

L e e m i n g L U T P R O

Camera Setup Guide:	Panasonic G Series
Based On:	GH5S (firmware 1.6)
Colour Space:	Rec709 gamma 2.4
Target Exposure:	ETTR
LUT Version:	Athena III & Pro III
LUT Release Date:	2021.02.14
Guide Version:	2022.07.10

INTRODUCTION

Thank you for purchasing Leeming LUT Pro™, the most accurate and professional Look Up Tables (LUTs) for your camera.

The LUTs have been carefully developed to get the maximum dynamic range and colour accuracy out of the supported profiles, giving you unparalleled Rec709 precision as well as perfect camera matching with other supported cameras in the Leeming LUT Pro™ range. Use them in conjunction with ETTR shooting principles and you will get the highest possible quality images out of the camera every time.

I am confident you will find these the most accurate LUTs for your camera. Anything less and I wouldn't have put my name on them!

Enjoy :)

Paul Leeming
Director / Writer / Cinematographer / Actor
Visceral Psyche Films
www.visceralpsyche.com

LICENCE

You are granted a personal licence to use Leeming LUT Pro™ on two computers. For use with more computers, please contact Visceral Psyche Films for bulk discount pricing. You may not upload the LUTs anywhere, share them with other people or incorporate them into other LUTs for derivative use (i.e. making creative LUTs using Leeming LUT Pro™ as the underlying base), whether they be for sale or not. Please respect the work that has gone into the LUTs and support those supporting you.

COMPATIBILITY

Leeming LUT Pro™ is compatible with any software or hardware device that supports a 33x33x33 cube LUT. For a full list, please see the website.

REQUIREMENTS

1. Panasonic G series camera with Cine-D, HLG or V-LogL support.
2. Spectrally neutral white or grey card, for white balancing the camera (eg. the white balance side of an X-Rite Colorchecker Passport is designed for this).
3. Leeming LUT Pro™ for Panasonic G series.

NOTE: Items highlighted in yellow have an adverse effect on LUT accuracy if changed away from the recommended values in this guide.

QUICK REFERENCE OF IMPORTANT CAMERA SETTINGS

The settings below are recommended for the LUTs to work properly, in conjunction with an accurate white balance and using the ETTR zebras to show where the highlights of an image are clipping.

If you deviate from these settings, your colorimetry and luma curves won't match precisely to Rec709 and you may get other errors in your footage. You can find the details of how to set these in the next section.

	Cine-D	HLG	V-LogL
Zebras (ETTR)	95%	90%	80% ³
Zebras (18% grey) ²	-	-	-
Zebras (skin tone) ²	80	75	75
Contrast	0	N/A	N/A
Sharpness ¹	-5	-5	-5
Noise Reduction ¹	-5	-5	-5
Saturation	-5	0	N/A
Hue	0	0	N/A
Luminance Level	0-1023 (0-255 8bit)	64-940 (greyed out)	0-1023 (greyed out)
Master Pedestal	0	0	0
Highlight	0	0	0
Shadow	0	0	0

¹ These settings won't affect your colorimetry or luma curves but they will affect overall picture quality if altered.

² **Advisory only numbers! ETTR should be the main method used for exposure.** 18% grey is based on 42 IRE as standard and skin tone is based on the 70-75 IRE range. Zebras will show everything above the given value for the G series.

³ If your G series camera never shows zebras at 80% (some older firmwares), set 75% instead for V-LogL.

FULL CAMERA SETUP GUIDE

Based on the camera listed on the title page of this guide. Your camera may not have all the same features so adjust as necessary.

1. Switch the top dial to Movie mode.
2. Press the Menu button and go to the Movie M tab, set Exposure Mode to M and **Master Pedestal to 0.**
3. Set HLG View Assist to Mode 1 for viewing as it favours highlights (if using HLG).
4. For shooting V-LogL, place the included VLT monitoring LUTs in the root directory of your SD card, place it in Slot 1, Select V-LogL View Assist, Read LUT File, select LPRO3.VLT or LATHENA3.VLT, then save to Set1 and Set2 as desired. From there, choose LUT Select – LPRO3 or LATHENA3 and LUT Monitor Display ON. The zebras and histogram retain their pre-LUT levels so you don't need to adjust anything when using the monitoring LUT function. **CAUTION: Outputting the VLT image to your HDMI port instead of a clean feed WILL bake in the low precision LUT into your external recording! Only use this option if you are using an external MONITOR and that monitor DOESN'T support the cube LUT format.**

5. Select Movie tab, Rec Format MP4 (LPCM) or MOV, Rec Quality 4K 10bit (wherever possible) and framerate as desired.
6. Go into Photo Style and choose Hybrid Log Gamma (HLG) or V-LogL for 10bit shooting, Cine-D for 8bit shooting, adjust the numbers as per the Quick Reference table above, then press Set to save that profile.
7. Luminance Level should be set to 0-1023 for all 10bit shooting and 0-255 for 8bit Cine-D shooting. When in HLG or V-LogL styles this setting will be greyed out.
8. Set Filter Settings OFF, Highlight Shadow 0, i.Dynamic and i.Resolution OFF, Sound Output REALTIME, HDMI Rec Output as required. Make sure HLG or V-LogL View Assist (HDMI) is set to OFF, otherwise your externally recorded footage will not work with the LUTs, as you will have accidentally baked in the camera's 'look'.
9. GH6 ONLY – Set V-Log Dynamic Range Boost OFF as it clips above what the current G series V-LogL LUT is designed for.
10. Select Custom Settings tab, Exposure, Dual Native ISO as desired, ISO Increments 1/3EV, Extended ISO ON, Exposure Comp. Reset OFF, Constant Preview ON, Peaking ON, HIGH, Display Color as desired, Histogram OFF.
11. Set Zebra Pattern (Zebra1 or Zebra2) to match the chosen Photo Style for ETTR highlight clipping avoidance.
12. Set Monitor Info. Disp. ON and Video-Priority Display ON.
13. Select the Settings tab, Beep - Beep Volume OFF, E-Shutter Vol OFF, Live View Mode 60fps, Monitor Luminance as required.
14. Set System Frequency to your desired region format (PAL/NTSC/Cinema). Note that Cinema is DCI4K spec which gives you exact 24.00fps and 4096x2160 resolution options.
15. In Folder/File Settings, customise your File Name Setting as desired. Choose whichever Double Slot Function you desire for recording to SD card 1 and 2.
16. Select the My Menu tab - My Menu Setting and Add the following (recommended but you can customise as desired):

Photo Style, Zebra Pattern, Stabilizer, Rec Quality, Mic Level Adj, Cust. Set Mem, Variable Frame Rate, Synchro Scan, WFM/Vector Scope, V-LogL View Assist.

You are now ready to use Leeming LUT Pro™ with the maximum picture quality available. Be sure to visit the website to read up on how to use ETTR (Expose To The Right) principles to get the most dynamic range out of your sensor, as well as the associated Leeming LUT Pro™ LUT Installation Manual on how to apply the LUTs to your footage in post-production:

www.LeemingLUTPro.com

HARDWARE / SOFTWARE QUIRKS AND BUGS

1. Select your desired Photo Style for shooting. I don't recommend V-LogL for 8bit 4:2:0 shooting as it causes unacceptable banding due to the lack of tonal precision in 8 bits (this is NOT the fault of the LUTs). HLG is not available in-camera for 8bit shooting.
2. Custom White Balance by pressing the WB button, selecting one of the Custom slots, then aim the target square in the middle of the white balance card. Make sure the image is correctly exposed (no clipping but not too dark), then press Set to get the Custom White Balance. Get used to this white balancing process, as it's the key to maximum dynamic range across the three RGB channels.

ATOMOS NINJA V RECORDER SETUP

The LUTs are compatible with external monitors and recorders which use the 33x33x33 cube format.

One issue which arises with using the camera's HDMI output is that it sometimes feeds the wrong levels the device is expecting. Using the Atomos Ninja V (with firmware 10.5+) as a guide, set the Legalize function as per the table below to correct this. **Make sure you DON'T have a viewing LUT active when setting this up, otherwise your Legalize setting will be greyed out and unavailable to change.** To ensure your externally recorded clips match both on screen and in post, **have the Pro III LUTs applied and active in the Ninja V.**

	Cine-D	HLG	V-LogL
Zebras (ETTR)	100%	95%	90%
Zebras (18% grey) ¹	-	-	-
Zebras (skin tone) ¹	80	75	75
Log/HDR	OFF	OFF	OFF
Camera	Standard	Standard	Standard
Gamma	Rec709	Rec709	Rec709
Gamut	Rec709	Rec709	Rec709
HDR Auto	OFF	OFF	OFF
Legalize	ON	OFF	ON
HDMI Trigger	ON	ON	ON
Timecode	HDMI	HDMI	HDMI

¹ **Advisory only numbers! ETTR should be the main method used for exposure.** 18% grey is based on 42 IRE as standard and skin tone is based on the 70-75 IRE range.

DAVINCI RESOLVE CLIP ATTRIBUTES FOR ATOMOS NINJA V FOOTAGE

When importing clips into Davinci Resolve and NOT using the Legalize ON option in the recorder, there exists the ability to adjust the Data Levels of the externally recorded footage between Full and Video using Clip Attributes. The following table lists what should be set for each profile to have the LUT work properly.

	Cine-D	HLG	V-LogL
Data Levels	Full	Auto	Full

GUIDE CHANGELOG

- 2022.07.10 Added GH6 note to turn Dynamic Range Boost OFF for correct LUT functioning.
- 2021.02.15 Amended luminance levels for HLG and V-LogL to show greyed out.
- 2021.02.14 Initial release.