

***Interactive comment on* “Direct detection of OH formation in the reactions of HO₂ with CH₃ C(O)O₂ and othersubstituted peroxy radicals” by T. J. Dillon and J. N. Crowley**

T. J. Dillon and J. N. Crowley

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We thank both of the referees for their helpful and supportive comments.

Referee Tyndall queried whether the calibration gas (NO) could be generated by photolysis, in much the same way as the target peroxy radicals were produced. In our opinion this approach is unlikely to be helpful. Whilst elimination of one source of uncertainty (photolysis laser fluence), results other problems arise. Large concentrations of photolysis precursor (NO₂) would be required to generate the NO, leading to unwanted HO₂ + NO₂ and RO₂ + NO₂ chemistry. A more thorough approach in future experiments may be to monitor both OH and the parent radical HO₂, so removing the need for fluence measurements altogether.

Interactive
Comment

Both referees have commented upon the curious shape of the OH profile from (R2) presented in Figure 4, and queried whether this was evidence of secondary OH production. OH profiles from other (R2) experiments did not display such behaviour. This particular profile was chosen as the radical density was approximately equal to that of the (R1) calibration (also in Fig 4), so graphically demonstrating the important $a_2 \ll a_1$ result. A more general point: we cannot rule out some secondary contributions to the OH observed "from (R2)". A weakness of these experiments where only one diagnostic tool (OH LIF) was used, was that little additional information was gained when small OH yields were observed.

A number of technical corrections were suggested, all of which are reasonable and will be attended to in the next edit. Many thanks again to the referees for their careful reading of the manuscript!

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 7111, 2008.

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