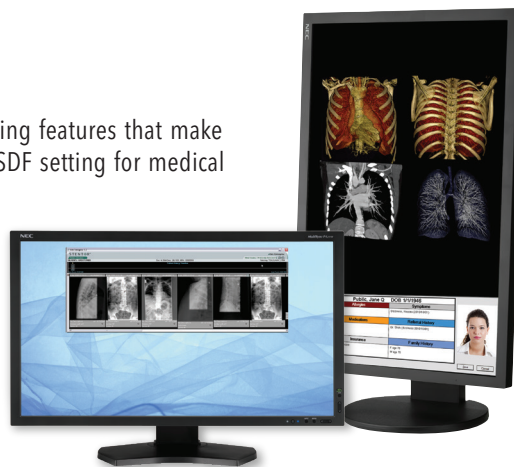# NEC MultiSync® PA Series
# Medical Applications

Creating a Clinical Review Preset

NEC MultiSync PA Series professional displays are designed with a number of industry-leading features that make them ideal for a clinical review environment including a selectable factory preset DICOM GSDF setting for medical imaging and image uniformity compensation for optimum image quality. The In addition, the built-in backlight sensor provides a feedback loop for brightness stability and consistency. Internal lookup tables (LUTs) can be calibrated for incredibly precise control over grayscale and color spaces.

The MultiSync PA Series are not shipped from the factory in the clinical review mode, however, through the use of NEC's MultiProfiler™ software, the display can easily be set up for clinical imaging.

About Picture Mode Presets

MultiSync PA Series displays have five built-in Picture Mode presets that are available using the on-screen menu, giving one-button access to up to five different display settings. The Picture Mode presets include customized color gamut, gamma, brightness, black level and white point settings. Any of the default picture modes on a MultiSync PA Series display can be easily customized using the free MultiProfiler tool.
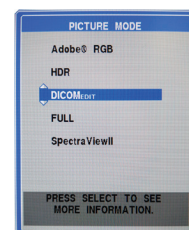
Creating a DICOM Preset

The Digital Imaging and Communications in Medicine (DICOM) standard defines a Grayscale Definition Function (GSDF) gamma curve optimized for diagnostic image viewing. The MultiSync PA Series includes a DICOM configuration preset that can be easily set in MultiProfiler.

Before creating the preset, the uniformity should be adjusted to the desired level. The Digital Uniformity Correction control adjusts the screen uniformity correction applied to the display in order to improve the screen luminance and color uniformity. This compensation is done at the expense of some screen brightness. A higher level of correction will give a more uniform screen, but the maximum brightness that can be achieved will be lower. To adjust the uniformity, start MultiProfiler and choose the Settings panel from the icons on the left. Using the slider, change the Digital Uniformity Correction to the desired level.
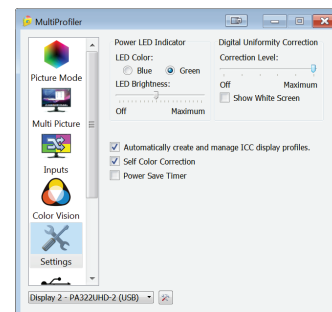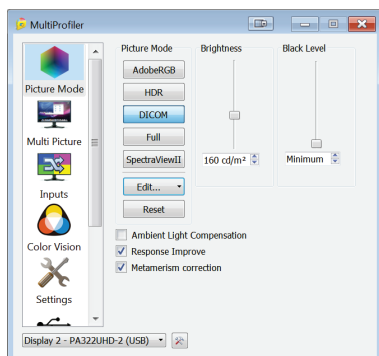
Next, select the Picture Mode panel. The Picture Mode panel controls the settings for the various Picture Modes that the monitor supports, as well as adjusting the Brightness and Black Level. The Picture Modes can be quickly selected by clicking on the relevant buttons. Any picture mode can be customized by selecting the Picture Mode preset button (the display may flash while adjusting to the new picture mode) and clicking the "Edit…" button.

The Color Configuration Wizard will appear with several predefined Picture Modes. For a clinical review mode, select the DICOM preset.

The wizard will then prompt for the desired white point. The default white point is 6500K (D65) and should be used, though Clear Base and Blue Base are options as well.
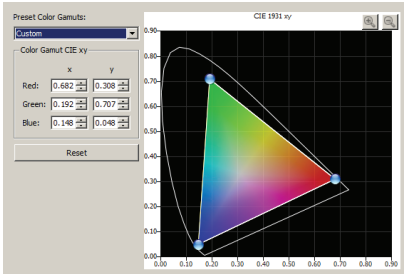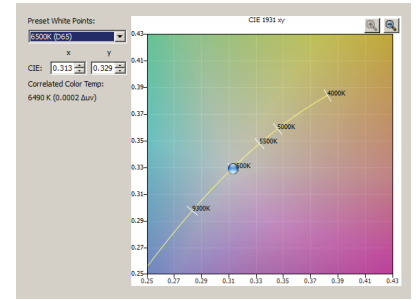
The next step is to adjust the color gamut for the display. There is no change required to the color gamut for DICOM GSDF, though several standard gamuts are available including sRGB and AdobeRGB (for wide gamut displays).

Finally, the brightness and black level can then be adjusted to the desired levels to achieve both the needed luminance and contrast ratios. Since several MultiSync PA Series displays have always-on backlight sensors, the contrast ratio can be adjusted directly by changing the ratio of brightness and black level. The brightness and contrast will stay stable for the life of the display.
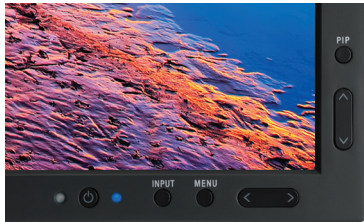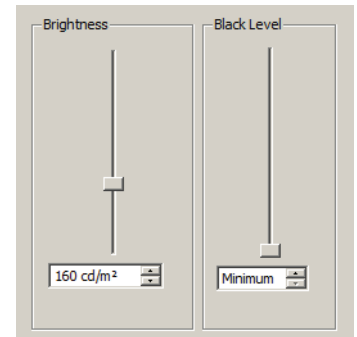
After completing these steps, a DICOM preset will be available in MultiProfiler as well as through the On Screen Display (OSD). To activate the OSD, use the vertical arrows on the bezel to display the list of Picture Modes. The same vertical arrows can be used to select the desired Picture Mode. The Picture Mode is automatically applied after being selected.

More information on MultiProfiler is available from NEC Display Solutions at http://necdisplay.com/multiprofiler

This technology paper was published in and based on information as of January 2018. Technical information is subject to change.

\Orchestrating a brighter world   **NEC**