

Lumagen Radiance XD, XE, XS, Mini 3D, 2020, 21xx series CalMAN Setup Guide

The Lumagen Radiance processors provide controls to calibrate 11 or 21-point grayscale. They also provide controls to calibrate the standard CMS primary and secondary color points, or to calibrate a 3D cube lookup table (LUT) for SMPTE video level signals. (NOTE: The Radiance models are not suitable for creating a 3D LUT for use with full range/PC levels.)

Recommended CalMAN Workflows:

- HT Advanced or SI Advanced to calibrate Radiance grayscale RGB balance and standard CMS, or
- Color Cube or CalMAN Studio to calibrate Radiance grayscale RGB balance and 3D LUT.

Required Radiance Firmware:

- Any recent version for grayscale and standard CMS calibration.
- 091612, or later, for 3D LUT calibration

Radiance Firmware

- Any recent version for grayscale and standard CMS calibration.
- Version 091112, or newer, for 3D LUT calibration
- Firmware updates can be found at <http://www.lumagen.com/testindex.php?module=updates>

Note: For connecting to and controlling a Radiance with computers that do not have an RS232 connection, SpectraCal recommends the FTDI USB to RS232 converter. Thorough testing has established that this adapter, which includes a data buffer, is the most reliable adapter to use.

http://calman.spectracal.com/store/p49/CalMAN_Certified_USB_to_Serial_Adapter.html

Device Driver Kit download

<http://www.spectracal.com/download.php?id=3>



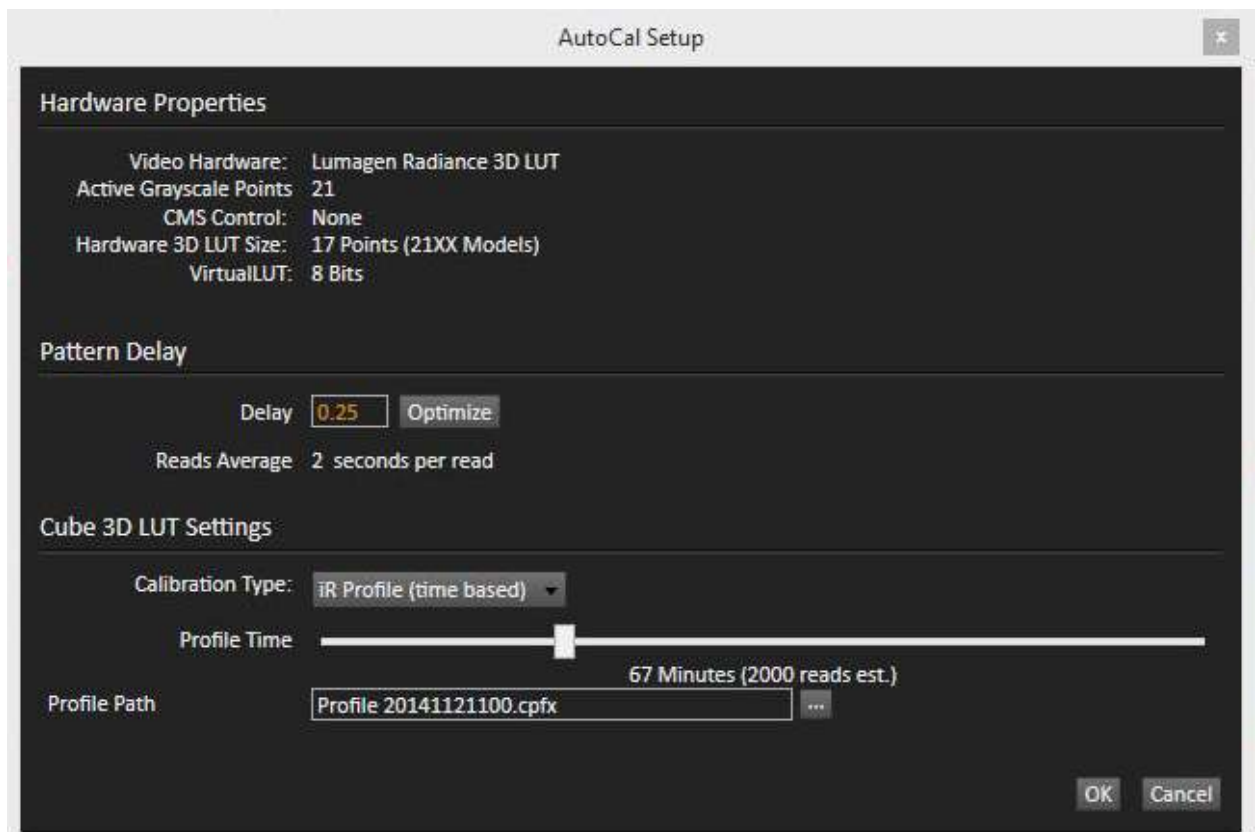
Radiance Control Connection:

- 21xx series: USB cable (serial cable can be used, at slower speed)
- Older models: DB-9 female to DB-9 female null-modem RS-232 cable (pin2 - pin3, pin3 - pin2)
Radiance RS-232 Echo must be On
Menu > Other > I/O Setup > RS-232 Setup > Echo: On

CalMAN Grayscale and 3D LUT Calibration:

CalMAN can calibrate the grayscale ramp and the 3D LUT in the Radiance. To produce an optimized 1K ramp LUT and a 3D LUT calibration file and automatically load them into the Radiance:

1. In the Radiance menu, set the 3D Color Gamut Options to Enabled and 125 Points.
 - Menu > Output > CMS's > CMSx > Color Gamut > Options > Enabled; Yes
 - Menu > Output > CMS's > CMSx > Color Gamut > Options > Points; [per model]
2. In CalMAN, load the "Color Cube (3D LUT)" workflow.
3. Proceed through each step of the workflow in the normal fashion, using the following notes for guidance on the indicated workflow pages.
4. On the *RGB Adjust* page, under the *RGB Adjust Levels* selection, select "2 Point 30, 100%." Click *Read Continuous* and adjust the display's RGB Gain controls for RGB balance at 100%. Adjust the display's RGB Offset/Bias controls (if provided) for RGB balance at 30%.
5. On the *1D Ramp LUT* page, click the *AutoCal* action button in the lower right to optimize calibration of the display's grayscale and gamma.
6. On the *3D Cube LUT* page, click the *AutoCal* (rotating arrows) button at the right end of the meter action buttons. The *AutoCal Setup* dialog then appears (see below).



7. Under *Calibration Type*, select the desired type of 3D LUT calibration process.
 - **IR Profile (time based)**: Creates the best quality display calibration 3D LUT possible in the selected period of time. You select how much display quality you have time for, from 30 minutes to maximum display quality (6,000 points max). Uses Intelligent Resolution Profiling to search out the most nonlinear color space areas and correct those first.
 - **IR Profile (point based)**: Creates the best quality display calibration 3D LUT possible with the selected number of measurement points (1,000 - 10,000 points). Uses Intelligent Resolution Profiling to search out the most nonlinear color space areas and correct those first.
 - **Lightning LUT**: Creates a display calibration 3D LUT in five minutes or less. Produces a very high quality result on professional displays with moderate linearity. Displays with significant nonlinearity may produce marginal results.
8. Under *Video Range*, select “SMPTE (16-235)” if you are calibrating a video display that clips or compresses signals above reference white, as tested on the CalMAN Dynamic Range page.
9. Click *OK*.

Upon completion of the AutoCal 3D hardware LUT calibration process, CalMAN automatically loads the optimized LUT calibration data into the Radiance.

DONE – Radiance grayscale and 3D LUT calibration and setup is complete.

CalMAN Grayscale and Standard CMS Calibration:

CalMAN can calibrate the grayscale ramp and the primary/secondary colors in the Radiance. To connect a Radiance for grayscale calibration and standard CMS primary/secondary color calibration:

1. In the Radiance menu, set the 3D Color Gamut Options to Disabled and 8 Points.
 - Menu > Output > CMS's > CMSx > Color Gamut > Options > Enabled; No
 - Menu > Output > CMS's > CMSx > Color Gamut > Options > Points; 8
2. In CalMAN, load the HT or SI Advanced workflow.
3. On the CalMAN Settings tab (gear icon), under Workflow Basic Options, select *Video (16-235)* [SMPTE legal].
4. Proceed through each step of the workflow in the normal fashion, using the following notes for guidance on the indicated workflow pages.
5. On the *Hardware Connect* page, click the *Find Source* button, select "Lumagen – Radiance series," then click *Connect*.
6. On the *Hardware Connect* page, click the *Find Processor/Display* button, select "Lumagen – Radiance CMS," then click *Connect*.
7. On the *Dynamic Range* page, adjust the display's black level/Brightness control to 16.
8. Skip the *Grayscale - 2pt* page (no advantage when doing the following multipoint AutoCal).
9. On the *Grayscale/Gamma* page, click the AutoCal button and wait for the AutoCal process to complete.
10. On the *CMS Calibration* page, click the AutoCal button and wait for the AutoCal process to complete.

DONE – Radiance grayscale and standard CMS calibration is complete.