Dear Dr. Etiope,

Thank you for your helpful comments, which we have used to improve the clarity and readability of the manuscript. In the following, we address the individual comments point by point. The reviewers' comments are shown in **blue**, our response is in **black** and we show additions/changes to the manuscript in **red**.

RC1

I would like to suggest the following:

- better clarify (also in Abstract and Conclusions) the range of concentrations of H2 for which the proposed system is valid. I see a range of 50-250 ppmv in the tests;

We have tested the system in the range of 69 to 242 ppmv. For those measurements, we have chosen a flowrate of the dilution air of 500 mL/min which we kept constant for all experiments. The production rate of hydrogen therefore corresponds to 3.07 μg_{H2}/min to 10.75 μg_{H2}/min. We think it is better to give a range of valid production rates, rather than a range of valid concentrations, as by adjusting the dilution factor (i.e. the flowrate of the pump), the concentration can be as high or as low as is practically possible.

For the initial quick review, we have already clarified this in the manuscript:

"The hydrogen is produced by electrolysis with electric current monitoring and the output can be set to any value between ~3 μg_{H2}/min and ~11 μg_{H2}/min. With a dilution flow of 500 mL/min, for example, this results in a concentration range from ~70 ppm up to ~240 ppm, but concentrations significantly below or above this range can also be covered with accordingly modified dilution flows."

- indicate related applications for that range (I assume not for atmospheric measurements).

The purpose of the system is to easily produce calibration gas mixtures with precisely known concentrations that can then be used to calibrate and characterize various types of hydrogen sensors. As the concentration of the produced calibration gas mixture can nearly arbitrarily be adjusted by adjusting the dilution factor, possible applications are broad.

By choosing a high dilution factor, a low concentration of the calibration gas mixture can be achieved, which allows to calibrate highly sensitive sensors (environmental measurements, finding low concentration hydrogen sources, ...). On the other hand, choosing a lower dilution factor leads to higher concentrations, which allow to calibrate less sensitive sensors (industrial applications, reaction monitoring, ...).

- be more rigorous in the use of the terms "sensitivity" (which is voltage vs concentration) and "accuracy" (measured concentration vs real concentration), and to report (Abstract and Conclusion) the accuracy of the standard that can be obtained.

The accuracy of the standard that is obtained is directly proportional to the current yield of the reaction, that is shown in the diagrams. A current yield of 1.00 means that the measured concentration is the same concentration as is predicted by applying Faraday´s first law of electrolysis and incorporating the dilution factor (500 mL/min in our experiments). The current yield calculates according to the following formula:

$$\eta_c = \frac{c_{\text{measured}}}{c_{\text{theoretical}}}$$

A current yield of 1.00 results in a totally accurate standard, as the concentration is calculated according to Faraday´s law.

The description can be found in the supporting information of this manuscript.