

IEEE P2520 Working Group Meeting #5 Minutes
9 September 2019 / 10:00 AM – 11:30 AM (EDT)
Teleconference

Members Present: Krishna Persaud, Troy Nagle, Susan Schiffman, Hua-Yao Li, Jan Mitrovics, Mike McGinley, Rachel Sunghee Lee, Susana Palma, John Saffell, Ehsan Danesh (10 voting)

Members Absent: Luis Hoffman, Radislav Potyrailo, Hugo Gamboa, Howard Choe, Omer Oralkan, Peter Hesketh, Yogesh Gianchandani, James Covington (4 voting)

Staff: Vanessa Lalitte, IEEE-USA

1. Call to Order – WG Chair, Schiffman

The Agenda was displayed to the attending WG members at 10:00 AM EDT. WG Chair Susan Schiffman called the meeting to order at 10:03 AM. She welcomed the participants to the fifth meeting of the Working Group to develop an IEEE Standard for Testing Machine Olfaction Devices and Systems. An announcement was made about recording the session for Minutes-preparation purposes. The file will be destroyed after the Minutes have been approved.

2. Identification of Participants & Declaration of Affiliation – WG Secretary, Nagle

At each meeting, each new member is asked to enter his/her name, affiliation, and email address into the Chat window.

3. Approval of Agenda – Schiffman

The Agenda displayed at the opening of the meeting was adopted without objection.

4. IEEE Patent Policy – Schiffman

The WG Chair briefly reviewed the IEEE-SA Patent policy. This item is required for every WG meeting. Susan presented slide #3 of the set of slides located at:

<https://development.standards.ieee.org/myproject/Public/mytools/mob/slideset.pdf>

5. Today's Discussion

- a. Seminar Series Update: At our last WG meeting, a consensus was reached to proceed with this new structure for our Fall 2019 WG meetings. Jan, Krishna, Peter, and Troy agreed to develop a proposal for the seminar series. Presentations could be categorized as hardware, software, sampling, and odor measurement. The purpose of the series is to help create technical/general audience as well as general interest in our standard. Troy presented a report that updated progress. His document can be found at the following link:

<https://ieee-sa.imeetcentral.com/2520/folder/WzlwLDEyMDYzNTY2XQ/WzIsNjUyNzQyNDBd/>

in the ensuing discussion, both indoor and outdoor air quality were identified as large potential markets for sensors and enose applications. Landfills mentioned in the report are a relatively small subset of the outdoor market. That application is fairly well defined. The largest markets address consumer concerns. For example, an enose could open and close air intakes in a residential building based on outside odor quality. The cost of such a device to consumers needs to be much lower than that for a monitor installed by an odor generating facility to help it meet local odor regulations. Starting with a well-defined application like this in which much investigation and research has been completed makes sense. There are a number of companies making air quality monitoring devices. If we choose this area, we should get some of them involved in our WG.

Other large markets are waste-water treatment, agricultural operations using fertilizers, and animal production and rendering facilities. A common requirement for these applications is accurate fixed-point odor sampling. Outdoor odorous compounds can be quite different from those indoor. Indoor odor come from cooking, carpet, paint, composite materials, and the like. The indoor odor intensity and character change with the age of the building. Indoor air quality has a large consumer segment. Devices are being developed for smart homes to control the ventilation systems (CO₂, smoke, VOCs,) and energy consumption. Indoor air contains amines and aldehydes, while outdoor we find thiols, ammonia, H₂S, and mercaptans. Indoors the environment can be very complex with hundreds of organic molecules. We should differentiate between air quality (particles, automobile exhausts, and the like) and an odor generated by a targeted source. Air quality can significantly impact health. Odor may also impact health in the long term, but acutely impacts the quality of life. Indoor air applications should have a category called cabin air. CEN 264 has two separate working groups in the area. WG 41 focuses on odors, and WG2 focuses on particles and inorganic gases.

We should include the appropriate specific methods to collect samples based on the expected odorant mixtures. Krishna Persaud volunteered to present an odor sampling seminar at our next meeting. The usual process is to perform a chemical analysis on an odor sample to determine its major components. The appropriate sampling procedures for indoor air applications and outdoor air applications are quite different. A typical case is the collection of a sample into a container and transferring it to the laboratory for analysis. For analytical sampling, one must look at concentration methods (e.g., an air volume through an absorbent material), then flash it into a GC/MS. One should examine different absorbent materials (carbon, Tenax, non-polar, polar, and many others on the market). Many of the modern analytical instruments are approaching the sensitivity of the human nose so a concentration step is becoming less important. The seminar can cover types of absorbents and types of containers. Each capture and container system will have specific absorbance, diffusion, and break-through properties.

Action Item 10: Krishna will send Troy an Abstract for publicity. Publicity is planned for the ISOCS website, the Council newsletter, the ISOEN attendees for 2017 and 2019, and the Council's email distribution list. We can also ask the IEEE-SA to promote to their mailing lists.

The seminar will cover the process for collecting an on-site odor sample and bringing it to the laboratory for accurate analysis. The next topic might be the techniques that are appropriate for online sampling of a small device deployed at the odor monitoring site. This would be appropriate for consumer devices that report concentration levels, odor levels and/or toxicity warnings. Some applications would have an initial odor sample sent to the laboratory for analysis, followed by an on-site continuous sampling to monitor changes from the initial baseline. Krishna will cover online, real-time sampling methods as well.

Some applications are using drones for odor sampling. Krishna attended a meeting in Germany at which this was a major focus.

b. Suggestions for soliciting new members:

Samantha Henningsen, ALS Environmental, in California frequently gives presentations about chemical compounds of interest to specific industries. In the past, they developed some proprietary methods for lowering the detection levels of some analytical instruments. She and John Saffell are both members of the ASTM D2205 standards committee.

c. Fall Meeting Schedule:

A consensus was reached supporting a four-week delay until our next meeting. The date and time were set as October 7 at 10 AM EDT.

6. Approval of Minutes

At this point in the meeting, Troy indicated that a quorum was present. Susan asked that the Minutes of our July 22 meeting be approved as distributed. Those Minutes were unanimously approved.

7. Topics for Future Meetings - Schiffman

- a. Environmental Standards Efforts: This item will continue on our future topics list. Members of our group will coordinate with ASTM and other groups.
- b. Enose best practices: This item will continue on our future topics list. Can we find some veterans of early enose companies who can share their experiences regarding “what works” and “what does not” in this field?
- c. The enose market: This item will continue on our future topics list. Can we find an enose market expert to help us rate example use-case clusters?
- d. Best practices for odor sampling: Krishna will deliver a seminar on this topic on October 7.

8. New Business

There was no New Business.

9. Introduction of New Working Group Members

Two new members have joined our WG. John Saffell and Ehsan Danesh were asked to introduce themselves.

John Saffell, AlphaSense: He is Industrial Director for AlphaSense. Started work in air quality 12 years ago at Cambridge. AlphaSense makes gas and particle sensors. Their latest particle sensors reach the nanometer range. Their goal in life is to speciate VOCs at a reasonable cost. They would like to analyze the VOCs from particle surfaces in the future. He will keep us informed about their progress.

Ehsan Danesh, AlphaSense: Ehsan works with John. He earned his PhD with Krishna. At AlphaSense he has developed new sensing technologies.

10. Review of Action Items - Nagle

A review of action will be done at our next meeting.

11. Future Meetings – Nagle

The next meeting was announced to take place at 10 AM EDT on October 7. It will begin with a seminar.

12. Adjourn

With no other business being brought before the body, Susan thanked the WG members for their participation and adjourned the meeting at 10:52 AM EDT (<https://ncsu.zoom.us/j/945473904>).

H. Troy Nagle
WG Secretary
9/13/2019