

Atmos. Meas. Tech. Discuss., referee comment RC2
<https://doi.org/10.5194/amt-2021-41-RC2>, 2021
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Reply on RC1

Anonymous Referee #1

Referee comment on "MicroPulse DIAL (MPD) – a diode-laser-based lidar architecture for quantitative atmospheric profiling" by Scott M. Spuler et al., Atmos. Meas. Tech. Discuss., <https://doi.org/10.5194/amt-2021-41-RC2>, 2021

After pondering on the overlap results for the new configuration proposed in the Gen 5 MPD by Spuler et al., I have another major comment on Figure A1.

Because the resulting overlap functions of the combined channels, from the large reflector (935 cm²) and the small reflector (14 cm²), combined with ratio 10/90 as described in section 3.2 must be :

$$O_{\text{combined}} = O_{\text{reflector}} + A_{\text{refractor}}/A_{\text{reflector}} * \text{coupling ratio} * O_{\text{refractor}} = O_{\text{reflector}} + 14/950 * 10/90 * O_{\text{refractor}}$$

$$O_{\text{combined}} = O_{\text{reflector}} + 1/601 * O_{\text{refractor}}$$

This ratio is much smaller than the 1/10 ratio implied by the black curve on Figure A1.

Where is the mistake?