturing.* These establishments manufacture "computer storage devices that allow the storage and retrieval of data from a phase change, magnetic, optical, or magnetic/optical media."[164] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 1,000 or fewer employees.[165] According to Census Bureau data for 1997, there were 209 establishments in this category that operated for the entire year.[166] Of these, 197 had employment of under 500, and eight establishments had employment of 500 to 999.

[157] U.S. Census Bureau, 2002 NAICS Definitions, "334220 Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing"; http://www.census.gov/epcd/naics02/def/NDEF334.HTM#N3342.

[158] 13 C.F.R. § 121.201, NAICS code 334220.

[159] U.S. Census Bureau, American FactFinder, 2002 Economic Census, Industry Series, Industry Statistics by Employment Size, NAICS code 334220 (released May 26, 2005); http://factfinder.census.gov. The number of "establishments" is a less helpful indicator of small business prevalence in this context than would be the number of "firms" or "companies," because the latter take into account the concept of common ownership or control. Any single physical location for an entity is an establishment, even though that location may be owned by a different establishment. Thus, the numbers given may reflect inflated numbers of businesses in this category, including the numbers of small businesses. In this category, the Census breaks-out data for firms or companies only to give the total number of such entities for 2002, which was 929.

[160] *Id*. An additional 18 establishments had employment of 1,000 or more.

[161] U.S. Census Bureau, "2002 NAICS Definitions: 334413 Semiconductor and Related Device Manufacturing" (Feb. 2004) <www.census.gov>.

[162] 13 C.F.R. § 121.201, NAICS code 334413.

[163] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Semiconductor and Related Device Manufacturing ," Table 4, NAICS code 334413 (issued July 1999).

[164] U.S. Census Bureau, "2002 NAICS Definitions: 334112 Computer Storage Device Manufacturing" (Feb. 2004) <www.census.gov>.

[165] 13 C.F.R. § 121.201, NAICS code 334112.

[166] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Computer Storage Device Manufacturing," Table 4, NAICS code 334112 (issued July 1999).

D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities

32. The Further Notice of Proposed Rulemaking and Notice of Inquiry seeks comment broadly on certain modifications to the compliance levels set forth in rules section 20.18(h).

E. Steps Taken to Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered

33. The RFA requires an agency to describe any significant, specifically small business alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): "(1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) and exemption from coverage of the rule, or any part thereof, for small entities."[167]

34. The Further Notice of Proposed Rulemaking and Notice of Inquiry seeks comment on various proposed changes to location accuracy standards. To assist in the analysis, commenters are requested to provide information regarding how small entities would be affected if the Commission were to adopt its proposed changes or any alternative proposals offered by other commenters.

35. With regard to accuracy testing, we tentatively concluded that we should adopt a mandatory testing regime. We seek comments both as to the parameters of this testing regime and any alternative testing regimes that may assist small business in complying with the requirements. Should we require testing every two years or would a different schedule be more appropriate? We seek comment on various alternatives for tracking compliance with the location accuracy requirements.

36. With regard to interconnected VoIP, the Commission tentatively concluded that "to the extent that an interconnected VoIP service may be used in more than one location, providers must employ an automatic location technology that meets the same accuracy standards that apply to those CMRS services." Should interconnected VoIP providers be subject to the Commission's CMRS E911 location requirements? Should the Commission consider first appointing an advisory committee to examine the technological and economic impacts of such a requirement? We seek comment on this and any other alternative proposals.

F. Federal Rules that May Duplicate, Overlap, or Conflict with the Proposed Rules

37. <None.>

[167] 5 U.S.C. §§ 603(c)(1)-(c)(4).

STATEMENT OF
CHAIRMAN JULIUS GENACHOWSKI

RE: *Wireless E911 Location Accuracy Requirements, E911 Requirements for IP-Enabled Service Providers, Further Notice of Proposed Rulemaking and Notice of Inquiry*, PS Docket No. 07-114, WC Docket No. 05-196.

When Americans call 9-1-1- from their landlines, first responders receive location information that's accurate more than 98% of the time. When Americans call 9-1-1 from their mobile phones, first responders are about 50% less likely to receive precise information about your location. Fifty percent.

The inaccuracy is not just a few feet, but up to one or two miles—and sometimes no location information at all.

Meanwhile, more and more 9-1-1- calls are being made from mobile phones – over 425,000 mobile 9-1-1- calls every day, and rising.

What does that mean in practical terms?

Yesterday, I had a chance to visit with the men and women who answer 9-1-1 calls at the McConnell Public Safety Operations Center in Fairfax, Virginia – and I saw, up close, the challenge of dealing with increasingly mobile 9-1-1- calls.

The Officers I met with said that when they don't receive accurate location data as part of a wireless 9-1-1 call, it can cost the first responders six minutes in delay trying to locate the caller. Sometimes more. Precious minutes that can be the difference between life and death.

Now, mobile telephones play a vital and positive role in our emergency safety system. Mobile phones let people call 9-1-1- from places where there are no landlines readily available, enhancing public safety.

And like any new technology, they create new issues, like distracted driving and the location-accuracy issue we are tackling today.

The order we adopt today makes location-accuracy requirements more stringent for wireless service providers. This will give first responders a better chance at locating callers much faster. It will enhance the public's safety.

And we have more work to do. Our *Further Notice* launches an inquiry on how to improve *indoor* location accuracy, and our *NOI* accelerates our work on how new and developing broadband technologies can help Americans reach 9-1-1 wherever they may be.

Our actions today fulfill another recommendation of the National Broadband Plan.

One final point on mobile 9-1-1 location accuracy. When I was in Fairfax yesterday, the public safety officers described ways that people can help first responders, and themselves, when they are making 9-1-1 calls from mobile phones.

Try to pay attention to landmarks, and mile markers on highways for example; remember the floor you're on in a tall building.

I have instructed our Public Safety and Consumer Bureaus to develop, together with the public safety community, a fact sheet for consumers with helpful information on mobile 9-1-1 calls. We will soon

have this on our website and work together with the public safety community on ways to pursue this education initiative – to help mobile 9-1-1 callers better and more quickly locate them in times of emergency.

I thank the staff for its great and ongoing work in this area. I look forward to continuing to work very closely with the public safety community, wireless service providers, and consumer advocates to continue to harness technology to improve the 9-1-1 service.

STATEMENT OF
COMMISSIONER MICHAEL J. COPPS

RE: *Wireless E911 Location Accuracy Requirements, E911 Requirements for IP-Enabled Service Providers, Further Notice of Proposed Rulemaking and Notice of Inquiry*, PS Docket No. 07-114, WC Docket No. 05-196.

I welcome these steps forward as we work to enhance the safety of the American people—always Job One for the FCC. Enhanced 911 saves lives. Experience has shown us that. The steps we take today will further improve the ability of first responders accurately to locate wireless E911 callers in emergencies. We do so based on a solid record and with a practical approach that relies on currently available technologies. More importantly, our actions reflect a general consensus among important E911 stakeholders—including the Association of Public-Safety Communications Officials and the National Emergency Number Association—on how to get this job done. So it's action time and today we take action.

We have come a good long distance since I came to the agency in 2001. I arrived at a time when carriers were regularly missing deadlines for deploying E911, manufacturers were failing to make equipment and software available quickly enough, and technology was still pretty basic. The Commission has been generally aggressive in recent years in encouraging all stakeholders and players to push the envelope and accomplish what needs to be accomplished to make Enhanced E911 a reality. With life-critical technology like E911, we must always do better than "business as usual." We must make the extra effort, expend the necessary resources and keep the objective front-and-center. With the consensus adopted in today's Order, I think we are clearly on the right road.

While I support today's decision, including its recognition of the unique challenges facing rural and remote communities, I remain worried. We allow, for example, network-based carriers to exclude from location accuracy compliance those counties where triangulation is not technically feasible. I understand that the technology and infrastructure in a given area today may not allow a carrier to comply with the specific location accuracy targets we require. That said, locating emergency callers living in rural America is no less important than locating emergency callers in other parts of the country. I expect carriers, even in those areas excluded from location accuracy compliance, to take every step technologically possible to maximize location accuracy for E911 calls and to do it with the sense of urgency that the safety of the people compels. We must never lose sight of this particular challenge as we move forward with implementation of the National Broadband Plan and work to expand wireless infrastructure in rural America. More towers mean not only more broadband, but can also mean more accurate E911 . . . and more lives saved. I am pleased we recognize that rural Americans cannot be left in the lurch going forward. By setting a sunset date for the location accuracy exclusion, we encourage carriers and manufacturers to expand A-GPS handsets in their subscriber base, which will make the network-based exclusion unnecessary in the long term.

Today we also launch a separate and much-needed examination into the next phase of wireless E911 location accuracy and reliability. With the explosion of wireless usage, devices and applications, including those encompassing voice over Internet Protocol (VoIP), we seek comment on the ongoing evolution of wireless technologies and the implications for location accuracy. Consistent with the National Broadband Plan, we look at the impact of Next Generation 911 (NG911) deployment and its potential for location accuracy. The FCC should always be looking for ways to harness the benefits of technology advances to improve accuracy and speed of response in emergencies, and to provide more interoperable and integrated emergency response capabilities for PSAPs, hospitals and first responders.

The Chairman is to be commended for bringing this important item to the full Commission for consideration. I particularly want to thank the staff of the Public Safety and Homeland Security for their

hard work and thorough analysis. I look forward to working with my colleagues, with the staff and with all E911 stakeholders as we continue to strengthen E911 requirements and capabilities.

STATEMENT OF
COMMISSIONER ROBERT M. McDOWELL

RE: *Wireless E911 Location Accuracy Requirements, E911 Requirements for IP-Enabled Service Providers, Further Notice of Proposed Rulemaking and Notice of Inquiry*, PS Docket No. 07-114, WC Docket No. 05-196.

For some time now, I have strongly encouraged efforts to forge consensus on the technological challenges to improving the accuracy of locating wireless callers who face an emergency. I am delighted, therefore, that we have reached this day and I am pleased to support today's Report and Order. We are unanimously adopting rules that will satisfy the current needs of public safety personnel and the expectations of America's wireless consumers. I thank all the participants for sharing your expertise and knowledge on the complex issues discussed in this proceeding.

Given the great consumer demand for and constant technology upgrades to wireless services, the companion Further Notice of Proposed Rulemaking and Notice of Inquiry is the more important of the two documents we adopt today. We have an ongoing duty to ensure that consumers, industry and first responders will all benefit as more powerful products are developed and deployed.

I am pleased that the Commission is promoting a meaningful discussion on the longer term requirements for 911 capabilities. We are posing tough questions on the effect of location accuracy and automatic location identification improvements, including indoor testing capabilities, as well as the applicability of E911 requirements to additional wireless communications services, devices and applications, among other issues. As is reflected in the order we adopt today, harnessing the expertise of all interested stakeholders will serve the public interest and move all of us ahead to understand and solve these technological challenges in a straightforward, comprehensive and transparent manner.

Thank you to Jeff Cohen and Patrick Donovan for their leadership, as well as to the entire team in the Public Safety and Homeland Security Bureau for its important work.

STATEMENT OF
COMMISSIONER MIGNON L. CLYBURN

RE: *Wireless E911 Location Accuracy Requirements, E911 Requirements for IP-Enabled Service Providers, Further Notice of Proposed Rulemaking and Notice of Inquiry*, PS Docket No. 07-114, WC Docket No. 05-196.

As I have mentioned before, one of the top priorities of this agency should be the safety of consumers. The accuracy of wireless E-9-1-1 location services, has become an increasingly important public safety concern, because our citizens have become more dependent on their mobile wireless devices. This surge in the demand for mobile wireless services reflects, in large part, an increased demand for innovative broadband applications. But as the Fourteenth Report on Mobile Services highlights, this increased demand for mobile services, is also a result of more people opting to rely solely on their mobile wireless service for their communications needs. As the percentage of citizens who only rely on mobile services increases, so should our focus on improving the location accuracy of E-9-1-1 for emergency services.

The Order and Notices we adopt today, send important messages about the direction our communications industry should take with regard to improving E-9-1-1 services. As the history leading up to the Second Report and Order suggests, consensus by all stakeholders is a more effective way to make our citizens safer than litigation. I congratulate APCO, NENA, AT&T, Sprint, T-Mobile, and Verizon Wireless, for reaching a workable compromise on location accuracy standards, and for putting the safety of our citizens ahead of other interests.

The Further Notice of Proposed Rulemaking and Notice of Inquiry, demonstrate a comprehensive and balanced approach to promoting more accurate E-9-1-1 services. I was particularly pleased to see the Further Notice address the different problems that service providers face in challenging environments, such as certain rural areas. It may be the case, that all service providers, large and small, face technical challenges in providing E-9-1-1 services. It is also true however, that these problems are more acute in hard to serve areas, where 3G networks are not currently deployed. Therefore, we should promote improved location accuracy standards, while recognizing that different areas may require different approaches to achieving those standards. I was also pleased to see that both Notices recognize the importance of considering the interests of persons living with disabilities. I commend the parties, such as AT&T and CTIA, who urged all stakeholders to account for those interests in developing E-9-1-1 technical solutions.

The Notice of Inquiry properly asks about the feasibility of extending location accuracy requirements to the many new wireless devices and applications, that provide the equivalent of mobile telephony but because of technical classifications, are not subject to our E-9-1-1 rules. Consumers have come to expect, that they can make VoIP phone calls from their computers as well as from their iPhones and other smart phones. It is reasonable for them to expect that they can access E-9-1-1 services when using VoIP technology. The Commission should ensure that its E-9-1-1 rules adapt to keep pace with consumer expectations. I encourage large carriers, smaller service providers, and other stakeholders, to provide us with the relevant information we need to take a proper, thorough, look at this issue. I thank the staff of the Public Safety and Homeland Security Bureau for their hard work on these items.

STATEMENT OF
COMMISSIONER MEREDITH A. BAKER

RE: *Wireless E911 Location Accuracy Requirements, E911 Requirements for IP-Enabled Service Providers, Further Notice of Proposed Rulemaking and Notice of Inquiry*, PS Docket No. 07-114, WC Docket No. 05-196.

I am pleased to support today's *Second Report and Order*, *Further Notice of Proposed Rulemaking*, and *Notice of Inquiry*. More than a decade ago, one of the first bills I ever worked on in Washington made 911 the national emergency number for mobile as well as fixed numbers. Fast forward to today when one of every four American homes has *only* wireless telephone service and standardizing access to emergency response services has become even more critical.[168] And, even in households that have both fixed and wireless service, one in seven receives all or nearly all calls on wireless telephones.[169]

Americans aren't just *receiving* calls on their wireless phones, either. Comments in our record reveal that in states such as Virginia and Texas, large majorities of 911 calls were *placed* on wireless phones. Those consumers, and countless others in emergency situations, will be safer and more secure as we require heightened standards for wireless carriers to ensure effective location of 911 callers.

I applaud the industry-wide cooperation in making these standards a reality. I also support the Commission's practical approach in allowing a carrier to blend network-based location data with A-GPS handset-based accuracy data to achieve the new Phase II network-based benchmarks.

However, it is important to note that these standards apply only to calls made outdoors. Today's *FNPRM* rightly inquires about the state of location-based technology and whether the FCC should consider enhancing E911 services for consumers placing 911 calls from indoor and in-building locations. Heightened standards for locating emergency indoor callers could materially enhance the ability of first responders to provide assistance and save lives.

Today's *Notice of Inquiry* also asks whether to extend 911 and E911 requirements beyond interconnected VoIP services, as defined by the Commission, to portable VoIP services and additional IP-based devices, services and applications. While these are important questions, I am cautious about the extent of the Commission's jurisdiction in this area.

I want to thank the staff of the Public Safety and Homeland Security Bureau for its work on this item. I look forward to working with my Commission colleagues on continuing to improve E911 public safety initiatives.

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[168] Stephen J. Blumberg & Julian V. Luke, *Wireless Substitution: Early Release of Estimates from the National Health Interview Survey, July-December 2009*, at 1 (May 12, 2010) National Center for Health Statistics, Centers for Disease Control and Prevention. (available at: http://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless200905.pdf) (Last visited September 22, 2010).

[169] *Wireless Substitution: Early Release of Estimates from the National Health Interview Study*, *supra*, at 5.

STATEMENT OF
CHAIRMAN JULIUS GENACHOWSKI

Re: Wireless E911 Location Accuracy Requirements, *Second Report and Order*, PS Docket No. 07-114; Wireless E911 Location Accuracy Requirements, E911 Requirements for IP-Enabled Service Providers, *Further Notice of Proposed Rulemaking and Notice of Inquiry*, PS Docket No. 07-114, WC Docket No. 05-196.

When Americans call 9-1-1- from their landlines, first responders receive location information that's accurate more than 98% of the time. When Americans call 9-1-1 from their mobile phones, first responders are about 50% less likely to receive precise information about your location. Fifty percent…

The inaccuracy is not just a few feet, but up to one or two miles—and sometimes no location information at all.

Meanwhile, more and more 9-1-1- calls are being made from mobile phones – over 425,000 mobile 9-1-1- calls every day, and rising.

What does that mean in practical terms?

Yesterday, I had a chance to visit with the men and women who answer 9-1-1 calls at the McConnell Public Safety Operations Center in Fairfax, Virginia – and I saw, up close, the challenge of dealing with increasingly mobile 9-1-1- calls.

The Officers I met with said that when they don't receive accurate location data as part of a wireless 9-1-1 call, it can cost the first responders six minutes in delay trying to locate the caller. Sometimes more. Precious minutes that can be the difference between life and death.

Now, mobile telephones play a vital and positive role in our emergency safety system. Mobile phones let people call 9-1-1- from places where there are no landlines readily available, enhancing public safety.

And like any new technology, they create new issues, like distracted driving and the location-accuracy issue we are tackling today.

The order we adopt today makes location-accuracy requirements more stringent for wireless service providers. This will give first responders a better chance at locating callers much faster. It will enhance the public's safety.

And we have more work to do. Our *Further Notice* launches an inquiry on how to improve *indoor* location accuracy, and our *NOI* accelerates our work on how new and developing broadband technologies can help Americans reach 9-1-1 wherever they may be.

Our actions today fulfill another recommendation of the National Broadband Plan.

One final point on mobile 9-1-1 location accuracy. When I was in Fairfax yesterday, the public safety officers described ways that people can help first responders, and themselves, when they are making 9-1-1 calls from mobile phones.

Try to pay attention to landmarks, and mile markers on highways for example; remember the floor you're on in a tall building.

I have instructed our Public Safety and Consumer Bureaus to develop, together with the public safety community, a fact sheet for consumers with helpful information on mobile 9-1-1 calls. We will soon have this on our website and work together with the public safety community on ways to pursue this education initiative – to help mobile 9-1-1 callers better and more quickly locate them in times of emergency.

I thank the staff for its great and ongoing work in this area. I look forward to continuing to work very closely with the public safety community, wireless service providers, and consumer advocates to continue to harness technology to improve the 9-1-1 service.

STATEMENT OF
COMMISSIONER MICHAEL J. COPPS
APPROVING

Re: Wireless E911 Location Accuracy Requirements, *Second Report and Order*, PS Docket No. 07-114; Wireless E911 Location Accuracy Requirements, E911 Requirements for IP-Enabled Service Providers, *Further Notice of Proposed Rulemaking and Notice of Inquiry*, PS Docket No. 07-114, WC Docket No. 05-196.

I welcome these steps forward as we work to enhance the safety of the American people—always Job One for the FCC. Enhanced 911 saves lives. Experience has shown us that. The steps we take today will further improve the ability of first responders accurately to locate wireless E911 callers in emergencies. We do so based on a solid record and with a practical approach that relies on currently available technologies. More importantly, our actions reflect a general consensus among important E911 stakeholders—including the Association of Public-Safety Communications Officials and the National Emergency Number Association—on how to get this job done. So it's action time and today we take action.

We have come a good long distance since I came to the agency in 2001. I arrived at a time when carriers were regularly missing deadlines for deploying E911, manufacturers were failing to make equipment and software available quickly enough, and technology was still pretty basic. The Commission has been generally aggressive in recent years in encouraging all stakeholders and players to push the envelope and accomplish what needs to be accomplished to make Enhanced E911 a reality. With life-critical technology like E911, we must always do better than "business as usual." We must make the extra effort, expend the necessary resources and keep the objective front-and-center. With the consensus adopted in today's Order, I think we are clearly on the right road.

While I support today's decision, including its recognition of the unique challenges facing rural and remote communities, I remain worried. We allow, for example, network-based carriers to exclude from location accuracy compliance those counties where triangulation is not technically feasible. I understand that the technology and infrastructure in a given area today may not allow a carrier to comply with the specific location accuracy targets we require. That said, locating emergency callers living in rural America is no less important than locating emergency callers in other parts of the country. I expect carriers, even in those areas excluded from location accuracy compliance, to take every step technologically possible to maximize location accuracy for E911 calls and to do it with the sense of urgency that the safety of the people compels. We must never lose sight of this particular challenge as we move forward with implementation of the National Broadband Plan and work to expand wireless infrastructure in rural America. More towers mean not only more broadband, but can also mean more accurate E911 . . . and more lives saved. I am pleased we recognize that rural Americans cannot be left in the lurch going forward.

By setting a sunset date for the location accuracy exclusion, we encourage carriers and manufacturers to expand A-GPS handsets in their subscriber base, which will make the network-based exclusion unnecessary in the long term.

Today we also launch a separate and much-needed examination into the next phase of wireless E911 location accuracy and reliability. With the explosion of wireless usage, devices and applications, including those encompassing voice over Internet Protocol (VoIP), we seek comment on the ongoing evolution of wireless technologies and the implications for location accuracy. Consistent with the National Broadband Plan, we look at the impact of Next

Generation 911 (NG911) deployment and its potential for location accuracy. The FCC should always be looking for ways to harness the benefits of technology advances to improve accuracy and speed of response in emergencies, and to provide more interoperable and integrated emergency response capabilities for PSAPs, hospitals and first responders.

The Chairman is to be commended for bringing this important item to the full Commission for consideration. I particularly want to thank the staff of the Public Safety and Homeland Security for their hard work and thorough analysis. I look forward to working with my colleagues, with the staff and with all E911 stakeholders as we continue to strengthen E911 requirements and capabilities.

STATEMENT OF
COMMISSIONER ROBERT M. McDOWELL

Re: Wireless E911 Location Accuracy Requirements, *Second Report and Order*, PS Docket No. 07-114; Wireless E911 Location Accuracy Requirements, E911 Requirements for IP-Enabled Service Providers, *Further Notice of Proposed Rulemaking and Notice of Inquiry*, PS Docket No. 07-114, WC Docket No. 05-196.

For some time now, I have strongly encouraged efforts to forge consensus on the technological challenges to improving the accuracy of locating wireless callers who face an emergency. I am delighted, therefore, that we have reached this day and I am pleased to support today's Report and Order. We are unanimously adopting rules that will satisfy the current needs of public safety personnel and the expectations of America's wireless consumers. I thank all the participants for sharing your expertise and knowledge on the complex issues discussed in this proceeding.

Given the great consumer demand for and constant technology upgrades to wireless services, the companion Further Notice of Proposed Rulemaking and Notice of Inquiry is the more important of the two documents we adopt today. We have an ongoing duty to ensure that consumers, industry and first responders will all benefit as more powerful products are developed and deployed.

I am pleased that the Commission is promoting a meaningful discussion on the longer term requirements for 911 capabilities. We are posing tough questions on the effect of location accuracy and automatic location identification improvements, including indoor testing capabilities, as well as the applicability of E911 requirements to additional wireless communications services, devices and applications, among other issues. As is reflected in the order we adopt today, harnessing the expertise of all interested stakeholders will serve the public interest and move all of us ahead to understand and solve these technological challenges in a straightforward, comprehensive and transparent manner.

Thank you to Jeff Cohen and Patrick Donovan for their leadership, as well as to the entire team in the Public Safety and Homeland Security Bureau for its important work.

STATEMENT OF
COMMISSIONER MIGNON L. CLYBURN

Re: Wireless E911 Location Accuracy Requirements, *Second Report and Order*, PS Docket No. 07-114; Wireless E911 Location Accuracy Requirements, E911 Requirements for IP-Enabled Service Providers, *Further Notice of Proposed Rulemaking and Notice of Inquiry*, PS Docket No. 07-114, WC Docket No. 05-196.

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