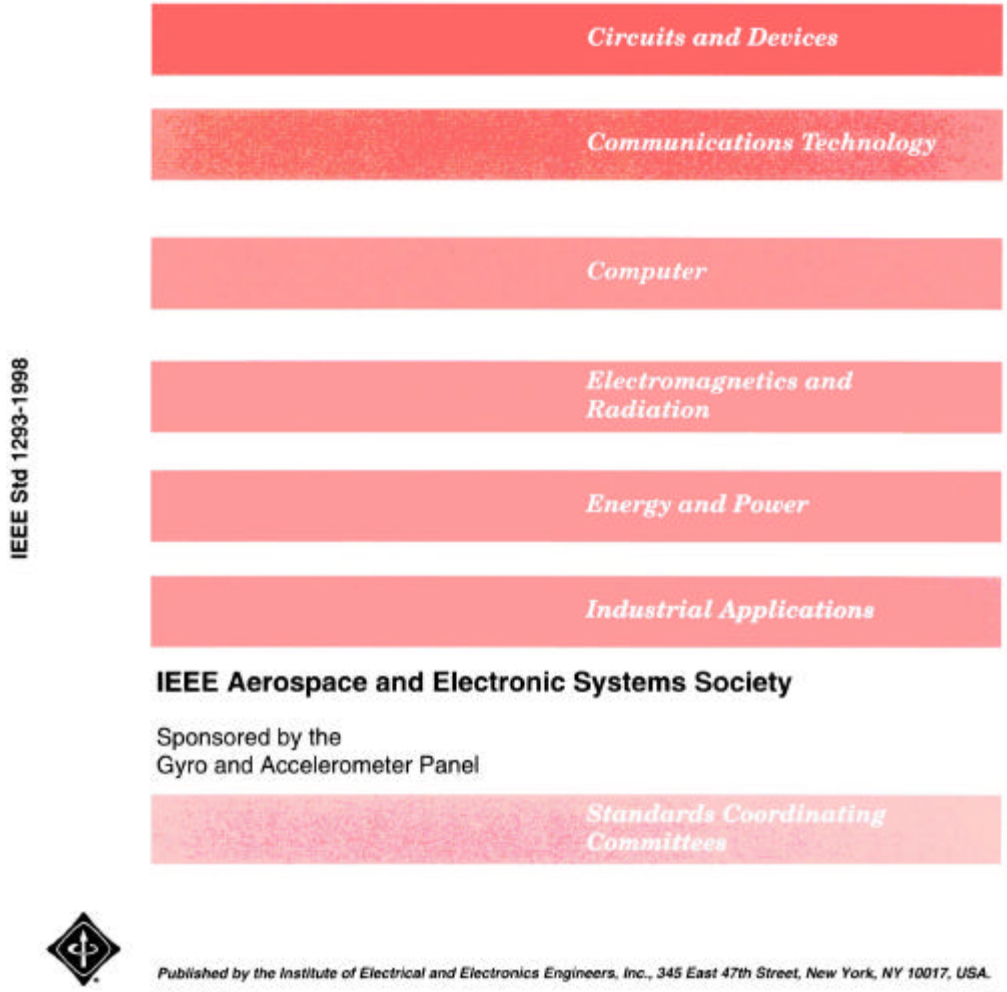
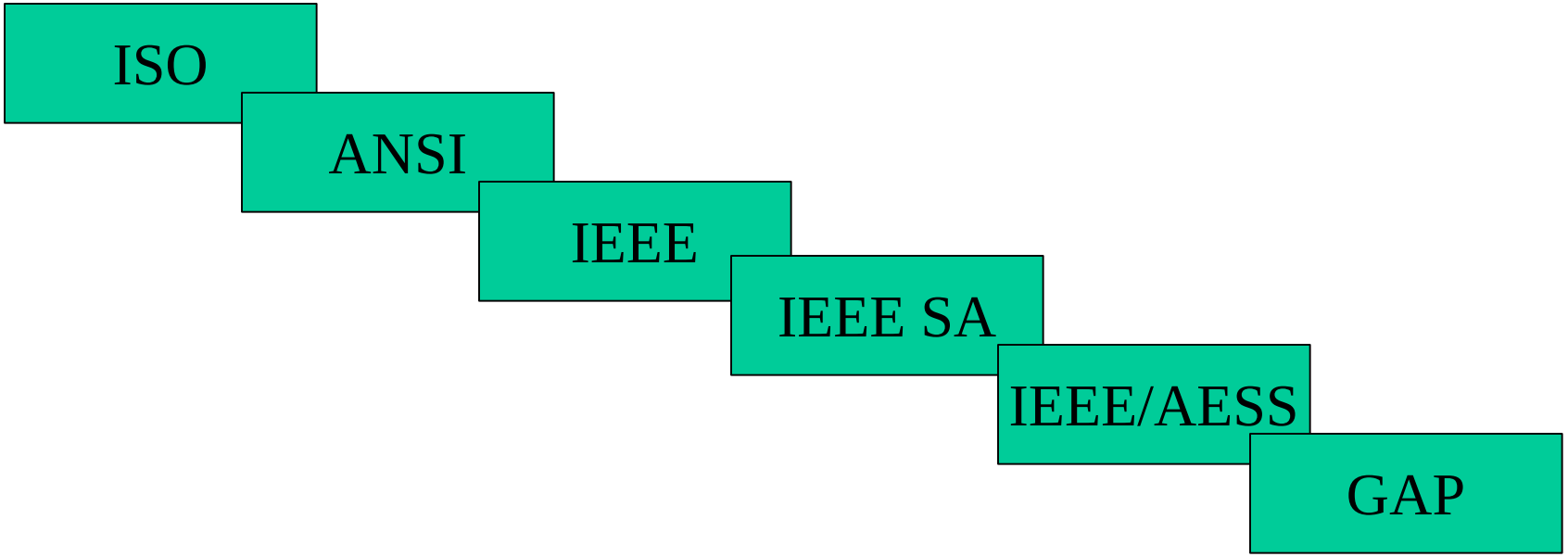
Standards for Gyros and Accelerometers;

the work of the IEEE/AESS Gyro and Accelerometer Panel



July 1999

Where do we fit in the Standards Process?



We write them...

IEEE Standard Specification Format Guide and Test Procedure for Linear, Single-Axis, Nongyroscopic Accelerometers

IEEE Std 1293-1998

Circuits and Devices

Communications Technology

Computer

Electromagnetics and Radiation

Energy and Power

Industrial Applications

IEEE Aerospace and Electronic Systems Society

Sponsored by the
Gyro and Accelerometer Panel

Standards Coordinating Committees

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Exactly what do we do, and who are we?

- “The purpose of the Panel is to create standard terminology, specification formats, test procedures, and to promulgate understanding of components, for detection or measurement of linear or angular motion.”

- “The Panel is composed of representatives of industry, government laboratories, educational institutions and professional societies who are knowledgeable of the characteristics, operating principles, sources of error, and areas of application of these components.”

Why do we want to write standards?

- Reduced confusion as to best way to describe the technology and products
- Improved efficiency in development, production, test and sales
- Personal development
  - increased knowledge
  - currency

Who does our membership represent?

- Ourselves as individuals
- But, most are sponsored by their companies or organizations:
  - industry WORLDWIDE (users and producers)
  - government, universities and not-for-profits
  - consultants
  - retired

Standards represent consensus

- If they didn’t, they would not be accepted
- Consensus requires openness, compromise and collegiality
- All decisions documented and published
- Balance between users, producers and other interested parties
- Taking the time to get it right

How do we work?

- Meet 6 times a year for 2 days at a time
- Venue moves around the US (and now the world); hosted by companies and sometimes individuals
- Panel has two standing Committees (Gyros and Accelerometers)
- Work objectives determined once a year

1999 Work Objectives

Accelerometers	Gyros
1) See P1293, "Standard Specification Format Guide and Test Procedure for Linear, Single-Axis, Nongyroscopic Accelerometers," through the publications process. 2) Continue revising P836, "IEEE Recommended Practice for Precision Centrifuge Testing of Linear Accelerometers" 3) Continue to compile new and revised sensor terminology to be incorporated in the revision of Std. 528, "IEEE Standard for Inertial Sensor Terminology."	1) Continue work on P1431, "IEEE Standard Specification Format Guide and Test Procedure for Coriolis Vibratory Gyros." 2) Continue to compile new and revised sensor terminology to be incorporated in the revision of Std. 528, "IEEE Standard for Inertial Sensor Terminology."

In addition the full Panel adopted an objective of continuing the revision of IEEE Std. 528, "Inertial Sensor Terminology." A number of existing standards are due for reconsideration during the course of the year and both the panel and the committees will address these as necessary.

Communications

- Regular meetings and information mailing list
- Web site with both public and private areas
  - http://ieee.grouper.org/groups/gap
  - minutes, unapproved drafts, position papers, and other working documents posted in private area
- emailing list

Steps to prepare a typical standard

- Identify the need, and obtain approval from IEEE SA Standards Board (“Project Authorization Request”, PAR)
- Develop draft document in a committee
- Panel votes to send document out for industry review; comments documented and formally considered.
- Formal vote by mail ballot
- Submission to IEEE Standards Board

Standards Maintained by the GAP

292-1969 (R1992) IEEE Specification Format for Single-Degree-of-Freedom Spring-Restrained Rate Gyros
337-1972 (R1992) (superceded by 1293-1998) IEEE Standard Specification Format Guide and Test Procedures for Linear, Single-Axis, Pendulous, Analog Torque Balance Accelerometer
517-1974 (R1994) IEEE Standard Specification Format Guide and Test Procedure for Single-Degree-of-Freedom Rate-Integrating Gyro
528-1994 IEEE Standard for Inertial Sensor Terminology
529-1980 (R1994) IEEE Supplement for Strapdown Applications to IEEE Standard Specification Format Guide and Test Procedure for Single-Degree-of-Freedom Rate-Integrating Gyros
530-1978 (R1992) (superceded by 1293-1998) IEEE Standard Specification Format Guide and Test Procedure for Linear, Single-Axis, Digital, Torque-Balance Accelerometer
647-1995 IEEE Standard Specification Format Guide and Test Procedure for Single-Axis Laser Gyros
671-1985 (R1991) IEEE Standard Specification Format Guide and Test Procedure for Nongyroscopic Inertial Angular Sensors: Jerk, Acceleration, Velocity, and Displacement
813-1988 (R1993) IEEE Specification Format Guide and Test Procedure for Two-Degree-of-Freedom Dynamically Tuned Gyros
836-1991 IEEE Recommended Practice for Precision Centrifuge Testing of Linear Accelerometers
952-1997 IEEE Standard Specification Format Guide and Test Procedure for ßingle-Axis Interferometric Fiber Optic Gyros
1293-1998 IEEE Standard Specification Format Guide and Test Procedure for Linear, Single-Axis, Nongyroscopic Accelerometers
These standards may be ordered from the IEEE. See http://standards.ieee.org/catalog/aero.html

Standards Maintenance

- We are required to review existing standards every 5 years for accuracy and relevance
- Sunset provision: if no action is taken by the GAP the IEEE SA will withdraw the standard
- We can decide to revise the standard (new PAR) or, by mail ballot, to reaffirm or withdraw

Current Officers

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Thanks for listening...