

## ***Interactive comment on “A new laser-based and ultra-portable gas sensor for indoor and outdoor formaldehyde (HCHO) monitoring” by Joshua D. Shutter et al.***

**Anonymous Referee #2**

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General comments: This paper reports the characterization of a new commercial formaldehyde sensor for monitor grade purpose. The detection limit of the instrument ( $3\sigma$ ) was 690 pptv and 420 pptv for 15 and 60 minutes integration time, respectively. The sensor was compared to research grade Laser Induced Fluorescence instruments, which showed agreement within 10% in accuracy with up to  $\pm 0.5$  ppbv absolute difference. The sensor is useful for indoor monitor and outdoor network setup and such a paper would help to address the fundamental and technical concerns of this sensor. The authors should consider adding more discussion on how to perform a data processing method. Also, a discussion on the accuracy determination from a theoretical aspect instead of comparing with other state-of-art instruments would be helpful.

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Nevertheless, this paper is well written and structured and meets the scope of AMT. Therefore, I recommend publication after minor revision.

Specific comments: Line 15 Page 1 ‘good agreement with LIF instruments from Harvard and NASA Goddard’ Please be quantitative on the ‘good agreement’.

Line 2 Page 3. Please define HITRAN. The authors should describe all the abbreviation when presented in the paper for the first time.

Line 5 Page 6. It is like a mismatch in the reference.

Figure 7a. The author could consider adding error bars on each data point to show the variability.

A schematic plot of the instrument is helpful to explain the measurement principle.

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