ATIS-0500047

Volunteer-based Location Test Methodology

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ATIS Standard on

Volunteer-based Location Test Methodology

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Abstract

This document provides guidelines for testing device-based location technologies using volunteer testers, operating the users' own mobile wireless devices from their own homes and places of work. Such testing measures performance benefits that may occur from real world devices acquiring operational awareness in the specific context of each user's life. Broad guidelines are offered for defining, scoping, and configuring testing, and safeguards are described to ensure testing quality and reliability.

Foreword

The Alliance for Telecommunications Industry Solutions (ATIS) serves the public through improved understanding between carriers, customers, and manufacturers. The Emergency Service Interconnection Forum (ESIF) provides a form to facilitate the identification and resolution of technical and/or operational issues related to the interconnection of wireline, wireless, cable, satellites, Internet, and emergency services networks.

The mandatory requirements are designated by the word *shall* and recommendations by the word *should*. Where both a mandatory requirement and a recommendation are specified for the same criterion, the recommendation represents a goal currently identifiable as having distinct compatibility or performance advantages. The word *may* denote an optional capability that could augment the standard. The standard is fully functional without the incorporation of this optional capability.

Suggestions for improvement of this document are welcome. They should be sent to the Alliance for Telecommunications Industry Solutions, ESIF, 1200 G Street NW, Suite 500, Washington, DC 20005.

At the time of consensus on this document, ESIF, which was responsible for its development, had the following leadership:

- B. Abley, ESIF Chair (NENA)
- P. McCollum, ESIF First Vice-Chair (Comtech)
- J. Torres, ESIF Second Vice-Chair (Verizon Wireless)
- K. Springer, ESIF ESM Co-Chair (AT&T)
- J. Green, ESIF ESM Co-Chair (T-Mobile)
- E. Amoah, ESIF NGES Co-Chair (Verizon Wireless)

The ESM Subcommittee was responsible for the development of this document.

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1.1 Scope

This document provides guidelines for testing device-based location technologies using volunteer testers, operating their own mobile wireless devices. A technology-neutral approach to implementing such testing using a practical architecture with a non-intrusive method for handling volunteer testers' emergency test calls is defined. Broad parameter guidelines are also provided to identify the size of the volunteer tester pool and attributes of target volunteer testers to participate in the testing, which are in a range of buildings and test regions. Safeguards to ensure the quality and reliability of volunteer-initiated test calls are also described.

The methods delineated in this document are sufficiently broad to apply to horizontal and vertical accuracy, i.e., XYZ geodetic location testing. They could also be simplified for Z-axis only testing as well as adapted to testing Civic Address information that may be delivered with a geodetic location.

1.2 Purpose

Modern wireless devices are increasingly designed to learn the characteristics of the environment in which they operate, and in so doing they become aware of their operational context and setting. This increased awareness has the potential to improve location technology performance, but any such improvement is difficult to measure without using each device in its specific user context.

Current location technology testing methodologies use devices specifically allocated for testing, and consequently lack the awareness a real user's mobile device would acquire over time. Attempts have been made to 'condition' these test devices to simulate this awareness, but it is unclear if this conditioning accurately replicates the performance a real user's device achieves. An alternative is needed where testing occurs using the devices of volunteer testers, so that measured performance benefits from the devices' operational awareness in the specific context of each volunteer tester's life.

The purpose of this document is to define a framework for using volunteer testers operating their own mobile wireless devices to test the reliability and accuracy of Device Based Location (DBL). A framework for performing this testing is described, its operational considerations are identified, and guidelines for various volunteer-related issues presented.

1.3 Application

This document is intended to be used as a guide when assembling a volunteer-based DBL testing campaign and supporting system.