

**AbstractID: 11390 Title: The impact of powering off on calibration status of Liquid Crystal Displays.**

**Purpose:** To investigate whether time in a powered off status impacts on the calibration status of two types of liquid crystal displays (LCDs). **Method and materials:** Two types of LCDs were examined (NEC multisync LCD 1830 [n=6] and Viewsonic 810b [n=8]). A total of 14 displays were examined before calibration, after calibration and after a time powered off. Displays were calibrated using a VeriLum calibration pod and associated software in accordance with the Digital Imaging and Communications in Medicine Part 14: Greyscale Standard Display Function (GSDF) standards. Displays were evaluated in terms of adherence to the GSDF using the Display Index (DI) and Luminance Conformance (LC) ratings obtained within the VeriLum software. Displays were assessed in a pre-calibrated state and a post-calibrated state at two separate time intervals. The time period between each assessment and for which monitors were off, was 5 months. Only in the initial assessment stage were the brightness and contrast levels of the displays manipulated to specified VeriLum levels. Minimum luminance was set to the lowest possible level between  $0.1 - 1\text{cd/m}^2$  and maximum luminance set as close as possible to  $100\text{cd/m}^2$  ( $82.04\text{cd/m}^2 - 153.44\text{cd/m}^2$ ). **Results:** Statistically significant improvements were noted for both display types across all displays after calibration. After a powered off period calibration was checked and the DI ratings in 5 (36%) and LC ratings in 6 (43%) of the monitors demonstrated reduced performance by at least a single rating. Monitors were then re-calibrated and performance measured. The DI in 4 (29%) and LC in 9 (64%) of the monitors improved and monitor variance was reduced. However, statistical analysis showed no improvement in performance after re-calibration in the second stage. **Conclusions:** Re-calibration after a powered off period, offers advantages in monitor calibration, performance and uniformity across displays.