

AbstractID: 1809 Title: Initial Experience with an 8 channel 3 T MRI System

A 3 T MRI system from GE Medical Systems was recently upgraded, including a new prescription computer, a new real-time computer, a new receiver chain, and an eight-channel head coil. The system improvements have decreased the scan time for a brain protocol from 43:29 to 16:13 with the same or better image resolution. The protocol consists of a low-resolution localizer and a comprehensive set of axial images with T2 weighting, fluid attenuated T2 weighting, diffusion weighting, perfusion, and pre and post contrast T1 weighted images. There are two areas in which the upgrades shortened scan times. First, the new receiver chain and real time computer allows decreased TE. This in turn makes an increase in echo train length possible without image blurring. The second area involves the use of the eight-channel system. Signal to noise measurement made with the ACR phantom using the ACR T1 weighted protocol in both the eight channel and birdcage head coils were 944 and 513, respectively, an improvement of 184%. The eight channels also allow the use of parallel image acquisition techniques to decrease the scan time by a factor of two. Upgrades to the system also decreased the time needed for tuning before the image acquisition begins, from an average of 1:30 to 1:00. A total of 2:30 saved for this brain protocol. The upgrade has provided significant improvements to image quality and a decrease in scan time.