9/11 Memorial Museum: Enhanced Museum Visitor Experiences

Provided By: SpectraCal, Inc.
Written By: Tom Schulte
About the 9/11 Memorial Museum

The National September 11 Memorial & Museum in New York City commemorates the victims of the World Trade Center bombing of February 26, 1993 and the September 11, 2001 attacks. Its mission is to honor the memories of those killed on 9/11, preserve history, and educate generations to come. The 9/11 Memorial Museum, which opened in May 2014, contains 88 exhibits within its 110,000 square-foot space. The exhibits incorporate approximately 64 video projectors, 50 flat panel displays, and 14 touch screen interface panels to augment and enhance the story told by the physical artifacts from the World Trade Center buildings, victims, survivors, first responders, rescuers and recovery workers and more.

The Challenge

The museum’s management and staff know that the image quality of the facility’s electronic displays is crucial in supporting the mission of the museum and enhancing visitor experience. However, the AV staff was left with the challenge to keep adjacent displays and edge-blended projectors matching one another during the museum’s first year of operation. After a lamp change the edge-blended projectors used throughout the museum usually had mismatched color and brightness that ranged from slight to significant. Also, uneven ambient lighting on the projection surfaces caused brightness differences within the projected images. Attempts were made to better match the projectors by replacing projector lamps that had started to degrade. It takes an AV crew up to three hours to unmount, change bulbs, and remount some of the projectors, due to difficult projector mountings. Adjacent flat panel displays always had some differences in brightness and color. Also, panels that were sent in for factory service were often returned looking...
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significantly different from the panels they needed to match. Attempts to match the panels by adjusting them by eye often didn’t yield the desired degree of conformity. The museum management saw that, despite the staff’s best efforts to match displays, the mismatched flat panels and projectors were detracting from the visitor experience.

The Solution

The museum’s staff decided to implement CalMAN Display Calibration Software to color match and luminance match their edge-blended projectors and flat panel displays. They arranged with SpectraCal for an in-house consultation and CalMAN training session. After the training session, the AV staff began implementing CalMAN to match their projectors and flat panels. Following are some of the benefits that the museum has realized since implementing CalMAN for display calibration.

Display Readiness

The AV staff performs equipment checks each morning, starting an hour and a half before the museum opens to the public. Most display issues tend to reveal themselves during this equipment warmup. If a display has a problem, the staff now has time to replace a panel or bulb before the exhibit opens, if necessary, then use CalMAN to luminance and color balance the display to match the adjacent displays. Fernando Mora, Manager of Audio Visual and Multimedia for the museum, says, “The CalMAN software allows us to very quickly match projectors on a maintenance schedule or after a lamp replacement.”

Image Quality

After CalMAN calibration, the museum’s display images now match on edge-blended projectors and on adjacent flat panel displays. Bright and dark objects have matching brightness on adjacent displays. Also, colors now match across edge-blended projectors and on adjacent flat panel displays.

Visitor Experience

With the projectors and flat panel displays calibrated to match, the visitor experience at the museum is now greatly improved. Mismatched brightness and color between displays no longer call attention to the electronic displays themselves. Visitors can now be immersed in the visual messages being presented, without being distracted by the mismatched characteristics of the displays.
Cost Savings

Projector lamp replacement and flat panel replacement has decreased significantly since the museum is using CalMAN to calibrate replacement displays or projectors with replacement lamps to match the adjacent, aged displays in an exhibit. An updated flat panel or projector can now be quickly calibrated to match its adjacent display(s).

Labor Savings

The museum’s labor requirements have also been reduced after implementing CalMAN calibration. Much of the significant time previously spent in replacing projector bulbs and flat panels, is now replaced with short calibration tasks. Also, with CalMAN display tests, the staff can now quickly determine when a flat panel or projector has a problem requiring factory service, rather than spending time trying to determine why the picture looks wrong.

About SpectraCal

This consultation and project was completed by Tyler Pruitt and Joshua Quain at the National September 11 Memorial & Museum on the 24th to the 26th of August 2015.

SpectraCal offers a number of calibration software and hardware solutions for several industries, including but not limited to display manufacturing, professional installation, medical imaging and video production.

Their flagship software product, CalMAN, has been adopted by consumers and professionals worldwide as the go-to solution for color accuracy and display analysis. Since CalMAN was launched in 2007, it has grown into five different software families, each unique to a particular set of industry needs.

CalMAN Ultimate, the software used by the 9/11 Memorial Museum, provides dozens of color space standards, gamma targets and measurement options, as well as custom workflows.

To learn more about SpectraCal and their CalMAN software products, visit www.SpectraCal.com.

To learn more about the 9/11 Memorial Museum, visit www.911memorial.org.

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