Supplementary Material to Accompany

Imaging of Nitroxides at 250 MHz using Rapid-Scan Electron Paramagnetic Resonance

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Figure S1. Rapid-scan experimental data for the projection with $\theta = -5^{\circ}$ from the data set with a total acquisition time of 5 min. The 64 k points of raw data encompassing 6.14 sinusoidal cycles were obtained by averaging 22k scans, which required 17 s. Data from the six sinusoidal cycles were summed (upper right). Background correction, sinusoidal deconvolution, and combination of the spectra from the up- and downscans produced the projection shown in the lower panel. The absorption and dispersion signals are shown in green and blue, respectively, in the upper panels.





Figure S3. Comparison of linewidths obtained from an image obtained by rapid scan with 29 s total acquisition time and CW with 5 min total acquisition time. Linewidths for ¹⁵N-Proxyl (\blacklozenge , \Diamond), ¹⁵N-mHCTPO (\diamondsuit , \Diamond) and ¹⁵N-PDT (\blacklozenge , \Diamond) calculated by fitting spectral slices through the images and the corresponding percent RMS fitting errors for ¹⁵N-Proxyl (\bigstar , Δ), ¹⁵N-mHCTPO (\bigstar , Δ) and ¹⁵N-PDT (\bigstar , Δ). Closed symbols designate rapid scan and open symbols designate CW. The dashed lines mark the locations of tube walls. The black horizontal lines indicate the linewidths calculated from spectra of the tubes measured individually.



Figure S4. Comparison of linewidths obtained from an image obtained by rapid scan with 5 min total acquisition time and CW with 15 min total acquisition time. Linewidths for ¹⁵N-Proxyl (\blacklozenge , \Diamond), ¹⁵N-mHCTPO (\diamondsuit , \Diamond) and ¹⁵N-PDT (\blacklozenge , \Diamond) calculated by fitting spectral slices through the images and the corresponding percent RMS fitting errors for ¹⁵N-Proxyl (\bigstar , Δ), ¹⁵N-mHCTPO (\bigstar , Δ) and ¹⁵N-PDT (\bigstar , Δ). Closed symbols designate rapid scan and open symbols designate CW. The dashed lines mark the locations of tube walls. The black horizontal lines indicate the linewidths calculated from spectra of the tubes measured individually.