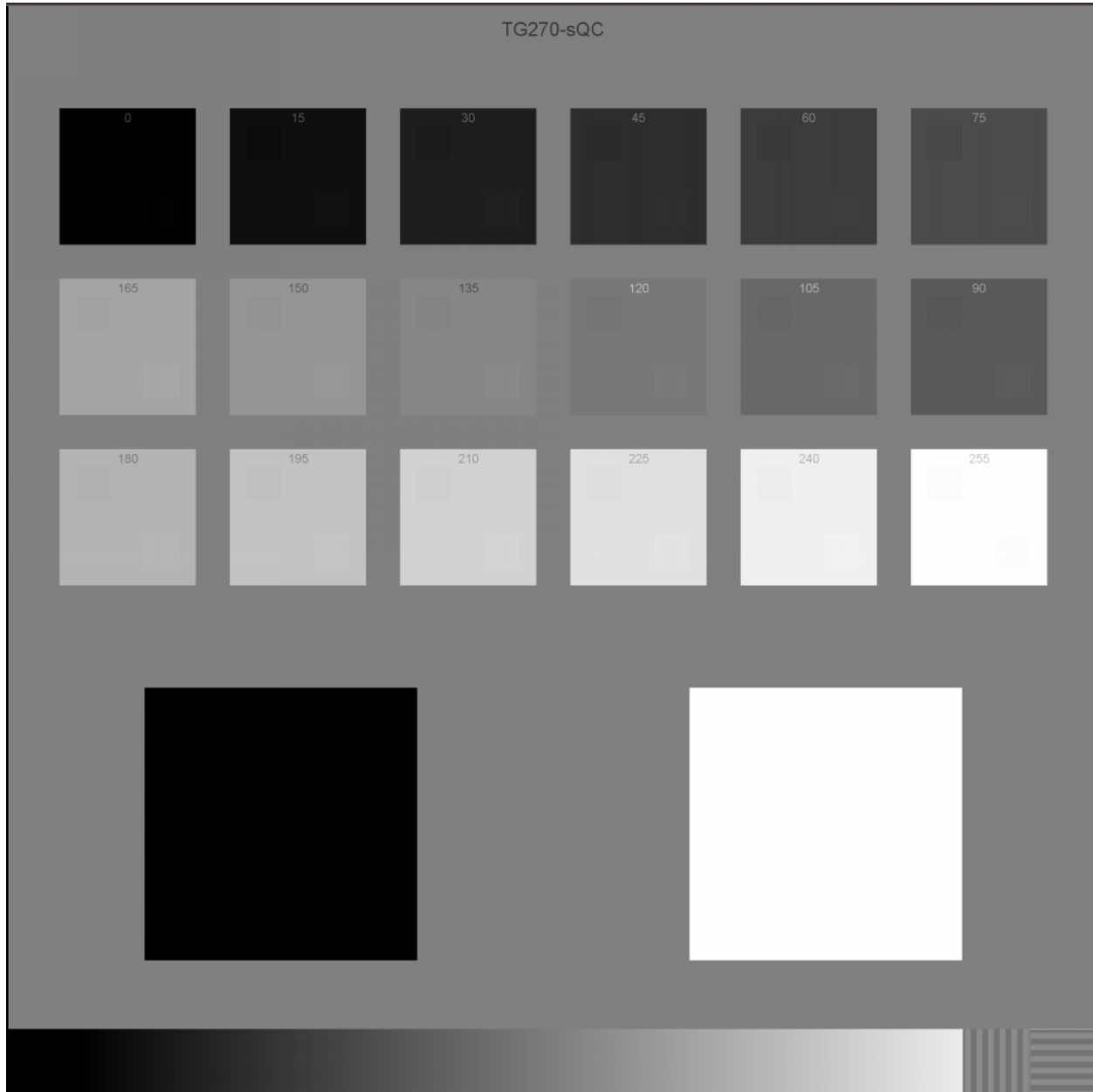


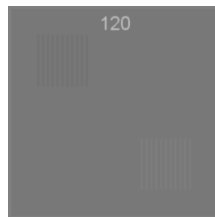
It is assumed that the viewer is sitting such that the eye to screen distance is approximately 65 cm (standard reading distance) and that the monitor(s) in question has been on for at least 30 minutes. The TG270-sQC test pattern is on UW Medicine Radiology PACS under: Patient ID = TG270-2019, or Patient Name = AAPM, TEST PATTERNS

The TG270-sQC test pattern contains three rows of six incrementing grayscale patches (total 18 patches) that cover the 8-bit digital value range (0 to 255) in steps of 15 digital values. These are labeled with the patch's digital value.



The display monitor(s) in question while displaying the TG270-sQC test pattern should be set to full range (window width 256, window level 128). DO NOT change the WW/WL of your display for this test pattern as it will INVALIDATE this evaluation.

Each patch contains a low-contrast bar pattern in the upper left and lower right corners. These bars have digital values -5 (upper left corner) and +5 (lower right corner) offset from the indicated patch digital value. For example, for the 120 digital value patch:

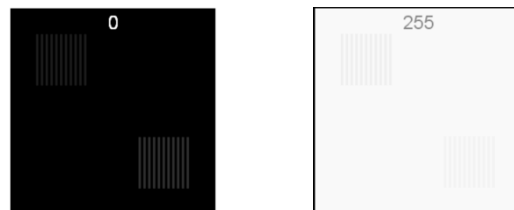


Test 1: The user should be able to quickly scan the three rows of patches and assess if all bar patterns in each are equally visible across the 16 patches labeled 15 through 240. This will be the case for a monitor which adheres to the DICOM Grayscale Standard Display Function (GSDF), i.e., DICOM “calibrated.” The GSDF provides the best achievable visual contrast between adjacent gray levels over the full dynamic range of a display and is the *de facto* medical image viewing standard.

The upper-leftmost (0) and lower-rightmost (255) patches, as no digital value can extend beyond the 8-bit 0-255 digital value range, have bar patterns +3 and +5 (0) and -5 and -3 (255) the indicated patch digital value as shown below:



The bars for the digital value 0 patch are difficult to visualize. It and the 255 patches are given below contrast enhanced (this is provided only for illustrative purposes, again, DO NOT change the WW=256/WL=128 of your display for this test pattern as it will INVALIDATE this evaluation)



Test 2: Patch 0 is the primary means of telling whether or not the ambient lighting is dim enough for image reading. *If you cannot visualize the right lower set of bars in Patch 0 (without zooming or changing the WW/WL) then lower the ambient lighting until you are able to.* If this cannot be achieved with the lowest lighting possible in the reading location, then the display cannot be said to qualitatively adhere to the GSDF.

It is not the intention of this process that you read in absolute darkness. That is not an optimal reading condition, but to alert you to the fact that it's possible that some detail may be lost in the darkest region of images. If you can see both bar patterns in patch 0 then you have excellent display monitor(s) and ambient lighting condition.

Test 3: Providing that your display system has passed qualitative test steps 1 and 2 above, then *re-check all the patches checked in step 1, but this time also include patch 255. Are you able to see the left upper bar pattern in patch 255?* If so and you've passed steps 1 and 2, then your video monitor(s) adhere qualitatively to the GSDF and should be adequate for reading. If you can see both bar patterns in patch 255 then you have excellent display monitor(s).

However, it is likely that if you do not have your display monitor(s) DICOM calibrated that you will fail either one or more of the tests above.