Interactive comment on “Field deployable diode-laser-based differential absorption lidar (DIAL) for profiling water vapor” by S. M. Spuler et al.

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We realized there was an error in equation 5. The term $\frac{1}{mK}$ needs to be changed to $(\frac{1}{mK})^{0.5}$. In addition, since the equation describes the % relative error as a function of range, the left side of the equation needs to be changed from $\sigma_n$ to $\frac{\sigma_n}{n_{\text{wv}}(r)}$. The complete corrected version follows.

\[
\frac{\sigma_n}{n_{\text{wv}}(r)} = \frac{1}{2\Delta r(\sigma_{\text{on}}(r) - \sigma_{\text{off}}(r))n_{\text{wv}}} \left( \frac{1}{mK} \right)^{0.5} \left( N_{\text{on}}(r) + N_B \right) \left( N_{\text{off}}(r) + N_B \right) + \frac{N_{\text{on}}(r + \Delta r) + N_B}{N_{\text{on}}(r + \Delta r)^2} \right)
\]

The corrected $(\frac{1}{mK})^{0.5}$ term changes the performance model results shown in Fig. 6-8. The new figures are attached.

Fig. 1. Performance estimate for day and night with 150 m range resolution and 10 minute averaging for the near and far range channels for an online column OD of 1.5. For a 10% error, the instrument has

Fig. 2. Daytime performance estimate for resolutions of 150 m, 300 m, and 600 m with integration time of 10 min and column optical depth at 5km range of 0.6 and 1.5.
Fig. 3. Daytime performance estimate in % error for temporal resolutions of 10 s, 1 min, and 10 min with a spatial resolution of 150 m for an online column OD of 1.5. The model results indicate that 1 min