Scanning through the posterior fossa with thinner slices is a known effective technique for reducing partial volume streak artifacts emanating from high contrast edges, but even 5 mm slices result in significant artifacts. Scanning with thinner slices, however, increases the scan time, increases image noise or the patient dose, and increases x-ray tube wear. High heat capacity tubes and rapid spiral CT capability of modern scanners can reduce some of the detriments to thin slice scanning. Using mAs techniques equivalent to the routine thick slices, contiguous thin slices yield a comparable patient dose and reduced streak artifact, but with higher image noise and with more images to be evaluated. Averaging these thin slice images over a range equal to the routine thick slice yields the lower noise and the overall number of images of the routine technique while maintaining the benefit of streak artifact reduction.

With 1 mm slices, the spiral CT scan time is 1.7 to 2.5 times longer than step-incremented 5 mm slices, depending on the original technique, or 3 to 5 times longer than 10 mm slices. More moderate improvements are obtained for 3 mm spiral scanning requiring scan times 0.7 to 1.5 times longer than the 5 and 10 mm routine scans. Various technique comparisons using a head phantom containing a human skull demonstrate more that the calculated noise reduction relative to the thick slice images as a consequence of the reduced artifact structure. Comparable clinical effectiveness is also demonstrated in patient images.