

# DOLBY PRM-4200 CalMAN Setup Guide

CalMAN Display Calibration Software can automatically create an optimized 3D calibration LUT for the Dolby PRM-4200 monitor. Follow the procedure below to automatically create and load an optimized 3D LUT monitor calibration file into one of the Dolby monitor's Custom operating modes.

## Required CalMAN Software Version:

- Version 5.4.0 or newer

## Required CalMAN Workflow:

- Color Cube (3D LUT)

## Dolby Monitor Software Version:

- 3.4.1.1 or newer

## Dolby Monitor Control Connection:

- Ethernet port on rear of monitor

## Dolby Network Connection

Connect the Dolby PRM-4200 to the same network router or local area network as the CalMAN computer, with an Ethernet cable.

## Dolby Initial Setup

To calibrate the Dolby monitor with a 3D LUT, you must manually configure two settings in the monitor before you connect to the monitor within CalMAN:

1. On the Dolby remote, select either the *Custom 1* or the *Custom 2* operating mode to enable 3D LUT calibration.

*Note: There are no Brightness, Contrast or Luminance controls available in the Custom operating modes.*

2. On the Dolby remote, press the *Edit* key to set the *Video Range* to either 'SMPTE,' 'Full,' or 'Custom.' To set a SMPTE+ range under Custom (SMPTE black, extended white), set Range max to 4095 and set Range min to 256.

*Note: The Dolby Video Range selection needs to be set before connecting CalMAN to the Dolby monitor.*

## Color Cube (3D LUT) Workflow

The Color Cube workflow in CalMAN is used to create 3D display calibration LUTs. In the CalMAN main menu, select *Open Workflow Template / Color Cube (3D LUT)*. Proceed through each step of the Color Cube workflow in a normal fashion, using the following notes for Dolby monitor specifics.

### 1. Initial Setup section

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

#### a. Session Options page

On the *Session Options* page, under *Input Signal Levels*, select either 'Video (16-235)' (to support the Dolby SMPTE or Custom ranges) or 'PC (0-255)' (to support the Dolby Full range).

*Note: The CalMAN Levels selection needs to be set before connecting CalMAN to the Dolby monitor.*

#### b. Session Setup - Meter Connect

Connect your color meter to the CalMAN computer. Then, on the *Session Setup* page, click the *Find Meter* button. On the *Find Meters* dialog, select your meter if it is listed, then click *Search*. If your meter is not listed on the *Find Meters* dialog, just click *Search*.

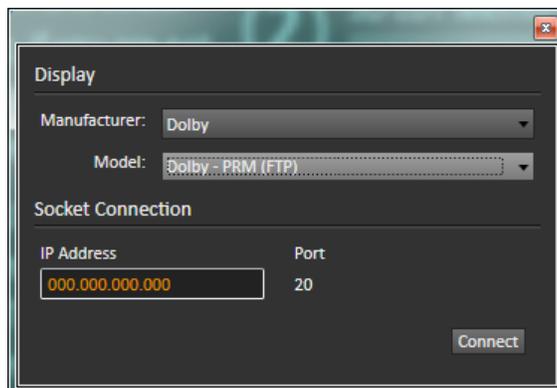
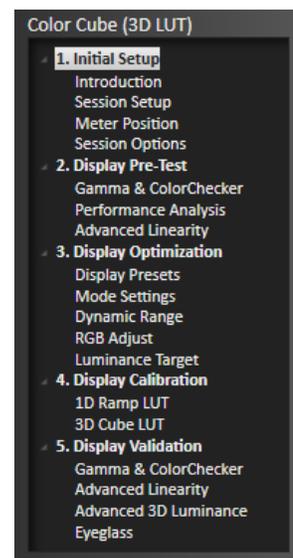
#### c. Session Setup - Source Connect

On the *Session Setup* page, click the *Find Source* button. On the *Source* dialog, under *Manufacturer*, select 'Dolby.' Under *Model*, select 'Dolby –PRM (FTP).'

See the Test Pattern Source Note, at the end of this document.

#### d. Session Setup - LUT Device Setup

On the *Session Setup* page, click the *Find 3D LUT Device* button. On the *Display* dialog, under *Manufacturer*, select 'Dolby.' Under *Model*, select 'Dolby –PRM (FTP).'



On the Dolby remote, under System / Utilities / IP Configuration, note the monitor's IP address.

Enter the Dolby monitor IP address, and then click Connect.

CalMAN then writes a unity 1D LUT file to the monitor. The monitor takes about a minute to load the LUT data. Wait for the monitor to load the LUT before you continue the calibration.

## 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 and on the *Advanced Linearity* page. Because there are no Brightness, Contrast or Luminance controls available in the Dolby Custom 1 and the Custom 2 operating modes, however, you will not optimize any monitor picture controls before performing the 3D LUT calibration.

## 3. Display Optimization section

Because there are no Brightness, Contrast or Luminance controls available in the Dolby Custom 1 and the Custom 2 operating modes, skip the *Display Optimization* section of the workflow. Skip directly to *Calibrate Cube LUT*.

## 4. Display Calibration section

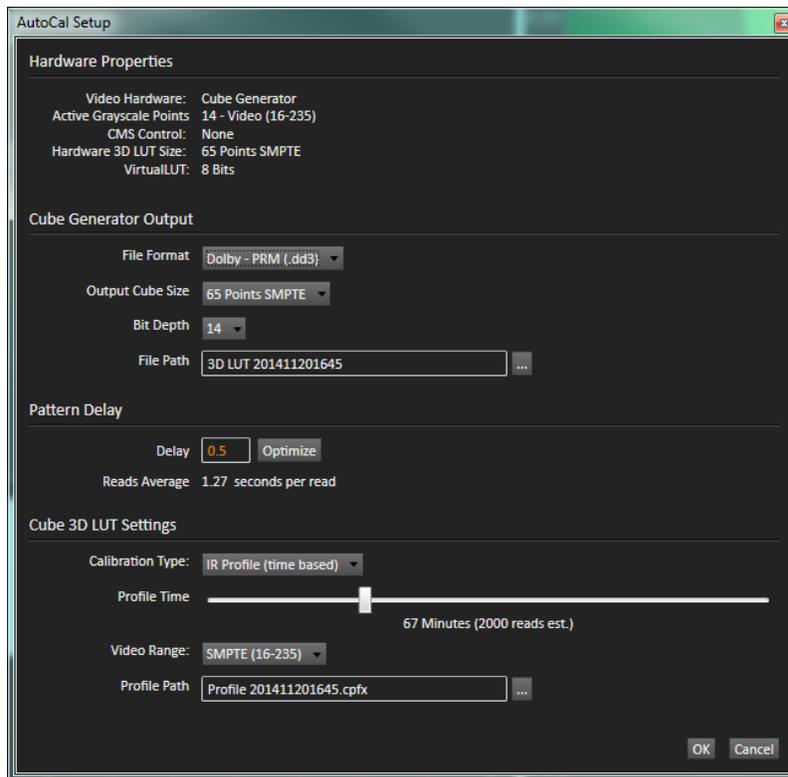
In the *Display Calibration* section of the Color Cube workflow, there are provisions for calibrating both a 1D RGB LUT (1D Ramp LUT page) and a 3D cube LUT (3D Cube LUT page). When we are calibrating a Dolby monitor with a 3D LUT, we will skip the *1D Ramp LUT* page (1D RGB LUT) and use only the *3D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

### a. 1D Ramp LUT page

Skip over this page when creating a 3D LUT file for a Dolby monitor, since we do not need to create a 1D LUT.

### b. 3D Cube LUT page

1. 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).



2. Under *Output Cube Size*, select either:
  - '65 Points SMPTE' (to support the Dolby SMPTE range), or
  - '65 Points SMPTE+' (to support the Dolby Custom range).
3. Under *File Path*, select the desired directory path and provide a name for the LUT file that CalMAN will create (e.g. monitor ID and date).
4. 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.
5. Under *Video Range*, select the same range as for the *Output Cube Size*, above.
6. Click *OK*.

Upon completion of the AutoCal 3D LUT calibration process, CalMAN automatically loads the optimized 65x65x65 point LUT calibration data into the Dolby monitor. This takes a while.

If you have used the Dolby internal test pattern generator to perform the calibration, power cycle the Dolby monitor after the LUT finishes loading, to reset the Dolby signal processing.

## **5. Display Validation section**

The Dolby internal test pattern generator does not feed through the 3D calibration LUT, so the internal patterns cannot be used for calibration validation.

### **Test Pattern Source Note**

The Dolby PRM-4200 has an internal test pattern generator, which can be used to calibrate the Dolby's internal 3D LUT.

However, the Dolby internal test patterns have a significant switching delay when each new test pattern is accessed. Also, the internal test pattern generator does not feed through the 3D calibration LUT, so the internal Dolby patterns cannot be used to validate the 3D calibration LUT.

For these reasons, you may wish to use another test pattern source, such as the CalMAN Client 3 or a hardware test pattern generator for both the calibration and the validation.