**IEEE Sensors Council Standards Committee**

<span style="color:red">**DRAFT Meeting Minutes**</span>

**24 May 2022**

**10 am ET (Eastern Time)**

**Teleconference/Webex**

1. **Call to Order**

   Chair Troy Nagle called the meeting to order at 10:05 am ET.

   Participant list attached

2. **Roll Call and disclosure of Affiliations**
   a. Brief introduction – ground rules
   b. SC-SC registration form with attendance and Voting membership (must attend 2 of last 4 to be a voting member).
   c. Quorum not met with minimum of 4 voting members.

3. **Approval of Agenda**

   **No quorum, agenda as-is**

4. **Discussion Items**
   a. **IEEE-SA Patent and Copyright Policies reviewed (required at each meeting)**
5. **IEEE – SA Industry Connections Activity Opportunity (Jack Marck)**
   a. **"Connecting Agriculture / Standardizing Data Transport & Storage" slides (attached)**
   b. **"Enabling a Smart and Equitable Agriculture Ecosytem with Accessible Tech and Data Tools" presented as an Industry Connections Activity Initiation Document (ICAID). (Maria Palombini)**
      i. **Sensors Council endorses the SC Standards Committee participation as overseeing this activity and its procedures.**

        ii. **Maria will inform Sensors Council Standards Committee if this initiative is approved by the SA committee.**

6. **Overview of Sensors Council Standards Committee, and current working groups slides (Troy Nagle)**
7. **Working Group updates presented at meeting**
   a. **IEEE P2520 Testing Machine Olfaction Devices and Systems Working Group (Chair Susan Schiffman)**
      i. Noted that P2520 was a standard and is now a guide.
   b. **2520.1 Baseline Performance of Machine Olfaction Devices and Systems Working Group (Chair James Covington)**
      i. James Covington update presented. Started just before covid lockdown Feb/Mar 2020. Baseline std as a funnel to go to the specific standards in this category. Looking to integrate it into the standards. Well into many versions, now into 16.7, with ETA of draft standard before summer 2022. Monthly well attended meetings being held.
   c. **2520.2.1 Machine Olfaction Devices and Systems Used for General Outdoor Odor Monitoring (Chair Ehsan Danesh)**
      i. Ehsan Danesh update, 12 meetings since starting in February. Meetings have been brainstorming and adding in industry and others to get consensus on how to do this standard development. There is a Call for Proposal for Standards Association discretionary funding for TAB COS. It was approved by the Sensors Council to apply for this funding. (deadline June 27th so need to turnaround quickly)
8. **Review of current and past IEEE standards for sensors. See SC-SC 2022#2 pdf for slides (Troy Nagle)**
9. **Ideas for Future project Study Groups See SC-SC 2022#2 pdf for slides (Troy Nagle)**
   a. **Council technical committees (collaboration with council conferences & Journals)**
10. **New Business**
    a. **Voting member discussion and overview (Troy Nagle)**
    b. **Future projects open discussion**
       i. **IEEE INERTIAL conference (Spring 2023) propose a review of accelerometer and inertial sensors for new, gaps, updates or sunsetting of standards. (Chris Schober, Troy Nagle)**
11. **Sensors Standards committee website**
    a. Troy SC-SC standards committee collaborative website created by IEEE staff.
    b. https://sagroups.ieee.org/SC-SC with SC-SC for "Sensors Council Standards Committee".
       i. **Note that minutes and agendas are not added to the webpage until approved.**
       ii. **Members list on website, need to clarify with SA**
12. **Future meeting dates**
    a. Committee plans to meet quarterly through 2022. Tentative dates for future meetings: Aug 16, and Nov 15, 2022.
    b. Next meeting 4 people may be able to add to the Voting members (voting members need to be a member of IEEE SA, and a member of a member society of IEEE SC)
13. **Adjournment** Troy Nagle

    No quorum, no vote

There being no further business and no objections, the meeting adjourned at 9:57 am

Minutes by Secretary, Chris Schober

**ATTACHMENTS**


**Participants:**


Troy Nagle  (Chair)

Chris Schober (Secy)

Ehsan Danesh

James Covington

Peng Hu

KSaba Mylvaganam

 Sara Guler

 Jack Marck

 Maria Palombini (IEEE SA Staff)

# IEEE SENSORS COUNCIL
## STANDARDS COMMITTEE (SC-SC)

## 24 MAY 2022

H TROY NAGLE

t.nagle@ieee.org

# GROUND RULES

- Based upon IEEE SA SC-SC Policies & Procedures (16 June 2021)

- Meeting will be recorded exclusively for generating minutes

- Mute yourself if not speaking

- Do NOT discuss validity/ essentiality of patents/ patent claims

- DO NOT discuss specific license terms/ fees

- DO NOT engage in price fixing/ sales and marketing

*For the development of standards, <u>openness and due process</u> shall be applied, which means that any person with a <u>direct and material interest</u> who meets the requirements of the SC-SC Policies & Procedures has a right to participate.*

# AGENDA

- Call to Order (start recording) ✔

- **Roll Call and Disclosure of Affiliation**

- Approval of Agenda and Minutes

- IEEE-SA Patent & Copyright Policies

- Discussions:
  - IEEE-SA Industry Connections Activity Opportunity (Jack Marck)
  - Review of Current Working Groups (P2520, P2520.1, P2520.2.1, P2520.4.1)
  - Review of Current and Past IEEE Standards for Sensors
  - Ideas for Future Projects: Study Groups
    - Council Technical Committees  (collaboration with Council Conferences & Journals)

- New Business

- Future Meetings

- Adjourn

# ROLL CALL & DISCLOSURE OF AFFILIATION

*Follow these steps now:*

1. Click on the URL that appears in your Chat window.  This opens a Google spreadsheet.

2. Find you name in the spreadsheet and put a cross (**X**) after your name under column "24 May 2022."  Add or correct your Affiliation.

3. If missing, add your name and affiliation to the bottom of the spreadsheet.

4. Regarding Status, **V** identifies Voting members of the SC-SC.  If you want to become a voting member, please enter a **VM** as your Status request and insert you email address.  If you simply want to be notified of activities and observe our progress, please enter an **O** for your Status.

5. Qualifications for Voting Membership: (a) membership in IEEE-SA, (b) membership in a Technical Society participating in the IEEE Sensors Council, and (c) willingness to actively participate in SC-SC projects.

IEEE SA STANDARDS ASSOCIATION

IEEE Sensors Council

◆IEEE

4

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# IEEE SA PATENT POLICY

**Participants have a duty to inform the IEEE**

- Participants shall inform the IEEE (or cause the IEEE to be informed) of the identity of each holder of any potential Essential Patent Claims of which they are personally aware if the claims are owned or controlled by the participant or the entity the participant is from, employed by, or otherwise represents.

- Participants should inform the IEEE (or cause the IEEE to be informed) of the identity of any other holders of potential Essential Patent Claims.

**Early identification of holders of potential Essential Patent Claims is encouraged**

# IEEE SA PATENT POLICY

## Ways to inform the IEEE

- Cause an LOA to be submitted to the IEEE SA (patcom@ieee.org); or

- Provide the chair of this group with the identity of the holder(s) of any and all such claims as soon as possible; or

- Speak up now and respond to this Call for Potentially Essential Patents

  - if anyone in this meeting is personally aware of the holder of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an **Accepted Letter of Assurance**, please respond at this time by providing relevant information to the WG Chair.

# IEEE SA COPYRIGHT POLICY

**By participating in this activity, you agree to comply with the IEEE Code of Ethics, all applicable laws, and all IEEE policies and procedures including, but not limited to, the IEEE SA Copyright Policy.**

- Previously Published material (copyright assertion indicated) shall not be presented/ submitted to the Working Group nor incorporated into a Working Group draft unless permission is granted.

- Prior to presentation or submission, you shall notify the Working Group Chair of previously Published material and should assist the Chair in obtaining **copyright permission** acceptable to IEEE SA.

- For material that is not previously Published, IEEE is automatically granted a license to use any material that is presented or submitted.

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# ACTIVE IEEE SENSOR STANDARDS

**IEEE P1851:** Standard for Design Criteria of Integrated Sensor-Based Test Applications for Household Appliances

**IEEE 2067-2021:** IEEE Standard for Fiber Optic Sensors--Fiber Bragg Grating Interrogator Standard--Terminology and Definitions

**IEEE AESS** (Aerospace) also develops a lot of standards focused mainly on *gyros and inertial sensors*

**IEEE 528-2019:** IEEE Standard for *Inertial Sensor Terminology*

**IEEE 952-2020:** IEEE Standard for Specifying and Testing *Single-Axis Interferometric Fiber Optic Gyros*

**IEEE 1293-2018:** IEEE Standard Specification Format Guide and Test Procedure for *Linear Single-Axis, Nongyroscopic Accelerometers*

**IEEE P1431:** Standard for Specifying and Testing *Coriolis Vibratory Gyros*

**IEEE P1559:** IEEE Draft Standard for *Inertial Systems Terminology*

**IEEE 1780-2022:** IEEE Approved Draft Standard for the Specification of *Inertial Measurement Units (IMU)*

# INACTIVE IEEE SENSORS STANDARDS

**IEEE 292-1969 (R2010)** IEEE _Specification Format_ for Single-Degree-of-Freedom SpringRestrained Rate Gyros [maintained by Gyro Committee]

**IEEE 293-1969 (R2010)** IEEE _Test Procedure_ for Single-Degree-of-Freedom SpringRestrained Gyros [maintained by Gyro Committee]

**IEEE 517-1974 (R2010)** IEEE Standard _Specification Format Guide and Test Procedure_ for Single-Degree-of-Freedom Rate-Integrating Gyros [maintained by Gyro Committee]

**IEEE 529-1980 (R2010)** IEEE _Supplement_ for Strapdown Applications to IEEE Standard Specification Format Guide and Test Procedure for Single-Degree-of-Freedom RateIntegrating Gyros [maintained by Gyro Committee] ((a corrigendum was published in 2017 but got inactive in 2021))

**IEEE 647-2006** IEEE Standard _Specification Format Guide and Test Procedure_ for Single-Axis Laser Gyros [maintained by Gyro Committee]

**IEEE 671-1985 (R2008)** IEEE Standard _Specification Format Guide and Test Procedure_ for Nongyroscopic Inertial Angular Sensors: Jerk, Acceleration, Velocity, and Displacement [maintained by Accelerometer Committee]

**IEEE 813-1988 (R2005)** IEEE _Specification Format Guide and Test Procedure_ for TwoDegree-of-Freedom Dynamically Tuned Gyros [maintained by Gyro Committee]

**IEEE 836-2009** IEEE _Recommended Practice_ for Precision Centrifuge Testing of Linear Accelerometers [maintained by Gyro Committee]

**IEEE 1554-2005** _Recommended Practice_ for Inertial Sensor Test Equipment, Instrumentation, Data Acquisition, and Analysis [maintained by Panel]

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# JOURNAL TOPICS

**Mechanical & Magnetic** Sensors

**Chemical** & Biosensor Materials

Fiber **Optic** Sensors

Radiation Sensors

Sensor Systems Integration

Sensor **Applications**

Sensor Data Processing

Sensor **Interface** Electronics

Sensor Phenomena & Modeling

Sensor System **Networks**

# CONFERENCE AREAS

Acoustic and Ultrasonic Sensors

Actuators, Energy Harvesting and Powering Sensors

**Chemical**, Electrochemical and Gas Sensors

Emerging Sensor Technologies and **Applications**

**Mechanical, Magnetic** and Others

Microfluidics and Biosensors

**Optical** Sensors

Photoplethysmography Sensors and **Applications**

Physical Sensors: Temperature,

Sensor Data Processing

Sensor Materials, Fabrication and Packaging

Sensor **Networks** and IoT

Sensor Phenomenology, Modeling and Evaluation

Sensor Systems: Signals, Processing and **Interfaces**

Wearable Sensors and Syst

# AREAS OF INTEREST TO INDUSTRY

**Sensors Performance Testing**

**Sensor Calibration Methods**

**Sensor Reliability Testing**

**Sensor Health Monitoring**

**Sensor Specifications Practices**

**Search IEEE-SA for Sensor Standards and their Sponsors**

**Explore new projects with Council Member Societies**

**IEEE 2700-2017 - IEEE Standard for Sensor Performance Parameter Definitions**

**IEEE Sensors Registry**

**IEEE 1451 Smart Transducers**

# IEEE 1451 FAMILY

The 1451 family of standards includes:

**1451.0–2007** IEEE Standard for a Smart Transducer Interface for Sensors and Actuators – Common Functions, Communication Protocols, and Transducer Electronic Data Sheet (TEDS) Formats

**1451.1–1999** IEEE Standard for a Smart Transducer Interface for Sensors and Actuators – Network Capable Application Processor Information Model

**1451.2-1997** IEEE Standard for a Smart Transducer Interface for Sensors and Actuators – Transducer to Microprocessor Communication Protocols & TEDS Formats

**1451.3-2003** IEEE Standard for a Smart Transducer Interface for Sensors and Actuators – Digital Communication & TEDS Formats for Distributed Multidrop Systems

**1451.4-2004** IEEE Standard for a Smart Transducer Interface for Sensors and Actuators – Mixed-Mode Communication Protocols & TEDS Formats

**1451.5-2007** IEEE Standard for a Smart Transducer Interface for Sensors and Actuators – Wireless Communication Protocols & Transducer Electronic Data Sheet (TEDS) Formats

**1451.7-2010** IEEE Standard for a Smart Transducer Interface for Sensors and Actuators – Transducers to Radio Frequency Identification (RFID) Systems Communication Protocols and Transducer Electronic Data Sheet Formats

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# FUTURE MEETINGS

**SC-SC regular meetings**

- One meeting per quarter (3nd Tuesday of August, and November)
  - **16 Aug 2022**
  - **15 Nov 2022**
- One hr per session

**Subgroup meetings**

- To be determined.

# FUTURE SC-SC WEBSITE

## https://sagroups.ieee.org/SC-SC/

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# THANK YOU !