I'd like to thank the authors for their thorough explanations and the modifications they've made during this first round of reviewing. I'm generally satisfied with the answers and modifications to my original concerns. However, I still have a couple of concerns as listed below.

- **SMPS based EIm**: I disagree with your rebuttal about the "negligible" impact of particle effective density on EIm derived from SMPS size measurement (L410 & L747). You quote Durdina et al. 2014 paper stating an uncertainty of 20%, but this uncertainty is for ksl_{mass} calculation in which the engine exit VSD is divided by the instrument-location VSD, and therefore in which the particle effective density has a much smaller impact than deriving total mass from a size measurement. Furthermore, Durdina et al. 2014 paper is only reporting data for one engine for which the measured particle effective density was near 1 g/cm3, when other aircraft engines have displayed particle effective densities ranging from 0.2 to 1.9 g/cm3 (Saffaripour et al. 2019 https://doi.org/10.1016/j.jaerosci.2019.105467). For example, if the particle effective density for the engine you investigated was to be ~0.5 g/cm3, then the SMPS-derived EI mass would be over-reported by a factor 2 (i.e., 100% uncertainty) with a particle effective density assumption of 1 g/cm3. My concern is that the SMPS was significantly under-reporting number (50% less than APC), but your "high" particle effective density assumption made the SMPS based EIm appear to agree better. I suggest re-phrasing to highlight that there are significant uncertainties associated with the use of an assumed particle effective density when deriving EI mass from a particle size distribution on an unknown engine which may not have a particle effective density ~1 g/cm3 at any given powers.

- **EI number loss correction factor**: In your summary data spreadsheet, the "*number line loss correction factor*" can be seen to fluctuate between 1.33 to 2.66. Given the sampling system length between the probe and the APC/DMS (container 2), I would expect much larger loss correction factors (e.g., ranging between 2 and 10). What does this "*number line loss correction factor*" correspond to? It should also be different for the different number analysers. Can you please clarify why the loss correction you've applied does not bring better closure for EI number? Can you please also clarify if APC number was corrected for VPR loss and CPC cut point.

- **Loss correction in general**: I'd like to see more details for the loss corrections as I still find it hard to work out how you've corrected each instrument for particle loss. L495, you added a statement where you wrote "*Size-integrated data (all other instruments) were corrected by weighting the penetration functions by the corresponding measured SMPS PVDs*". I assume you've only used the PVD to correct for the mass analysers and you used the PSD for the number analysers; Did you also use the PVD to correct for number analysers (APC, DMS, etc) (otherwise, your number loss correction factors will be wrong)? Also, have you tried using the DMS-500 data to correct for losses to the NA system (APC, MSS) instead of only using SMPS data? Also, where the additional losses in the SMPS TD & CS and APC VPR corrected for? Without a clear description of the loss correction, it's hard for me to assess whether the loss correction could be further improved towards better agreement.

- **Figure 8 (a)**: I'd like to see more discussion about Figure 8(a) to better understand one of your main findings which is that the EI mass agreement was generally within 30% of the geometric mean for real-time mass measurement > 100 mg/kg fuel. For example, the MSS data seems to mostly be on the 1:1 line, the CAPS data seem to mostly be below the mean, and the LII data seem to be randomly scattered. Why do you think you observe such differences?