Atmospheric Measurement Techniques Discussions

Atmos. Meas. Tech. Discuss., referee comment RC2
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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 :
Ocombined = Oreflector + Arefractor/Areflector * coupling ratio * Orefractor = Oreflector + 14/950 * 10/90 * Orefractor
Ocombined = Oreflector + 1/601 * Orefractor

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

Where is the mistake?