IEEE Standard for Inertial Systems Terminology

IEEE Aerospace and Electronics Systems Society

Sponsored by the
Gyro and Accelerometer Panel

1559™

IEEE
3 Park Avenue
New York, NY 10016-5997, USA

26 August 2009

IEEE Std 1559™-2009

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Sponsor

Gyro and Accelerometer Panel
of the
IEEE Aerospace and Electronics Systems Society

Approved 17 June 2009

IEEE-SA Standards Board

Abstract: Terms and definitions relating to aided and unaided inertial systems for navigation, guidance, orientation, stabilization, and related applications are presented. Usage as understood by the inertial systems community is given preference over general technical usage of the terms herein. The criterion for inclusion of a term and its definition in this document is usefulness as related to inertial systems technology.
Keywords: inertial systems technology, inertial systems terminology

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PDF: ISBN 978-0-7381-5996-6 STD95943
Print: ISBN 978-0-7381-5997-3 STDPD95943

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Introduction

This introduction is not part of IEEE Std 1559-2009, IEEE Standard for Inertial Systems Terminology.

This standard is a listing of terms and definitions used in the development, manufacture, test, and use of aided and unaided inertial systems for navigation, guidance, orientation, stabilization, and related applications. Usage as understood by the inertial systems community is given preference over general technical usage of the terms herein. The criterion for inclusion of terms and definitions in this standard is their general usefulness as related to aided and unaided inertial systems technology. This standard is a companion to IEEE Std 528™, IEEE Standard for Inertial Sensor Terminology.[a, b]

Radio navigation terms are listed insofar as they pertain to aiding inertial navigation systems. However, an exhaustive list of radio navigation terminology is not given.

In this standard, the symbol *g* is used to denote a unit of acceleration equal in magnitude to the local value of gravity at a test site or the standard value 9.80665 m/s^2. The symbol *g* is thus distinguished from g, which is the standard symbol for gram.

Abbreviations and acronyms are listed alphabetically in the body of the text, with a reference to the spelled-out term in the text for the full definition. For the purposes of this standard, an acronym (such as AHRS and ISA) is pronounced as a word, whereas, each letter of an abbreviation (such as GPS and INS) is pronounced. Abbreviations and acronyms are frequently used in definitions of other terms.

This standard represents a consensus of manufacturers and users in industry, government agencies, and other interested groups. When necessary, the needs of the inertial systems community have been given preference over general technical usage. In general, definitions that might be found in a standard textbook have not been included, such as "orthogonality." All definitions contained herein are based on a right-handed coordinate system.

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Contents

IEEE Standard for Inertial Systems Terminology

1. Overview

1.1 Scope

This standard provides a source of definitions of terminology used in the development, manufacture, and test of aided and unaided inertial systems used for navigation, guidance, orientation, stabilization, and related applications. This is a companion document to IEEE Std 528™.[1, 2]

1.2 Purpose

There is no consistent definition of terms that have arisen in the evolution of aided and unaided inertial navigation and related systems. This standard is intended to serve as a basic reference for producers and users of such systems, for preparing industry standards, and for the interpretation of published technical reports.

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