Setting Up A Temporary Display Device

This is a simple procedure to approximate a calibrated display setting for medical interpretation.

It is provided courtesy of the Clinical Imaging Physics Group from the Dept. of Radiology at Duke University.

Questions should be directed to your department’s Medical Physicist:  
[specify name and contact information]

1. Be mindful of lighting sources and monitor placement in the room:
   1. Windows should be covered with blinds or curtains
   2. Overhead lights should be dimmable or turned off (consider using a desk lamp)
   3. Monitors should not be back-to-back with light sources (i.e., windows, doors, other monitors) – with monitor powered off, you should not see any reflections on the screen
   4. Verify the ambient lighting *at monitor surface* is below 10 lux. You can use cell phone apps:
      1. On **Android**: Lux Meter (Light Meter) by My Mobile Tools Dev; it uses light sensor on screen side of phone
      2. On **iOS**: Lux Light Meter Pro - select FRONT and INDOOR, press the sun button to measure
2. Be mindful of the display luminance setting:
   1. **Macs:** calibrate to Gamma 2.2 (from Apple menu choose System Preferences, click Displays, click Color, click Calibrate). Set the brightness to 75% of max
   2. **PCs:** adjust the monitor to the native resolution by accessing the Display Settings in the Windows Control Panel. It should be notated in the selection list with “(Recommended)”.
   3. Evaluate the [TG18-QC](http://deckard.mc.duke.edu/~samei/samei_tg18/index.html#_DOWNLOAD_THE_TG18) or [TG18-OIQ](http://deckard.mc.duke.edu/~samei/samei_tg18/tg18_files/TG18OIQpatternTIFF16bits.zip) test patterns from PACS
      1. Query Patient ID [specify the file location and name]
      2. Load the pattern to full screen
      3. Verify the grayscale ramps are continuous
         * If ramps are not continuous (contoured), the graphics card does not support the bit-depth, monitor should not be used for clinical interpretation.
      4. Verify the words QUALITY CONTROL are mostly readable in *all* 3 areas of the pattern
         * If needed, can adjust the brightness and contrast using the front buttons /on screen monitor menus.
         * If more than 1-2 letters are missing, ambient lighting is too high or monitor is inadequate for use.



1. Minimum monitor specs:

**Grayscale ramps should appear continuous from dark to light**

General multi-modality

* + 2MP (1920 x 1080)
  + Max luminance 350 cd/m2
  + Contrast ratio 250:1
  + Pixel size 0.2 mm
  + DICOM GSDF calibration

**The words QUALITY CONTROL should be visible within the black, gray, and white areas**

Additional for Chest X-ray

* + 3MP
* Pixel size 0.21 mm

Mammography

* Only FDA approved 5 MP