

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

In the Matter of)	
Amending the Definition of Interconnected)	
VoIP Service in Section 9.3 of the)	GN Docket No. 11-117
Commission’s Rules)	PS Docket No. 07-114
Wireless E911 Location Accuracy)	WC Docket No. 05-196
Requirements)	
E911 Requirements for IP-Enabled Service)	
Providers)	

COMMENTS OF T-MOBILE USA, INC.

T-Mobile USA, Inc. (“T-Mobile”) supports the Commission’s continued initiatives to improve location accuracy for all communications service providers to ensure that all callers can reach 911 in an emergency and, when possible, have their locations automatically determined if they are unable to communicate. The *Second Further Notice of Proposed Rulemaking*¹ further explores ways to improve location accuracy for those consumers, while commendably recognizing that these issues do not lend themselves to additional regulatory mandates at this time. As the Commission acknowledges, “commenters [in response to the Commission’s 2010 Notice of Inquiry²] generally agree that at this time there is no technological or cost-effective means to provide ALI for interconnected VoIP services providers.”³

¹ *Amending the Definition of Interconnected VoIP Service in Section 9.3 of the Commission’s Rules, Wireless E911 Location Accuracy Requirements, E911 Requirements for IP-Enabled Service Providers*, Notice Of Proposed Rulemaking, Third Report and Order, and Second Further Notice Of Proposed Rulemaking, 26 FCC Rcd. 10074 (2011) (“*Second FNPRM*”).

² *Framework for Next Generation 911 Deployment*, Notice of Inquiry, 25 FCC Rcd. 17869, 17877-80 ¶¶ 18-26 (2010).

³ *Second FNPRM*, 26 FCC Rcd. at 10096, ¶ 64.

In lieu of new rules, the Commission seeks comment on a framework for autolocation for interconnected VoIP services that would assign responsibility to underlying broadband providers to provide location for “over-the-top” applications. But this framework assumes that broadband providers will have location information to provide to the over-the-top provider at the time the over-the-top caller places a 911 call. For mobile broadband, this assumption is not warranted, as CMRS providers determine location only after a 911 call is placed. Moreover, mobile broadband can be even more complicated because there may be three entities involved – the over-the-top provider, a wireless carrier (such as T-Mobile) as ISP, and an access network provider (such as when a wireless handset connects to T-Mobile via a Wi-Fi access point rather than T-Mobile’s CMRS network or T-Mobile’s customer is roaming on another provider’s CMRS network) – with location information potentially needing to be transmitted across and among all three entities. However, if the Commission does eventually mandate broadband providers to provide location information or other assistance in delivering or locating a 911 call, the NET 911 Act clearly provides liability protection equivalent to that of wireline common carriers.

The NPRM also seeks comment again with respect to indoor accuracy measurement as well as the use of Wi-Fi and other commercial location technologies as potential complementary location solutions to A-GPS. Both of these issues are currently being examined by the Commission's Communications Security, Reliability, and Interoperability Council ("CSRIC") III Working Group 3, and thus further comment on these issues should be deferred until after CSRIC completes its review. In any event, as T-Mobile has commented in the past, and incorporates again here, indoor accuracy measurement cannot feasibly be performed in the same way as outdoor measurements, and would best be served by developing a system of handset “type acceptance” testing or establishing baseline performance expectations in *representative*

indoor environments. Similarly, while Wi-Fi holds promise for autolocation, no suitable complements to A-GPS currently exist, and commercial technologies generally are not designed to provide the type of precision and reliability that E911 requires.

I. The Commission Should Not Adopt a Framework that Would Mandate That Mobile Broadband Providers Provide Location Information To Over-The-Top Providers.

The Commission asks whether it should adopt “proposed general location accuracy governing principles that could be applied to interconnected VoIP service providers and over-the-top VoIP service providers but that would allow both types of providers the flexibility to develop technologically efficient and cost-effective solutions.”⁴ The Commission suggests two principles:

- “[W]hen an interconnected VoIP user accesses the Internet to place an emergency call, the underlying broadband provider must be capable of providing location information regarding the access point being used by the device or application, using industry-standard protocols on commercially reasonable and non-discriminatory terms.”⁵
- “[W]hen an interconnected VoIP user places an emergency call, the over-the-top VoIP service provider must either provide ALI directly (*e.g.*, using geo-location information generated by the device or application) or must support the provision of access point location information by the broadband provider as described above.”⁶

Simply calling these “principles” rather than “rules” does not alter the fact that what the Commission has proposed, at least as drafted, are mandatory requirements, not merely non-binding objectives. If this is the case, then the Commission must, before it can adopt these requirements, determine that compliance would be technically and economically feasible; otherwise, the Commission’s actions would be arbitrary and capricious.⁷

⁴ *Id.* at 10099, ¶ 72.

⁵ *Id.*

⁶ *Id.*

⁷ *See Nuvio Corp. v. FCC*, 473 F.3d 302, 303 (D.C. Cir. 2006); *Alliance for Cannabis*

Although the Commission correctly points out that the IETF GEOPRIV working group has “defined a suite of protocols” allowing broadband providers to pass location information, the existence of protocols for exchanging such information does not establish that it would be technically feasible for the broadband provider – particularly a mobile broadband provider – to determine the location of the particular device being used to gain access to the Internet. For example, in the case of CMRS, providers do not leave autolocation systems on at all times for 911 calls placed over their own voice systems. Instead, they determine location only when a 911 call is placed. CMRS providers then route a 911 call based on the cell-sector in which the call is placed, with a more precise determination of the caller’s location occurring thereafter and usually taking a period of time exceeding the time for a functionally acceptable call set-up (*i.e.*, if call set-up takes too long, the caller hangs up).

It is thus unlikely that any information other than possibly the cell-sector code would be even potentially available to an over-the-top VoIP provider at the time a 911 call would be placed using the over-the-top VoIP application while on the CMRS network. (If the device were only able to access emergency services via a Wi-Fi connection, there would be no serving cell sector information available to the over-the-top provider.) And even that information would not be usable to the over-the-top VoIP provider for routing a 911 call unless it also knew the geographic coordinates of the cell sector and the PSAPs with which that cell sector was associated. Of course, the over-the-top VoIP provider would then have to obtain and maintain such cell sector information for every mobile broadband provider potentially used by its customer – many of which use different cell sector methodologies. Over-the-top VoIP providers would thus not only have to coordinate geographic information with cell sector data, but they

Therapeutics v. DEA, 930 F.2d 936, 940 (D.C. Cir. 1991).

would also have to coordinate that information with multiple databases, all using different identification methodologies. Such a requirement would be incredibly burdensome (if it is even possible) and would require over-the-top VoIP providers to have access to and knowledge of highly proprietary information regarding mobile broadband providers' underlying technologies and deployment. This does not bear the hallmarks of a feasible autolocation solution even for routing the 911 call to the appropriate PSAP. The other potential "solution" would be to leave autolocation "on" at all times, in case an over-the-top application needs to place a 911 call; however, that "solution" would create both battery-life issues and would raise privacy concerns because the consumer could never switch off autolocation.

The Commission also needs to consider the fact that there may be more than two entities involved. Take, for example, a T-Mobile 4G customer who has roamed off of T-Mobile's network, either onto a Wi-Fi access point or onto another carrier's data network. In that situation, there is an over-the-top provider, T-Mobile as the broadband ISP, and a third entity as the access provider. If the over-the-top provider were to request location from T-Mobile, T-Mobile would have to turn around and request information from the access provider. While T-Mobile has no objection to the Commission exploring whether the framework it articulates has the *potential* to become workable, the Commission should not adopt its proposed principles as requirements, rather than aspirations, until implementation of such requirements would be technically feasible and actually lead to a workable solution for locating a 911 caller and routing a 911 call to the appropriate PSAP. A better solution than implementing these principles would be for the Commission to ask CSRIC III (or another appropriate group) specifically to investigate this issue, to assess the wide range of potential service permutations, and to make further recommendations.

II. The Commission Should Confirm That Broadband Providers Are Entitled To Liability Protection Under the NET 911 Act.

The Commission asks whether broadband providers would have liability protections if the Commission were to mandate that broadband service providers provide location information or other services to support E911. The NET 911 Act affords such protection. Under the NET 911 Act, “entit[ies]...required by the Federal Communications Commission...to provide other emergency communications services”⁸ are “other communications service providers”⁹ entitled to the same liability protections as wireless carriers and IP-enabled voice service providers.¹⁰ Thus, the Commission should ensure that any mandate on broadband providers regarding E911 services is paired with confirmation that they also have the liability protection contemplated by the NET 911 Act for any communications provider required to provide emergency services.

III. Commercial Location-Based Services, Including Wi-Fi, Are Not A 911 Solution.

As T-Mobile has previously commented, commercial location-based services used to augment mobile broadband applications do not lend themselves to use for emergency services.¹¹ There are significant differences in the reliability, latency, accuracy, and device availability of such services between the two use cases.¹² Moreover, commercial solutions do not generate a more accurate location estimate than those already used for E911 purposes.¹³ This is because it

⁸ 47 U.S.C. § 615b(9)(a).

⁹ 47 U.S.C. § 615b(9).

¹⁰ 47 U.S.C. § 615a.

¹¹ Comments of T-Mobile USA, Inc. at 10-18, PS Docket No. 07-114 and WC Docket No. 05-196 (filed Jan. 19, 2011) (“2011 T-Mobile Location Accuracy Comments”); Reply Comments of T-Mobile USA, Inc. at 13-15, PS Docket No. 07-114 and WC Docket No. 05-196 (filed Feb. 18, 2011) (“2011 T-Mobile Location Accuracy Reply Comments”).

¹² *See, e.g.*, 2011 T-Mobile Location Accuracy Comments at 15-16.

¹³ *See, e.g., id.* at 10-18.

is not necessary to have a high degree of precision in order to inform consumers as to the location of the nearest restaurant, coffee shop or hotel.

T-Mobile has also previously commented on the shortcomings today of Wi-Fi-based location solutions.¹⁴ T-Mobile is unaware of any substantial changes in these shortcomings since that time and incorporates those comments here by reference.

In any event, CSRIC III Working Group 3 is already slated to examine these issues. Its description of issues includes “explor[ing] and mak[ing] recommendations on methodologies for leveraging commercial location-based services for 9-1-1 location determination and provid[ing] recommendations on the feasibility or appropriateness for the Commission to adopt operational benchmarks that will allow consumers to evaluate carriers’ ability to provide accurate location information.”¹⁵ T-Mobile encourages the Commission to allow that important process to continue and to obtain CSRIC III’s evaluation before proceeding further with this issue.

IV. The Commission Should Await CSRIC III Working Group 3’s Examination of Indoor Accuracy Testing Issues Before Taking Further Actions with Respect to Indoor Accuracy.

CSRIC III Working Group 3 has already been tasked with exploring alternatives to empirical testing at the local level, including investigating whether the Commission should establish a set of typical indoor scenarios and test each handset model or class in one or more such environments. The Commission should allow the CSRIC III process to continue, and refrain from implementing an indoor testing mandate at this time.

¹⁴ *Id.* at 15-16.

¹⁵ CSRIC III Working Group Descriptions and Leadership at 4, *available at* <http://transition.fcc.gov/pshs/advisory/csric3/wg-descriptions.pdf>.

As T-Mobile has stated in previous comments in this docket,¹⁶ it is not feasible to conduct indoor testing in a manner similar to outdoor testing. Earlier this year, T-Mobile noted that, unlike outdoor data collection, which can be performed by drive testing, there is no feasible way to perform indoor testing on any large scale. Last year, ESIF carefully studied and reported on indoor testing,¹⁷ and confirmed that indoor testing on a large scale is not feasible, due to the significant technical, logistical, and practical issues associated with empirically measuring indoor performance.

Nothing has changed regarding the feasibility of evaluating indoor location accuracy in the same manner as is done with outdoor testing. T-Mobile supports the Commission's decision to defer this issue to CSRIC III, along with their direction to "consider the feasibility of flexible testing criteria and methodologies" and to "find cost-effective testing solutions."¹⁸ T-Mobile believes this the best process to develop reasonable guidelines, and that the only feasible ways to conduct indoor testing would be to establish baseline performance expectations in *representative* indoor environments, as ESIF recommended,¹⁹ or to consider a handset "type acceptance" testing approach as contemplated by CSRIC III Working Group 3.²⁰ T-Mobile is committed to actively participate in and contribute to the CSRIC III process.

¹⁶ 2011 T-Mobile Location Accuracy Comments at 21-23; Comments of T-Mobile USA, Inc. at 13-14, PS Docket No. 07-114, WC Docket No. 05-196 (filed Aug. 20, 2007).

¹⁷ Emergency Services Interconnection Forum, Alliance for Telecommunications Industry Solutions, Approaches to Wireless E9-1-1 Indoor Location Performance Testing, ATIS-0500013 (February 23, 2010) ("ESIF Indoor Testing Report").

¹⁸ *Second FNPRM*, 26 FCC Rcd. at 10090, ¶ 41.

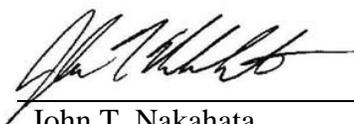
¹⁹ ESIF Indoor Testing Report, at 27.

²⁰ CSRIC III Working Group Descriptions and Leadership at 3 ("Should the Commission establish a set of typical indoor scenarios and test each handset model, or class, in one or more model environments? This approach may be appropriate if performance is likely to depend on handset characteristics, such as the GPS chipset, or antenna configuration.").

V. Conclusion

T-Mobile recognizes the importance of investigating and evaluating location accuracy technologies for over-the-top interconnected VoIP. But the lack of available, reliable, and operationally feasible location solutions at this time counsels against the imposition of mandates – even as “principles” – on the underlying broadband providers for those services, either to use the IETF GEOPRIV protocols or to adopt commercial location technologies for emergency use. If the Commission does impose any emergency communications mandates on broadband providers, however, it should ensure they are guaranteed the same liability protections as other communications providers. The Commission should also refrain from requiring outdoor testing methodologies to be adapted for indoor testing. CSRIC III should be allowed to continue its important work on both location technologies and testing before the Commission takes any further action.

Respectfully submitted,



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