

Field Tests of Hybrid Wireless Location Technologies

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Abstract:

The paper describes hybrid methods combining network-based and handset-based location technologies to enable seamless quality of location services. No single technology provides both high accuracy and high yield in all possible environments, including urban, suburban, rural, outdoor and indoor.

However, field trial results show that combinations of Wireless location Signatures (WLS) and Assisted-GPS (A-GPS), using joint position estimation, can provide nearly ubiquitous and extremely consistent location performance. Field trial results on GSM networks in various environments are presented to illustrate the advantages of hybrid calculation as well as tradeoffs in system performance. Such a hybrid combination has the advantage of providing initial location service for the entire handset customer base, then later building capabilities as GPS handsets penetrate the market. The hybrid methods can be deployed independently to optimize performance, speed time to market and reduce costs. Hybrid techniques also provide unique opportunities for self calibration and performance verification, well beyond what is possible with a single solution. These hybrid combinations for emergency and location-aware services reflect the growing trend towards interoperability, where multiple location technologies coexist and cooperate within networks.

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