Q10. CT Low Contrast Detectability

Measurements should be made of the low contrast detectability to ensure it is within established limits. Low contrast detectability is typically specified as the smallest sized object at a specified contrast level to the background which can be seen in a particular phantom when imaged under specified conditions. The phantom used for this test should have objects with less than 1% or 10 HU contrast to the surrounding material. The limiting detectability should be measured with the reconstruction algorithm of the scanner which is routinely used, as well as other clinically relevant reconstruction algorithms. The baseline performance level must be stated for a given phantom at specific scan conditions, including radiation dose, viewing conditions, and visualization criteria. It should be noted that this visual test for establishing low contrast detectability is subjective since it depends on a number of factors including the visual acuity of the observers and ambient lighting conditions.

Any CT QA phantom which contains low contrast objects can be used. The image below is of the low contrast section of the ACR CT Phantom, which contains objects of 25, 6, 4, 3 and 2 mm diameter. Only the four largest objects are clearly visible under these test conditions.