ATIS-0500038

ATIS Standard on -

Recommendations for Extensions to Indoor Test Methodology

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Abstract

This document provides recommendations specific to horizontal accuracy testing within the framework of the 9-1-1 Location Technologies Test Bed. It should be viewed as an extension to ATIS-0500031.v002, *Test Bed and Monitoring Regions Definition and Methodology*.

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* denotes 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:

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R. Marshall, ESIF 1st Vice Chair (Comtech)

J. Green, ESIF 2nd Vice Chair, ESIF ESM Co-Chair (Sprint)

K. Springer, ESIF ESM Co-Chair (AT&T)

The **Emergency Services & Methodologies (ESM)** Subcommittee was responsible for the development of this document.

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1 Scope, Purpose, & Application

1.1 Scope

This document provides extensions to the indoor test methodology adopted in ATIS-0500022 (which was based on ATIS-0500013) and subsequently in ATIS-0500031, wherein indoor testing consisted of placing repeated stationary test calls at a handful of accurately surveyed test points inside each test building. The rationale, goals, and principles of the indoor test methodology extensions, as well as the tools required are presented and described with recommendations regarding the application of the methodology extensions to indoor accuracy testing. How the described methodology extensions can supplement existing indoor test methodology is also discussed.

Note that this document focuses exclusively on horizontal accuracy testing. Vertical accuracy testing is addressed in ATIS-0500030.

1.2 Purpose

The purpose of this set of guidelines and recommendations is to provide those engaged in testing the indoor performance of wireless location systems for 9-1-1 with a standardized, practical approach to mitigating some of the shortcomings of the indoor test methodology used so far. That methodology is susceptible to delivering results from samples where the consecutive collocated test calls are not independent due to various factors, including device memory. This situation is becoming more common in a range of newer handsets and technology implementations and can result in loss of statistical independence between successive test calls when testing indoors.

1.3 Application

This document is intended to be applied in future test campaigns undertaken by the 9-1-1 Indoor Location Technologies Test Bed, or independently by wireless carriers or location technology vendors. This applies particularly to test campaigns that focus on latitude, longitude, and possibly altitude, in which the handsets under test are expected to exhibit inter-dependence between consecutive collocated test calls – e.g., devices that implement a flavor of Device Based Hybrid (DBH). DBH refers to a class of User Equipment (UE)-based techniques where a location fix is generated using any combination of available location methods including Global Positioning System (GPS)/Assisted Global Positioning System (AGPS), positioning based on the presence of Wi-Fi and other beacons, and sensor-assisted positioning. This extended methodology is not intended to replace the existing indoor test methodology but rather supplement it.

2 Normative References

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.