My comments on the revised manuscript are in red text below.
Please swap the axes in Figure 5 of the revised paper so that the photon flux is on the x-axis and the OH exposure is on the y-axis.

RC3 #2: Overall, the most novel aspect of the PFA OFR design appears to be the higher reflectivity achieved with the ePTFE gasket combined with the lower lamp power. This design modification enables the PFA OFR to achieve a higher OH exposure at a specific lamp power relative to other designs, as noted in L128-L130, which is noteworthy. The potential implications that are identified from the results seem to be better residence time distributions because of less recirculation and reduced temperature gradients. Aside from that, the implication on measurements of interest was less clear. The gas and penetration efficiencies are comparable to previous OFR designs with broader RTDs and less internal reflectivity, as are the α-pinene and m-xylene SOA yields. To me, this suggests that results of the sort described here are not sensitive to this design component, or that OFR applications that might be affected by higher internal reflectivity are not adequately discussed. I would strongly encourage adding a section that illustrates applications where this higher reflectivity demonstrably improve performance using metrics other than the OH exposure.

Author response: We thank the referee for the recommendation. We have substantially revised the text describing potential application in Sections 2.1.2 and 2.1.3, the importance of the reflective ePTFE layers in Section 3.1, and the importance of the side flow in Section 3.3. Please refer to the revised paper.

Reviewer response: The text that the authors added to Sections 2.1.2, 2.1.3, 3.1, and 3.3. provides useful additional details about the design advantages. It is clear that the RTD is improved in the PFA OFR. However, it is still not clear to me which OFR applications are significantly affected by these design advantages - even with their implementation, the effect on gas/particle penetration efficiency and SOA yields is minor at best. My interpretation of this result is that gas/particle penetration efficiencies and SOA yields are not very sensitive to the RTD. I think the paper would be more compelling if they can present results and/or describe OFR applications that are more clearly affected by the improved RTD than SOA yields and gas/particle transmission.