

## Offhollywood OMOD CalMAN Setup Guide

CalMAN takes advantage of the Offhollywood OMOD features to calibrate a video display with a 10-bit 33x33x33 3D cube lookup table (LUT). This setup guide assists you in calibrating the Offhollywood OMOD with the CalMAN Color Cube workflow.

### Recommended CalMAN Workflow:

- Color Cube (3D LUT)

### Required OMOD Firmware:

- Version v1.2.0 r26460 or newer

### Offhollywood OMOD Control Connections:

- USB Mini-B
- WiFi

### Offhollywood OMOD Control Setup:

To set up an Offhollywood OMOD for 3D LUT display calibration:

1. Connect the OMOD to your CalMAN calibration computer via USB or WiFi.
2. Connect the OMOD SDI 1 output signal to the video display to be calibrated (no input signal is required to the OMOD during display calibration).
3. Power on the OMOD.

### Offhollywood OMOD Output Format:

During display calibration, the internal OMOD pattern generator provides the output signal. The OMOD output signal format is normally a pass-thru version of the input signal format. With no input signal, the OMOD output defaults to 720p59. If desired, you can manually select the resolution of the pattern generator output signal within CalMAN

## CalMAN 3D LUT Display Calibration

CalMAN can create a display calibration 3D LUT in the Offhollywood OMOD with a direct control connection. To produce an optimized 3D LUT calibration file and automatically load it into the OMOD:

- From the CalMAN main menu, select *Open Workflow Template / Color Cube (3D LUT)*.
- Proceed through each step of the Color Cube workflow in the normal fashion, using the following notes for OMOD specifics.

*Note: To create a 3D LUT display calibration file for the OMOD and then later load the file into the OMOD, see the File Creation section on the last page of this document.*

### 1. Initial Setup section

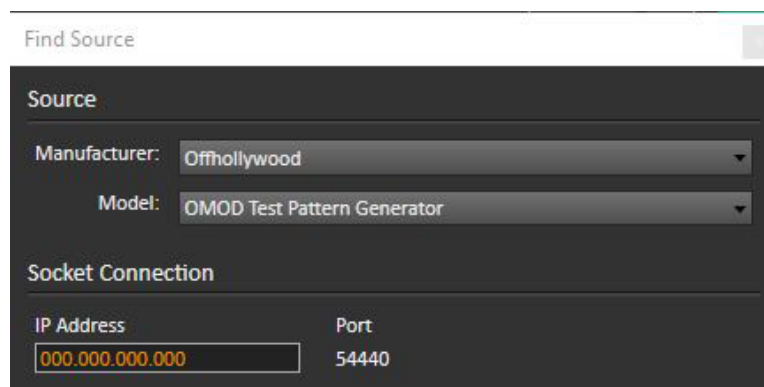
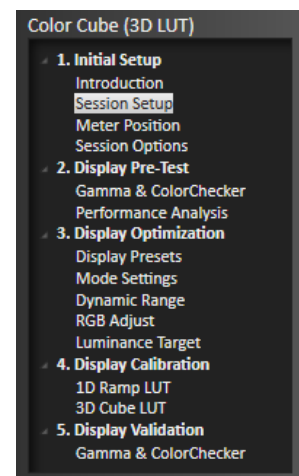
In the Initial Setup section of the Color Cube workflow, step through the following pages:

#### a. Session Setup - Meter Connect

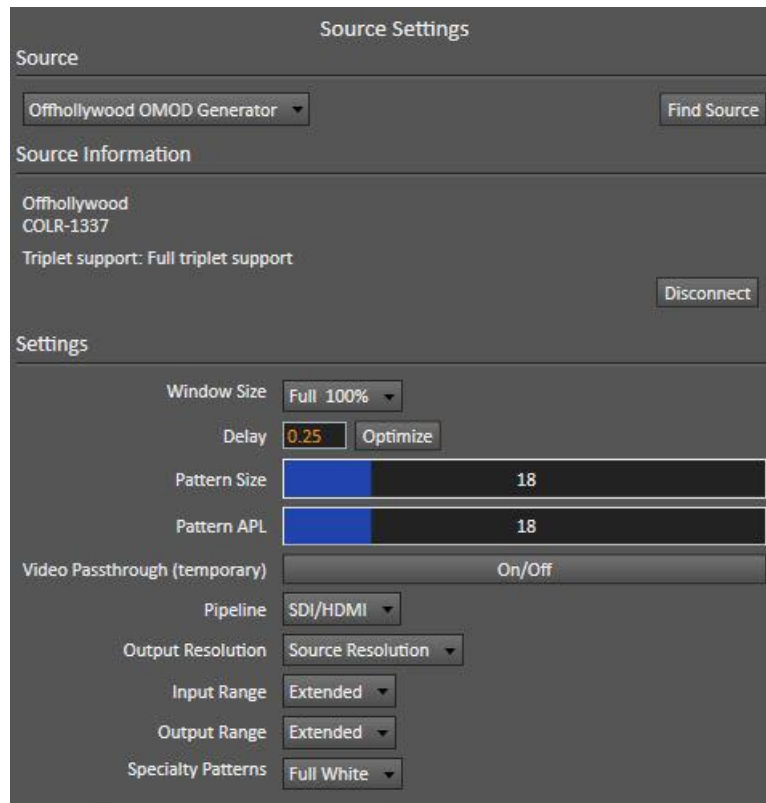
- Connect your color meter to the CalMAN computer.
- On the *Session Setup* workflow page, click the *Find Meter* button to connect your meter.
- Under the *Target Display Type* drop down, select the backlight type for the display being calibrated.

#### b. Session Setup - Source Connect

- On the *Session Setup* workflow page, click the *Find Source* button.
- On the *Find Source* dialog (below), under *Manufacturer*, select 'Offhollywood.'
- Under *Model*, select 'OMOD Test Pattern Generator.'
- Enter an IP address of 192.168.100.1 (unless the IP address has been changed on the OMOD web page interface).
- Click *Connect*.



CalMAN defaults to having the OMOD test pattern output resolution match the OMOD input signal source resolution. If there is no input signal, the OMOD output resolution defaults to 720p59. If you wish to change the resolution of the OMOD test patterns, make your selection in the *Output Resolution* selection box on the CalMAN Source Settings screen (below).



### c. Session Setup - LUT Device connect

- On the *Session Setup* workflow page, click the *Find 3D LUT Device* button.
- On the *Find Display* dialog (below), under *Manufacturer*, select 'Offhollywood.'
- Under *Model*, select 'Offhollywood - OMOD (3D LUT).'

- Enter the IP address of the OMOD box.

*Note: If you have already connected to OMOD as a source, you do not need to re-enter the IP address.*

- Click *Connect*.

Find Display

Display

Manufacturer: Offhollywood

Model: Offhollywood - OMOD (3D LUT)

Socket Connection

IP Address: 000.000.000.000

Port: 54440

Note

If you have already connected to OMOD as a source, you do not need to re-enter IP address.

When creating a new 3D LUT, be sure to disable the current LUT.

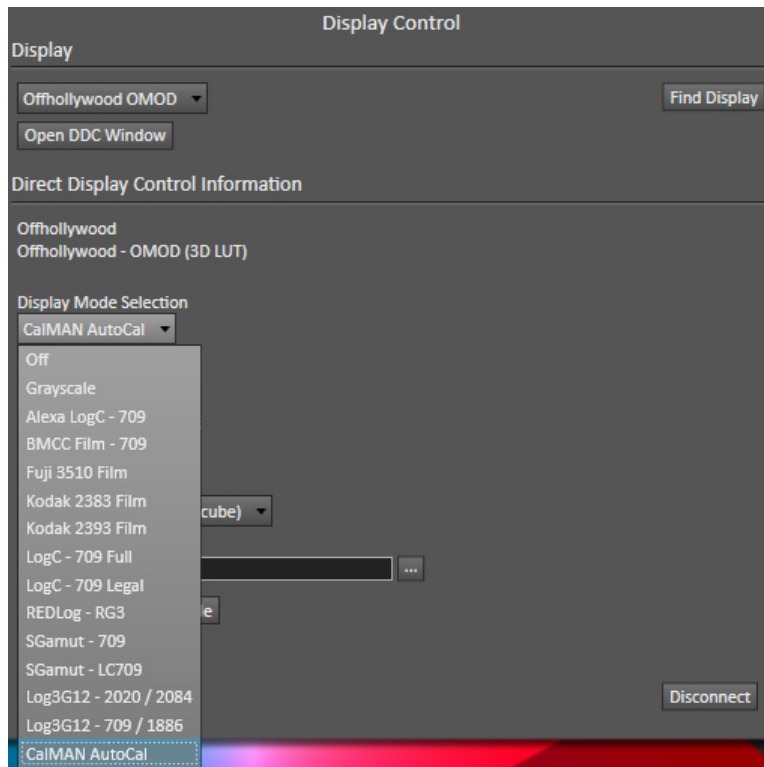
If you select an existing preset when creating a LUT, it will overwrite that preset.

Connect

## Display Mode Selection

Before calibrating a display connected to the OMOD output, any 3D LUT already enabled in the OMOD needs to be disabled. On the CalMAN Display Control tab, under Display Mode Selection (see below), select *Off* to disable 3D LUTs.

After creating a 3D LUT in CalMAN and loading it into the OMOD, the 3D LUT needs to be enabled in the OMOD. On the CalMAN Display Control tab, under Display Mode Selection (see below), select *CalMAN AutoCal*, or whatever you named the new LUT to enable the LUT and then perform display validation in the Color Cube workflow.



## 2. Display Pre-Test section

In the *Display Pre-Test* section of the Color Cube workflow, you can measure the performance of a display before you calibrate it, on the *Gamma & ColorChecker* page. If the *Performance Analysis* page indicates any red lights for display performance, you may wish to optimize the display's picture controls before creating a 3D calibration LUT. Click the *Optimize Display* button to proceed to the *Display Optimization* section.

Otherwise, click the *Calibrate Cube LUT* button to proceed directly to the *Display Calibration* section.

## 3. Display Optimization section

To optimize the display's picture controls before creating a 3D calibration LUT, advance through the adjustment pages in the *Display Optimization* section of the workflow.

**Caution:** Before optimizing controls within the display, disable the 3D LUT within the *Offhollywood OMOD*. On the *Display Control* tab (below), under *Display Mode Selection*, select "Off."

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%. If RGB Offset/Bias controls are also provided, select the 30% level tab at the bottom of the page and adjust the display's Offset/Bias controls for RGB balance at 30%.

## 4. Display Calibration section

In the *Display Calibration* section of the Color Cube workflow, there are provisions for calibrating both a 1D RGB LUT (*1D Ramp LUT* page) and a 3D cube LUT (*3D Cube LUT* page). When we are

calibrating the OMOD with a 3D LUT, we will skip the *1D Ramp LUT* page (1D RGB LUT) and use only the *3D Cube LUT* page.

**a. 1D Ramp LUT page**

Skip over this page when creating a 3D LUT file for an OMOD, since we will not create a 1D LUT.

**b. 3D Cube LUT page**

1. On the *3D Cube LUT* page, click the *AutoCal* button (rotating arrows) at the right end of the meter action buttons. The *AutoCal Setup* dialog then appears (below).

- A. Under *3D LUT Preset*, select an existing 3D LUT preset to recalibrate, or select “New Preset” and edit the New Preset name for the LUT file that CalMAN will create (e.g. monitor ID and date).

*Caution: If you select an existing 3D LUT preset to recalibrate, the existing LUT data will be erased and new LUT data will be loaded to the preset.*

- B. Under *File Path*, select the desired directory path and provide a name for the backup LUT file that CalMAN will save to disk.
- C. 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.
- D. Under *Video Range*, select “SMPTE (16-235)” if the OMOD range is set to limited on input and output or if you are calibrating a video display that clips signal values above reference white. Select “SMPTE+ (16-255)” if you are calibrating video levels and the OMOD range is set to extended on input and output.
- E. Click *OK*.

**When the AutoCal process completes, CalMAN automatically loads the optimized 10-bit 33x33x33 LUT calibration data into the Offhollywood OMOD.**

*Note: To see the new 3D LUT preset in the CalMAN preset list, you need to disconnect and reconnect to OMOD in CalMAN.*

**Important:** *To enable the new 3D LUT in OMOD before performing display validation, select the new LUT on the CalMAN Display Settings tab, under Display Mode Selection, as outlined above.*

## 5. Display Validation section

After the new 3D LUT is loaded into the OMOD, click NEXT to advance to the *Display Validation* section of the Color Cube workflow to validate the accuracy of the display when using the 3D calibration LUT. You can switch back to the *Display Pre-Test* section of the workflow to compare to the pre-calibration performance.

**DONE:** 3D LUT display calibration and setup of the OMOD is complete.

## CalMAN 3D LUT Display Calibration File Creation for Offhollywood OMOD

CalMAN can also create a 3D LUT display calibration file for the OMOD without immediately loading the file into the OMOD. The OMOD does not need to be available during this display calibration and file creation process. The file created will be a .cube file with the proper OMOD data format for later loading into the OMOD with CalMAN (as detailed below).

To create a 3D LUT display calibration file for the OMOD with CalMAN:

1. In the CalMAN main menu, select *Open Workflow Template*, then select the 'Color Cube (3D LUT)' workflow.
2. On the CalMAN Display Control tab, connect to the SpectraCal Cube Generator as a Display Control device.
3. On the Display Control tab, under 'File Format,' select 'Offhollywood - OMOD (.cube).'
4. On the Display Control tab, under 'File Path,' select your desired destination for the .cube LUT file.
5. On the CalMAN Source Settings tab, select your desired test pattern source for display calibration (this can be the OMOD, if available).
6. Follow the display calibration instructions in the 'CalMAN 3D LUT Display Calibration' section above.

**Done:** Upon completion of the AutoCal 3D LUT calibration process, CalMAN automatically writes a .cube file, containing color cube display calibration data, to your selected file destination. This display calibration file can be later loaded to an OMOD, using the procedure in the 'CalMAN 3D LUT Load to OMOD' section below.

## CalMAN 3D LUT Load to Offhollywood OMOD

CalMAN can load a properly formatted 3D LUT file into the OMOD. The LUT needs to be a .cube LUT file with 33x33x33 data points.

This .cube LUT file can be a display calibration LUT created with the CalMAN Cube Generator function (as detailed above). Or, it can be a creative (look) LUT created by any other application (with the proper data points). During the load process, CalMAN converts the .cube file into the file format required by the OMOD.

To load a 3D LUT file into an OMOD:

1. In CalMAN, on the Display Control tab, connect to the OMOD as a Display Control device.
2. On the Display Control tab, click the 'Open DDC Window' button.
3. On the DDC Controls dialog, scroll to the '3D LUT Controls' page.
4. Click the 'Load LUT File' button.
5. In the resulting file navigation window, select the .cube LUT file that has been created for the OMOD.

*Note: You can also load a LUT via the OMOD web page that comes up in a web browser when you enter the OMOD IP address into the browser.*

**Done:** The selected 3D LUT file is now contained in the OMOD.

If you wish to validate the accuracy of the display after loading a 3D calibration LUT, you can return to the *Display Validation* section of the Color Cube workflow.