

Interactive comment on “The design and development of a tuneable and portable radiation source for in situ spectrometer characterisation” by Marek Šmíd et al.

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Reviewers comment 1 First, the paper starts with mentioning both the Brewer and the Dobson spectrophotometers, but eventually discusses only a dedicated Dobson unit. It would be good to know whether the same unit can be used for the Brewers, or a different one is under development/testing.

The authors response: That is a good comment, thanks for it. The TuPS was designed such that only minor adjustments – optomechanical interface on its entrance optic side - would be needed to extend its application from Dobsons to Brewer spectrometers. This application has although never been requested and thus there has been no further

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development of this. As the paper doesn't discuss this in details, it's quite correct to remove the mention of Brewer spectrometer from the Abstract of MS text in line 15.

Reviewers comment 2 Second, and most important: while wavelengths accuracy is crucial and a good calibration unit is always a welcome addition, how big of a problem wavelength accuracy is in the Dobson instruments? The paper results seem to suggest that the central wavelengths are very close to nominal in all tested Dobsons. However, it seems that the results suggest that the slit widths, especially those at longer wavelengths are wider than nominal for all instruments. How does this affect the effective ozone absorption calculations? The authors response: Again, very good comment. The paper .. Köhler, U., Nevas, S., McConville, G., Evans, R., Smid, M., Stanek, M., Redondas, A., and Schönenborn, F.: Optical characterisation of three reference Dobsons in the ATMOZ Project – verification of G. M. B. Dobson's original specifications, *Atmos. Meas. Tech.*, 11, 1989–1999, <https://doi.org/10.5194/amt-11-1989-2018>, 2018. describes in details the impact of the TuPs measurements on the ozone absorption coefficient calculation and its consequences on the ozone retrieval. To address reviewer's comment, we propose to add the following text including the reference to the paper to line 187 of MS: The impact of the TuPs measurements on the ozone absorption coefficient calculation and its consequences on the ozone retrieval is described in details in (Köhler, et al., 2018).

Editorial (cosmetic) comments/suggestions: Repetition: lines 114-117 and 118-121 are identical - text in lines 118-121 will be removed Line 15 (and some other places): Both the Brewer and the Dobson are mentioned, but the paper only addresses a dedicated Dobson unit. Suggest wording this line differently to either clarify that the Brewer unit is under construction/testing or to say it's the subject of another paper. Unless the same unit can be used with the Brewer and then this needs to be stated - see the response to the comment 1 above line 63: "vertically" instead of "vertical" - agreed, thanks lines 65-71: it is a little confusing when the "second mirror and the grating" are both in the fixed position and are on and adjustable stages. How is it different from the first

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mirror? – The text was meant more less to give an overview of the optical alignment. To remove any possible ambiguity in text we propose to simplify the sentence in lines 65-71 as follows: The TuPS is built on a custom made 400 mm x 400 mm optical board where the input pinhole, the first parabolic mirror and the output slit are mounted on high precision micro metric linear stages to provide the fine adjustment needed to

line 110: remove double comma – agreed line 160: "requires" instead of "requests" – agreed line 171: "bandp" - a typo? – yes, it is typo. This sentence needs editing; following change is proposed: In spite of a half a year gap between the measurements the difference between them did not exceed 0.01 nm, in terms of the central wavelength, and 0.02 nm, in terms of the spectral bandwidth, for all 6 spectral bandpasses of the Dobson.

[Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2020-244, 2020.](#)

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