Polaris Wireless

January 12, 2015

VIA ELECTRONIC DELIVERY

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

RE: Ex Parte Presentation
GN Docket No. 07-114

Dear Ms. Dortch:

Polaris Wireless, Inc. ("Polaris") hereby submits this *ex parte* letter to provide further detail in response to issues raised by the Public Safety & Homeland Security Bureau ("PSHSB") staff during a recent meeting.[1] Specifically, Polaris offers its assessment on the technical feasibility and cost of meeting the horizontal and vertical location accuracy standards proposed by the Commission in its Third Further Notice, using the Polaris technology platform.[2]

Horizontal Location Accuracy. Polaris' field testing and numerical studies indicate that its hybrid cellular/A-GNSS platform will achieve the Commission's indoor and outdoor location accuracy objectives. Polaris was one of three wireless location technology providers that participated in the CSRIC pilot phase of 2G indoor location accuracy tests, and those results are a matter of public record. The company intends to provide test data for its 3G and 4G technology, demonstrating compliance with Commission accuracy objectives, in the next round of multi-region CSRIC indoor tests, which have not yet been definitively scheduled. As a matter of policy, Polaris does not provide performance figures for its location accuracy solutions that have not undergone open, public test-bed demonstrations. For the same reasons, Polaris reserves judgment on performance claims of other technologies that have not yet participated in open, public test-bed demonstrations.

Vertical Location Accuracy. Polaris expects to be able to achieve floor-level vertical accuracy for emergency location services in several years' time. Vertical height estimation of barometric sensor-equipped mobile devices has been demonstrated already to the Bureau on several occasions, including by Polaris.[3] Those demonstrations established the viability of precisely determining a handset's vertical elevation by processing measurements from a handset's low-cost, embedded barometric pressure sensor in conjunction with network-based atmospheric pressure compensation models. Standardized reporting of barometric pressure measurements has now

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[1] See *Ex Parte* Letter to Marlene H. Dortch, Secretary, Federal Communications Commission, from Michele C. Farquhar, Counsel to Polaris (filed December 23, 2014), *available at* http://apps.fcc.gov/ecfs/document/view?id=60001011034.

[2] *See In the Matter of Wireless E911 Location Accuracy Requirements*, Third Further Notice of Proposed Rulemaking, 29 FCC Rcd 2374 (2014) ("Third Further Notice").

[3] *See Ex Parte* Letter to Marlene H. Dortch, Secretary, Federal Communications Commission, from Michele C. Farquhar, Counsel to Polaris (filed September 26, 2014), *available at* http://apps.fcc.gov/ecfs/document/view?id=60000868738; *Ex Parte* Letter to Marlene H. Dortch, Secretary, Federal Communications Commission, from Bruce A. Olcott, Counsel to NextNav, LLC (filed December 9, 2014), *available at http://apps.fcc.gov/ecfs/document/view?id=60001008548*.

garnered widespread support from virtually all emergency wireless location stakeholders, and 4G/LTE protocol support is anticipated shortly.[4] Therefore, Polaris anticipates that what is achievable today via Android and iOS operating system APIs and installed software, namely floor-level vertical accuracy, could in several years' time also be available for emergency location services.

Cost/Investment. Polaris has made significant internal investment in preparation for widespread deployment of an LTE-based location solution. This investment includes advanced propagation modeling in order to predict signal strength and delay profiles of LTE signals, platform and protocol support for 4G network architectures, and development of inter-RAT call flows which our experience indicates will significantly enhance wireless location accuracy performance. Polaris' cost structure, given our software-only wireless location platform, is fundamentally different from other location technology providers that rely on hardware overlay networks. Furthermore, with the availability of accurate OTDOA measurements and precise delay profile models to support new hyperbolic location algorithms, our survey costs on 4G are materially lower than previous air interface generations. Therefore, setting aside cost recovery for upfront 4G/LTE R&D investment, *Polaris' deployment costs on a per-tower basis for 4G are virtually zero*.

Polaris supports the Commission's objective of fostering a dynamic and competitive wireless location ecosystem and urges timely action so that technology development and business investment can proceed. Currently, Polaris derives a substantial portion of its revenue from international customers and, therefore, our R&D focus factors in both domestic and international markets. As Polaris matures into a solutions provider, it is our wish to continue participating in proceedings to further the Commission's public safety mission, and we appreciate the Commission and its staff providing the opportunity to do so.

Respectfully submitted,

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[4] *See* Letter, John Wright, APCO International; Charles W. McKee, Sprint; Joan Marsh, AT&T Services, Inc.; Kathleen O'Brien Ham, T-Mobile USA; Christy Williams, NENA-The 9-1-1 Association; Kathleen Grillo, Verizon, to Marlene H. Dortch, Secretary, Federal Communications Commission (filed November 18, 2014), Attachment A, "Roadmap for Improving E911 Location Accuracy," ("Carriers agree to promote the development and approval of standards within 18 months of the date of the Agreement that would enable the delivery of uncompensated barometric pressure data to PSAPs with 911 calls."), *available at http://apps.fcc.gov/ecfs/document/view?id=60000986637*.