We thank the reviewer for comments, that were very helpful in improving the paper.
In the following, we answer point-by-point to the comments (blue lines).

Anonymous Referee #2
This manuscript addresses relevant scientific questions within the scope of AMT, notably allowing for a better evaluation of multiple-scattering enhancement parameters affecting multi-wavelength Aethalometer measurements. Its overall presentation (including the title, the abstract and the figures) is appropriate, clear and globally well structured. My only major concern is related to the timely relevance of obtained results, considering that the filter tape used here in relatively new AE33 device is no longer in use. This shall be stated much more clearly in the article.
Focusing on the Reviewer's major concern, in the updated version we tried to clarify the importance of the methodology – that was here applied to the available dataset as case study, but can in principle be applied to any similar dataset, independently of the tape used in AE33. Furthermore, we highlighted also that the results can by anyway of interest – even if the specific kind of tape adopted in this work was discontinued – for sake of time-series harmonization.
As now mentioned at lines 156-168:
"In this work, the TFE-coated glass fibre filter tape T60A20 was used: it was the tape in use when AE33 was initially described (Drinovec et al., 2015). Due to discontinued production and supply of this filter tape, it should have been replaced by M8060. Nevertheless, there was considerable variation of the adoption of the last tape (M8060) by Aethalometer users, as seen from the instruments involved in the COST-COLOSSAL/ACTRIS inter-comparison campaign (Cuesta-Mosquera et al., 2020). To ensure accurate approach on the aerosol absorption measurements and reliable historical trend of such data, the filter tape characteristics need to be carefully investigated for all used filter tapes. While the filter tape used in the Aethalometer model AE31 is well characterised in the scientific literature, there is a lack of published research for the T60A20 filter tape. It is noteworthy that in a very recent paper on the analysis of data collected at the Global Atmosphere Watch (GAW) near-surface observatories, AE33 data were not analysed due to the lack of a unique value for converting the measured attenuation coefficient to particle light absorption coefficient (Laj et al., 2020). Thus, investigation on the T60A20 filter tape will ensure continuity towards a better harmonisation in the timeseries of measurements by AE33. Furthermore, the methodology presented in this paper which can be similarly applied to any other dataset and thus can give an important contribution to the currently open scientific debate on the determination of aerosol absorption properties"

Authors should also discuss the efficiency of this former type of filter tape for accurate BC source apportionment in light of the results they obtained here vs. reasons that eventually led the manufacturer to select another filter tape for AE33. In particular, do they consider that applying such a limited wavelength-dependence in C-AE33 values is fully sufficient to compensate for possible biases in BC source apportionment when using this type of filter tape ? And, conversely, what would be the quantitative impact of using a constant C-AE33 value in the present study?
We would like to point out that the tape used in this work was the T60A20, which was simply discontinued.
We did not investigate M8050 tape which was chosen after T60A20, but was abandoned and replaced by the M8060 because of issues concerning filter loading correction at lower wavelengths.
Considerations on the role of optimized C_{AE33} on source apportionment harmonization was mentioned in par 3.5 (see lines 527-529 in the previous version, now lines 542-544), but not in the conclusions. So now we added the following sentence at Lines 609-611: "However, relative apportionment agreed within 5% at most (and, more in detail, PP_UniMI source apportionments results were always within the variability of Aethalometers results by different approaches) when optimised multiple-scattering enhancement parameters were considered for Aethalometers."

As a minor comment, the manuscript would also benefit further explanations why the MWAA model could not be applied here to data obtained using the MWAA instrument, and, more importantly, if this is always the case ?
MWAA model can be applied whenever information at least at 5-λ is available (Bernardoni et al., 2017b). Thus, it was not applicable to our dataset because photometric off-line measurements were carried out by PP_UniMI that was a 4-λ instruments at the time of the measurements. Opposite, the MWAA instrument (Massabò et al., 2015) is a 5-λ instrument. Thus, the MWAA model can be applied to data collected using the MWAA instrument, indeed.
This is now better clarified at lines 341-344: " Nevertheless, tests showed issues with numerical calculation when using only 4-λ information (i.e. lack of convergence and/or fit parameter instability) and a minimum of 5-λs is necessary to ensure model stability (Bernardoni et al., 2017b). Thus, in this work the MWAA model was run only using Aethalometer data as input (PP_UniMI is a 4-λ instrument)".

Finally, authors could also clarify if they would generally recommend to use the PP_UniMI datasets with the PP approach or with the PaM approach.
We added the following sentence in the conclusion, to better highlight why we presented both results (lines 576-579)
"We provided both results as the MAAP is often used as a reference instrument, and multiple-scattering enhancement

parameters can be directly compared to others present in the literature. Nevertheless, PP_UniMI performs a more detailed analysis by measuring the phase function in the in the scattering plane, in principle improving the accuracy of the measurements."