media engineers ltd

Monitor Calibration and setup – why/how we calibrate and what comes next; *one day course*

If you want to get the best/most consistent colour-workflow possible, we need to correctly calibrate and set up grading environments to recognised standards. By default, we work to the EBU/BBC standard, with a white point at $100Cdm^{-2}$ and a colour temperature of 6504K. We also need to consider calibration for HDR workflows, including Dolby Vision and HLG (the BBC/NHK standard). The return of the requirement for waveform monitors in HDR will also be demonstrated.

Over the course of the day we will (by practical example) demonstrate best practise for rec.709 calibration, LUT building, best-matching of large TVs and finish up with an overview of HDR calibration and setup. The day is best suited to engineers, operator/assistants and editors/colourists who want to know more about setup and maintenance of accurate colour monitoring. It is **not** any kind of guide to grading nor will it consider any artistic factors.

Why do we calibrate?

The first hour of the day will be just enough colour science to give the delegates an appreciation of metamerism and how that effects the whole workflow of consistent colour.

How do we calibrate?

We will spend an extensive session calibrating example monitors for rec.709 considering not only the monitor's internal controls but how to accommodate the room in which the display is being used.

LUTs for matching displays

When a display does not have proper colourimetry as part of its design (domestic TVs typically) we may need to profile the display to produce a matching LUT to "tame" the display – we will have a practical session profiling a display using industry standard probe and software and then we will generate a 3D LUT to better match the display to the monitor we calibrated earlier.

HDR

Modern facilities are moving towards HDR to better service Netflix, Amazon, DCI and broadcaster commissions – we shall have another theoretical session going over the difference between HLG (the broadcast TV standard) and DolbyVision.

Practical HDR setup

Using a $1,000Cdm^{-2}$ Dolby mastering display we shall go through the practical setup for HLG and DolbyVision and consider this in the wider setup of rec.709 downconvert via CMU.

Software and hardware used

We shall make use of the following throughout the day;

- LightSpace – the industry standard for colour management and LUT manipulation

- ChromaSurf – basic day-to-day calibration

- ColourNavigator – Eizo's monitor control/calibration software

- Sony rec.709 OLED & Eizo 4k HDR mastering monitors

- Klein K10A photometer

- Leader LV5600-series HDR waveform/analyser using the CineZone display for HDR analysis.