Editor:

Public justification (visible to the public if the article is accepted and published):
I wish to thank both reviewers of AMT egusphere 2023-1010 for their very useful reviews.
I found the revised version of the paper much improved, and thank the authors for implementing all suggestions from the reviewers while improving the manuscript quality at the same time. I find the new manuscript clearer and easier to follow for the reader. I think the manuscript describes a useful study relevant for the utilisation of photoacoustic instrumentation, that are increasingly of interest due to their lower cost. The analysis presented is of good quality and I am confident it will be useful for further discussions on the topic, therefore I recommend its publication in AMT.

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Authors: We thank to editor for her feedback and hope to have addressed all of her points listed below. The author responses are marked as red, the changes made in the manuscript are additionally marked as *red italic*.

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Editor:
Additional private note (visible to authors and reviewers only):
The paper is in my opinion suitable for publication in AMT, provided some small technical details are addreesed by the authors.
Technical corrections:
I encourage the authors to further check the grammar throughout the text.

We did an additional grammar and typo check for the whole manuscript.

L103: Fres and fmod have not been introduced in the new version: insert "resonance frequency (fres)" and same for fmod.

We changed this in the manuscript.

L105: remove "as" before presented in Ruck...

We deleted this.

L107 remove "the" after together

We deleted this.

L136 "shows"

We changed this in the manuscript.

Figure 4: the legends of the two boxplots are the same, except for the colours. If you think the legend is too narrow a space, I would add either in the figure caption or in the text (line 160-166) the reference to the colours (yellow and green) used to represent the results with and without the application of CONRAD.

We added at lines 161-162:

Figure 4(b) shows a statistical evaluation of the absolute differences with CoNRad compensation (green boxplot) and without (yellow boxplot).

At lines 164-165:

The raw values (yellow boxplot), however, are not normally distributed and show a substantially higher variance.

As well as in the caption of Figure 4:

Figure 4: Absolute difference of CH_4 in ppbV (a) based on raw PA data (red) and after CoNRad compensation (black) with regard to the G2301 reference methane readings. The right side (b) displays the boxplots and histograms of the deviations with CoNRad compensation (green) and without (yellow). The grey highlighted data indicates dry PAS calibration without CoNRad compensation.

L164: I think the value here should be 1000ppbV rather than ppmV?

Yes, this was a mistake. Thank you very much. We changed this in the manuscript.