

August 20, 2014

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

James Arden Barnett, Jr.

T 202.344.4695
F 202.344.8300
jbarnett@venable.com

Re: Wireless E911 Location Accuracy Requirements, PS Docket No. 07-114

Dear Ms. Dortch:

TruePosition, Inc., a member of the Find Me 911 Coalition, through undersigned counsel and pursuant to Section 1.1206(b)(2) of the FCC's Rules, hereby submits this written *ex parte* presentation in the referenced rulemaking proceeding. In particular, this presentation is in response to an August 18, 2014 letter from T-Mobile, USA, Inc. to the FCC in this rulemaking proceeding.¹ The purpose of this communication is to ensure that the FCC's record is complete and accurate with respect to the critical need for indoor E911 safety standards and the worrisome state of outdoor location accuracy for E911.

1. Public safety officials and empirical evidence confirm that the Nation's E911 location problems are widespread and need to be fixed right away.

T-Mobile's letter to the FCC seems to suggest that, with respect to E911 location accuracy in the U.S., the FindMe911 Coalition and TruePosition have somehow "manufacture[d] a crisis that simply does not exist." The overwhelming record evidence in this proceeding confirms that there is indeed a public safety crisis in the U.S. with respect to E911 location inaccuracy. In a survey taken earlier this year, 82 percent of 9-1-1 professionals said they do not have a great deal of confidence in location information provided by carriers; 54 percent said the latitude and longitude data provided by carriers is "regularly" inaccurate. Well over 90% of public safety officials surveyed asked the FCC to implement improved E911 safety standards within the next two years.

The E911 location data from the District of Columbia's Office of United Communications to which T-Mobile's letter refers should be considered as troubling to wireless carriers as it is to public safety officials. The data comes from independent studies throughout the Greater Metropolitan Area, indicating that for all wireless carriers a substantial percentage of wireless 911 calls are delivered to the District of Columbia PSAP without accurate call location information. T-Mobile's response is typical for wireless carriers: T-Mobile claims that if PSAPs were to simply "rebid" on a regular basis, they would obtain accurate Phase II data on a timely

¹ While not designated as such, the T-Mobile letter was presumably intended to be a written *ex parte* presentation in this rulemaking proceeding.

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basis. But, that assertion is belied in the FCC's record for a number of reasons, including statements from PSAP organizations which assert that the vast majority of PSAPs already "rebid" wireless 911 calls every 30 seconds as a matter of protocol. Moreover, widespread evidence that location accuracy data has been eroding throughout the United States coincides with widespread adoption by wireless carriers of GPS location technology in lieu of network-based location technology. The nature of building design in Washington, DC (thick granite, marble and steel walls) perfectly coincides with 911 location problems that are caused by GPS technology. And, troubling E911 location findings like those out of Washington, D.C. have been submitted to the FCC in this rulemaking proceeding from a wide array of jurisdictions including California, North Carolina, Pennsylvania, Oregon, Texas and Utah. This is not a "manufactured crisis," this is a very real and wide-scale public safety emergency that ought to be of concern to T-Mobile.

Moreover, T-Mobile's intimation that the source of the data is somehow dubious ("information FindMe911 obtained not from DCOUC but via the Commission") is at best puzzling. The data in question came from the District of Columbia's Office of United Communications; the fact that it was disclosed to the public through an FCC FOIA request surely does not undermine the value of the data. Rather, what is troubling is that it is necessary for anyone to file FOIA requests to even attempt to determine whether and to what extent wireless carriers are meeting the FCC's Phase II location standards nationwide on a regular basis. To the extent that T-Mobile and other wireless carriers truly believe they are in full compliance with the FCC's E911 location accuracy standards, one might expect that they would routinely share that data with their customers, with PSAPs and with the FCC. That evidence is certainly absent from this rulemaking record.

2. T-Mobile's Analysis of UTDOA Accuracy.

Many assertions made by T-Mobile in its recent letter to the FCC cannot be fairly addressed since this carrier chose not to share any relevant data with the FCC. For instance, T-Mobile asserts that "interesting facts emerge from the 911 call data T-Mobile analyzed for Washington, DC," but they do not identify any pertinent facts regarding that data, such as relevant dates, locations and the manner in which the data was generated and obtained.

T-Mobile states that: "For a large portion of the calls for which T-Mobile obtained a U-TDOA location estimate, that estimate was not available at the time of the initial location bid (which on average was 4.8 seconds after the start of the call)." The fact is that U-TDOA latency for deployed TruePosition systems for GSM is less than 3.3 seconds, 90% of the time. It is unclear what T-Mobile means by a "large portion" or how they might be obtaining these U-TDOA locations such that they are not available at the initial bid. In any case, given that U-TDOA latency is typically less than 3.3 seconds, a location would certainly be available upon

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any rebid a couple seconds after the 911 call is delivered. The same would not be true of A-GPS, where latency is typically 25-30 seconds.

Moreover, T-Mobile has not asked TruePosition to support and update its U-TDOA network since 2011; therefore, it is not possible for TruePosition to know anything about the operational status of T-Mobile's location network. TruePosition has regularly been refining and improving U-TDOA technology in the years since T-Mobile opted to rely largely on GPS technology for its E911 compliance requirements. T-Mobile does not have the benefit of any of those upgrades.

Also, T-Mobile's comparison of uncertainty statistics is flawed for several reasons. First, the average uncertainty is not a measurement of accuracy. Measurement of accuracy requires ground truth data for comparison. Second, uncertainty calculation is left to the vendor and is computed in different ways for different technologies, and therefore it is not reasonable to compare across technologies and vendors. Third, the suggestion that the average uncertainty (determined at 90% confidence) for U-TDOA location fixes was over 267 meters is inconsistent with other U-TDOA deployments. The average uncertainty of 90% confidence for an urban area for a fully deployed and properly maintained U-TDOA network for GSM would be 125-150 meters, that is, 50% better than what T-Mobile is arguing.²

The suggestion that U-TDOA does not compare favorably to AGPS is also misleading. T-Mobile did not disclose what percentage of GPS-based E911 locations failed altogether due to signal blocking, which is a common occurrence in urban areas like Washington, D.C. By comparison, U-TDOA-based locations are delivered over 98% of the time in a fully deployed network. Hence, T-Mobile's assertions regarding "average uncertainty" are not a fair or accurate comparison of the two technologies. A more fair comparison would be U-TDOA vs. the full set of locations delivered by AGPS and RTT (a fall-back technology that is not Phase II compliant), which is what T-Mobile is using for E911 for its 3G mobile phones.³

² The most recent TechnoCom test results filed by TruePosition showing compliance with the FCC's proposed indoor accuracy rules reflect the accuracy of U-TDOA for UMTS (as opposed to GSM).

³ T-Mobile asserts that it "made available Phase II location estimates for 89.5% of 911 calls delivered to DCOUC lasting more than 30 seconds." When read in combination with its claims regarding the average uncertainty of AGPS, this gives the impression that T-Mobile provided 25 meter accuracy for 89.5% of the calls, when in fact some percentage of those "estimates" were provided by RTT -- the fallback technology employed when AGPS fails to provide a location (e.g., indoors). Ground truth based tests performed by TruePosition in cooperation with PSAPs in Frisco and Austin, Texas showed that for call originating indoors, the 90th percentile accuracy of AGPS/RTT was 829.6 meters. See True Position *ex parte* presentation, July 16, 2013 letter to M. Dortch, "E911 Indoor Location Accuracy."

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3. UTDOA Technology is Accurate Indoors and Outdoors.

T-Mobile states that the accuracy of TruePosition's U-TDOA technology is "unproven, as it withdrew from the only independently administered test of indoor location accuracy." This is a false statement. TruePosition's technology has been independently tested on several occasions, and in each test the technology has met or exceeded the FCC's Phase 2 standards. Recent test results submitted to the FCC in this rulemaking proceeding proved that TruePosition's current U-TDOA technology could meet or exceed the FCC's proposed indoor location standards.

One independent test of TruePosition's technology was conducted by Verizon Wireless in New York City. Two additional independent tests were conducted by TechnoCom, the independent testing company that conducted the FCC's CSRIC indoor accuracy tests in San Francisco. All of these test results were voluntarily submitted by TruePosition to the FCC and are available for public inspection in this rulemaking docket. As TruePosition has previously stated in the record, and in response to any wireless carrier that has made this false assertion, the only reason why TruePosition did not participate in CSRIC's San Francisco tests was because it did not have an operational test bed deployed in San Francisco. TruePosition wanted the CSRIC/TechnoCom test results to accurately reflect what a wireless carrier would find if it fully deployed U-TDOA in an operational network; that is why TruePosition tested its U-TDOA network for indoor accuracy in Wilmington, Delaware, where it has a fully deployed test network.

4. T-Mobile Should Disclose its Washington, DC Location Data.

If T-Mobile is truly interested in an open, fair and accurate assessment of its compliance with the FCC's Phase II location requirements, and a fair comparison of U-TDOA technology versus GPS technology, it should submit to the FCC the relevant Washington, DC data upon which it rests its conclusions. The public at large, public safety officials and the FCC would surely benefit from full disclosure of every wireless carrier's Phase II compliance data. Absent those disclosures, it hardly seems appropriate for T-Mobile to chastise TruePosition, the FindMe911 Coalition and a large number of public safety officials who have endeavored to find this critical information and disclose it so that informed decisions could be made regarding the true status of E911 location accuracy throughout the United States.

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Thank you for your attention to this information. Should the FCC have any questions in this regard, please contact the undersigned.

Sincerely,

/s/ James Arden Barnett, Jr.

James Arden Barnett, Jr.
Rear Admiral USN (Ret.)
Venable LLP

cc: Rear Admiral (ret.) David Simpson, Chief, Homeland Security & Public Safety Bureau
David L. Furth, Deputy Bureau Chief
Daniel Alvarez, Legal Advisor to Chairman Wheeler
Louis Peraertz, Legal Advisor to Commissioner Clyburn
David Goldman, Legal Advisor to Commissioner Rosenworcel
Brendan Carr, Legal Advisor to Commissioner Pai
Erin McGrath, Legal Advisor to Commissioner O'Rielly