

IEEE P2520.2.1
Machine Olfaction Devices and Systems used for General Outdoor Odor Monitoring
(SEN/SC/TMODS/OOM/2520.2.1)

Working Group Meeting Minutes
13 December 2021 / 10:00 AM – 11:00 PM (ET)
WG Chair: Ehsan Danesh
WG Secretary: Cynthia Burham

1. Call to Order

The Chair called the meeting to order at 10:06 AM ET. The Chair also announced that the meeting was being recorded for the purpose of preparing minutes.

2. Roll Call and Disclosure of Affiliation

Affiliation FAQs: <http://standards.ieee.org/faqs/affiliation.html>

The Chair directed participants to a Google Docs link in the Chat window:

https://docs.google.com/spreadsheets/u/2/d/1ydvTFKxRSYRpT1CX-22zaNkETV4_aqD2NDVSoxxfk8/edit?oid=114048767493602967276&usp=sheets_home&ths=true

Participants were asked to register for the meeting by placing an X at the intersection between the row including their name and the column including the meeting date. First-time participants and individuals whose information was not already listed within the Google document were instructed to include their name, affiliation, and status under the appropriate columns at the bottom of the Google form. Participants were also asked to include their affiliations in parentheses after their name in the Chat window, if using the chat area. A few minutes were allowed for participants to access and complete the sign-in process. The Secretary added the attendance status of participants who did not complete their attendance status directly. The Chair mentioned to participants that at least two (2) of the most recent four (4) WG meetings must be attended in order to maintain voting rights.

The participant information from the chat window and from the participant registration document has been merged and may be found in **Attachment A**.

3. Approval of Agenda

The Chair displayed the announced agenda. The Chair delayed approval of the agenda and the minutes for the WG Meetings held on October 11th and November 8th, both sets of minutes having been forwarded to WG members in an earlier email, until later in the meeting in order to obtain and confirm quorum. Quorum was obtained before conclusion of the meeting and the agenda and minutes for both the October 2021 and the November 2021 WG meetings approved without objection to unanimous consent. The number of voting members in attendance required for quorum was 16. There were 18 voting members in attendance when approval was requested.

4. IEEE Patent & Copyright Policies

a. Call for Patents

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

Per standard IEEE-SA WG meeting practice, the Chair reviewed the required policy regarding potentially essential patents. No one raised concerns for consideration.

b. Copyright Policy

<https://standards.ieee.org/ipr/copyright-materials.html>

Per standard IEEE-SA WG meeting practice, the Chair reviewed the required policy regarding copyrights. There were no questions or concerns.

5. Technical Presentation(s) and Discussion

a. *Presentation by Kurt Haerens: Rescheduling – date: TBD*

Kurt Haerens is an Environmental Consultant with Olfascan. He has extensive experience in odour monitoring/air quality and involvement in CEN WG41. Due to an unexpected scheduling conflict, the presentation will be rescheduled for a future WG meeting.

b. *General Discussion:*

The Chair opened the general discussion by introducing a document prepared by WG member Wolfhard Reimringer and colleagues at 3S GmbH titled: Reference Gas Cylinder for Outdoor Odour Monitoring Devices (IEEE_P2520-2-1_Input-Reference-Gas-Cylinder_3S_v1.docx). The document had been provided to WG members in an earlier email and was displayed during the

general discussion period. Mr. Reimringer provided insight into the material covered in the document during the discussion period. Mr. Reimringer may be contacted for additional information at the following email addresses: wr@3s-ing.de, wolfhard@ieee.org

During review of the document, Mr. Reimringer described various methods implemented in both in-field and in-lab testing of odour monitoring devices, as well as the benefits and drawbacks of these methods. Key points mentioned involved how a system responds to a mixture, how application conditions affect response, and how to compensate for discrepancies which may arise as a result of testing conditions and sensor type. Mr. Reimringer also discussed the degree to which mimicking human odour sensitivity is relevant compared to detection of specific odours themselves and the need for a technical mixture suited for the assessment.

The best way to mix gases, whether pre-mixed in a single cylinder or introduced to a sensor system from independent cylinders was discussed. Stability and the necessity to include relevant gases such as hydrogen within a gas mixture for testing were also covered. Efficiency and cost for the best testing methods for in-field testing were covered and methods of testing such as a Tedlar bag or other structure to control exposure were discussed. Differences between sensor systems and the intricacies of introduction methods to ensure proper concentration distribution of gases to the various system types were mentioned, as were the positives and negatives of these methods of introduction. The effects of introduction method to humidity and other factors which must be considered to ensure effective testing were mentioned. The importance of using manufacturer input in designing and calibrating the most efficient testing method for a sensor system was also discussed. Cylinder dimensions and gas flow rates will be dependent upon the sensor system being tested. The cylinder being where the gases are held and not where testing of the sensor will occur. The dimensions of the testing chamber will depend upon the specific sensor system involved and its location.

The document included relevant gas compositions and concentrations which may serve as a start for additional WG work. The document provided information for specific hydrocarbons such as toluene and the importance of the detection to effectively monitor, for example, wastewater and petrochemical environments.

After Mr. Reimringer's summary, the Chair pulled up a page from the NPL website including VOC gas reference materials. Relevant compound lists including both toxic and less toxic/non-toxic materials may be found at:

npl.co.uk/products-services/gas/volatile-organic-compounds-VOCs

Additional links within the website leading to more specific information on gas reference materials and calibrated mixtures for volatile organic compounds (VOCs) were presented by the Chair. The user guide for NPL VOC gas standards may be useful to the WG.

The Chair indicated that NPL and other companies have produced stable gas mixtures and will likely be able to produce any of interest to our WG. The WG's present goal is to determine what VOC mixtures and concentrations are relevant to standard development. The Chair mentioned that an NPL representative is being sought to present at an upcoming WG meeting.

The Chair indicated that materials relevant to the WG, including presentations, links, and documents may be found at the WG website:

<https://sagroups.ieee.org/2520-2-1/>

The Chair also called for participants to forward any relevant information that might be reviewed and distributed to WG members/posted to the aforementioned WG website.

The Chair mentioned that subgroups will be determined at the next WG meeting (10/1/2022) in order to prepare for our next WG deadline (7/8/2022) for initial standard draft v1.0 approval.

After the general discussion, the Secretary confirmed to the Chair that a quorum had been achieved and the Chair proceeded to request input regarding and approval of the meeting agenda, October 11th meeting minutes, and November 8th meeting minutes.

6. Approval of Agenda and Previous Meeting Minutes

The Chair received a motion from Cynthia Burham, seconded by Susana Palma, to approve the agenda and the October and November WG meeting minutes. The motion passed without objection to unanimous consent. The number of voting

members in attendance required for quorum was 16. There were 18 voting members in attendance.

7. Unfinished Business/Action Item Review

There was no unfinished business.

8. New Business

There was no new business.

9. Future Meetings

The next meeting of the WG will take place at 10 AM EDT on January 10, 2022. It will immediately precede the P2520.3.1 WG meeting. An attempt will be made to keep both meetings to one hour in length although one or both meetings may be longer than one hour in order to ensure all relevant points within the agenda are addressed.

10. Adjourn

The WG Chair asked for a motion to adjourn. Susana Palma made the motion. Cynthia Burham seconded the motion. Without objection to unanimous consent, the Chair adjourned the meeting at 10:55 AM EDT.

Attachment A: Meeting Participants (27)

Last Name	First Name	Affiliation
Peaslee	David	SPEC Sensors, LLC
Sabry	Yasser	Faculty of Engineering, Ain Shams University
Danesh	Ehsan	Alphasense Ltd
Staerz	Anna	Massachusetts Institute of Technology
Burham	Cynthia	University of Texas at Austin
Izquierdo	Cyntia	Olores.org website
Bultel	Etienne	Aryballe
Suciu Sr	George	BEIA
Gami	Hirenkumar	Miami University - OH
Li	Hua-Yao	Huazhong University of Science and Technology
Covington	James	Professor, School of Engineering, University of Warwick
Misfud	Jean-Christophe	RUBIX SI
Kuna	Kishore	Honeywell Technology Solutions
Capelli	Laura	Politecnico di Milano
Majewski	Leszek	The University of Manchester
Carneiro	Magnovaldo	Virtual University of Sao Paulo State - Univesp
Isz	Sandrine	Alpha MOS
Reimringer	Wolfhard	3S - Sensors, Signal Processing, Systems GmbH
Suciu Jr.	George	Beia-RO/AT/BE
Lalitte	Vanessa	IEEE (Program Manager)
Lozano	Jesus	Universidad de Extremadura
Bernardini	Sandrine	Aix-Marseille University
De Vito	Saverio	ENEA - Agency for New Technology, Energy and Sustainable Economic Environment
Manikandan	M Sabarimalai	Indian Institute of Technology Bhubaneswar
Palma	Susana	NOVA university of Lisbon
Muresan	Pavel	BEIA
??	Sudhakar	??