1. **Call to Order**
   In absence of the Chair, the vice chair called the meeting to order at 11:00 AM ET. He reviewed the ground rules for the meeting and announced that the meeting is being recorded for the purpose of preparing minutes and he announced that the chair is unable to attend and has requested the vice chair to conduct the meeting.

2. **Revised roll Call and revised registration process**
   The Chair directed participants to register vide the link through an excel in the Chat window. All participants were asked to mark a ‘V’ in the row with their names, email, affiliation, and WG membership request against the meeting date. A few minutes were allowed for participants to access and complete the registration process. New registrations were asked to be appended at the bottom of the list.

3. **Establishment of Working Group Membership**
   The Chair disclosed the attendance form and welcomed all the new Working Group (WG) members. The list of participants may be found in Attachment A.

4. **Approval of Agenda**
   The Chair displayed the announced agenda, however due to the lack of quorum, the meeting was continued without approving the agenda.

5. **Review of Working Group Policies & Procedures (P&Ps)**
   The Vice Chair referred the WG to the proposed P&P Manual that was distributed earlier to the group. He then reviewed the following sections of the WG’s P&P Manual in some detail.
   a. IEEE SA patent policy was elaborated.
   b. The clauses under letter of assurance (LOA) were elaborated.
   c. The approval of previous meeting minutes was called for by the vice-chair and the secretary noted there were only 6 voted out of the 7 required for the quorum. After a wait of 5 minutes, there were only 6 people who responded.
d. Members suggested to wait for the next meeting to approve the meeting minutes.

6. Discussion# Baseline Performance

1. Baseline performance discussions as part of technical discussion were initiated by the vice chair and a call for discussion to Zhu was made and the publications by Mr. Zhu were discussed.

   TECHNICAL DISCUSSION

   P2520.6.2: Gas Leaks, P2520.6.3: Fire Odour Alarms, P2520.3.5: Bathroom Odours, P2520.5.2: Breath Odour).

   Previous research on those things:

   2. Zhu elaborated on how his publications (latest) will be useful for this standard. Zhu elaborated on 4 different papers, the first one on cancer diagnoses, the gas leak of hydrogen, the third manuscript discussed the outdoor odor and the fourth on artificial nose.

   3. Questions were raised by Dr. Manikantan and were answered by Zhu on the types of gases and how gas leaks for hydrogen detection were done.

   4. The question on the functionality for Artificial nose for other gases other than hydrogen detection, Zhu indicated it will sense only 1 gas. He elaborated that the response to some other gas would be no response to other gases other than hydrogen. The material used will detect only hydrogen.

   5. What is the detection range was asked by Sagar and was responded as 2%

   6. A question on if there was a comparison between machine learning algorithms or if they used an optimal algorithm was posed by Sagar?
7. Can you please elaborate on process Identification followed in paper 1 was posed by Dr. Srikanth.
Zhu answered that mixture of gases was exposed to the machine, the number for each gas would be different. For instance, 2800 for one gas and 1600 for another gas. The combination of curves was used by the company for detecting the different gases.

8. Did you follow any European standard for designing the artificial nose for sensitivity and range.
Zhu responded that it was mentioned that the range is 200 ppm

9. Dr. Manikandan started his presentation on a few more discussions on highly impacting gases that effect the health care. He has a project on climate change on human health. He elaborated on what are the different types of diseases and what was the impact on health air quality related diseases were elaborated. The pollutants and the type of disease were discussed. He elaborated on primary pollutants and secondary pollutants and the focus is on indoor pollutants, the gas that detect coming from different sources. The indoor air quality index was elaborated as good or otherwise helpful for identifying diseases. Ammonia detection, fusion algorithms to identify non-communicable diseases based on weather conditions or based on location as well were discussed. Similarly drinking water quality which causes communicable diseases like typhoid, cholera, and the water smell would be different. If animal waste mixes, the water smell changes. So, the standards have to predict these types of changes. Variation in pH values once deployed in water body it can sense the water quality and smell and it can detect the disease as well. Unsafe water is a leading risk factor for death and unsafe water is responsible for 1.2million deaths each year. So, the development of a device would reduce the same.
He proposed a project on health monitoring system for air quality/water quality and different types of diseases

10. Prof. Nagle raised a question if they are odor sensors or chemical sensors?
   How is it related to the standard that we are trying to develop?
   Mr. Manikandan elaborated on the answer and also discussed on how Industrial mix or sewage waste mixing with water, the water smell changes and with increased temperature the effect is higher.

11. Prof. Nagle suggested a brainstorm session to link the different cases in specific cases for 2520.3.1 for indoor odors to general conditions.

7. **Next Meeting**
The vice chair announced that the next meeting of the P2520.3.1 WG will take place on October 11 at 11 AM ET.
8. **Adjourn**

The Agenda having been completed, with a decision to approve the previous meeting and this meeting minutes in the next meeting, the WG Vice Chair adjourned the meeting at 12:05 AM.

***Post meeting Note by the Chair:*** based on Webex recording, there were 7 people present in the meeting whom their names are listed in Attachment A. Please contact e.danesh@ieee.org if your name is entered in the list incorrectly.
# Attachment A: September Meeting Participants

<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Affiliation</th>
<th>Country</th>
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<tbody>
<tr>
<td><strong>Member</strong></td>
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<tr>
<td>Burham</td>
<td>Cynthia</td>
<td>University of Texas at Austin</td>
<td>USA</td>
</tr>
<tr>
<td>Kavirayani</td>
<td>Srikanth</td>
<td>Gayatri Vidya Parishad College of Engg(Autonomous), Visakhapatnam</td>
<td>India</td>
</tr>
<tr>
<td>Manikandan</td>
<td>M.Sabarimalai</td>
<td>Indian Institute of Technology, Bhubaneswar</td>
<td>India</td>
</tr>
<tr>
<td>Nagle</td>
<td>Troy</td>
<td>ECE &amp; BME, NC State University</td>
<td>USA</td>
</tr>
<tr>
<td>SAGAR</td>
<td>A S M SHARIFUZZAMAN</td>
<td>Sejong University, Seoul, South Korea</td>
<td>South Korea</td>
</tr>
<tr>
<td>Isz</td>
<td>Sandrine</td>
<td>Alpha MOS</td>
<td>France</td>
</tr>
<tr>
<td><strong>Non-Member</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zhu</td>
<td>Jianxiong</td>
<td>Southeast University (of China)</td>
<td>PRC</td>
</tr>
<tr>
<td><strong>Staff</strong></td>
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Attachment B: IEEE P2520 Numbering Scheme (Version 05Aug2020)

*Currently approved PARs are highlighted in yellow*

**P2520:** Testing Machine Olfaction Devices & Systems [Susan Schiffman]
Overview of standard series and definition of what devices/systems are covered

**P2520.1:** Baseline Performance [James Covington]
- Humidity and temperature impacts on single-gas detection
- Concentration curves, response and recovery times, and ternary chemical mixtures
- Sensor system recovery from high concentration exposure
- Odour measurement repeatability in the presence of pairs interfering chemicals

**P2520.2:** Outdoor Odour Nuisances and Pollutants
- **P2520.2.1:** General Outdoor Air Quality [Ehsan Danesh]
- **P2520.2.2:** Landfill odour [Susan Schiffman]
- **P2520.2.3:** Residential Water Supply
- **P2520.2.4:** Sewage Treatment (outdoor and downwind)
- **P2520.2.5:** Animal Confinement (outdoor and downwind)
- **P2520.2.6:** Travel-Based Air Pollution (automotive/rail/planes)
- **P2520.2.7:** Workplace Satisfaction

**P2520.3:** Indoor Odour Nuisances and Pollutants
- **P2520.3.1:** General Indoor Air Quality [Ehsan Danesh]
- **P2520.3.2:** Refrigerator Food Spoilage
- **P2520.3.3:** Cooking/Oven Odours Monitoring
- **P2520.3.4:** Kitchen Odours
- **P2520.3.5:** Bathroom Odours
- **P2520.3.6:** Basement Mould
- **P2520.3.7:** Workplace Satisfaction

**P2520.4:** Industrial Application Processes and Quality Control
- **P2520.4.1:** Chemical Manufacturing [Susana Palma]
- **P2520.4.2** Petroleum Refinement
- **P2520.4.3** Paper Mills
- **P2520.4.4** Animal Rendering
- **P2520.4.5** Perfumery

**P2520.5:** Personal Health and Hygiene
- **P2520.5.1** Body Odour
- **P2520.5.2** Breath Odour
- **P2520.5.3** Foot Odour
- **P2520.5.4** Hair Odour

**P2520.6:** Safety Protection
- **P2520.6.1** Electrical Short-Circuit Odour
<table>
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<tr>
<th>Section</th>
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<tbody>
<tr>
<td>P2520.6.2</td>
<td>Gas Leaks (gasoline, pipelines, natural gas)</td>
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<tr>
<td>P2520.6.3</td>
<td>Fire Odour Alarms</td>
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<tr>
<td>P2520.6.4</td>
<td>Animal Confinement Structures (animal and operator safety)</td>
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<tr>
<td>P2520.7</td>
<td>Medical Applications</td>
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<tr>
<td>P2520.7.1</td>
<td>Cancer Detection</td>
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<td>Sensory Impairment Quantification</td>
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<td>P2520.7.3</td>
<td>Hospital Patient Room Air Quality</td>
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<td>P2520.7.4</td>
<td>Pharmaceutical Quality</td>
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<tr>
<td>P2520.7.5</td>
<td>Allergy Alerts</td>
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