Leeming LUT PRO

Camera Setup Guide:	Canon EOS Series
Based On:	Canon R5 (firmware 1.30) & Canon C70
Colour Space:	Rec709 gamma 2.4
Target Exposure:	ETTR
LUT Version:	Athena III & Pro III
LUT Release Date:	2021.05.27
Guide Version:	2021.05.27

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.   Canon EOS Series camera with Faithful, BT.709, C-Log, C-Log2/RAW, C-Log3, HDR-PQ or HLG profiles.
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 the Canon EOS 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. Not all profiles are available on all cameras.

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.

	Faithful	BT.709	C-Log	C-Log2/RAW	C-Log3	HDR-PQ	HLG
Zebras (ETTR)[1]	95%	100%	95%	75%	85%	70%	95%
Zebras (18% grey)[2]	45 ±5%	65 ±5%	55 ±5%	50 ±5%	55 ±5%	45 ±5%	55 ±5%
Zebras (skin tone)[2]	75 ±5%	85 ±5%	80 ±5%	65 ±5%	75 ±5%	60 ±5%	80 ±5%
Canon Log	OFF	OFF	ON	ON	ON	OFF	OFF
HDR-PQ	OFF	OFF	OFF	OFF	OFF	ON	OFF
Highlight Tone Priority	OFF	OFF	OFF	OFF	OFF	D+	OFF
Picture Style	Faithful	OFF	OFF	OFF	OFF	OFF	OFF
Sharpness	0	0	0	0	0	N/A	N/A
Contrast	0	N/A	N/A	N/A	N/A	N/A	N/A
Saturation	-2	0	0	0	0	N/A	N/A
Hue	N/A	0	0	0	0	N/A	N/A
Color Tone	0	N/A	N/A	N/A	N/A	N/A	N/A
Gamma	N/A	Wide DR	Canon Log	Canon Log 2	Canon Log 3	PQ	HLG
Color Space	N/A	BT.709	BT.709/ C.Gamut	BT.709/ C.Gamut	BT.709/ C.Gamut	BT.2020	BT.2020
Color Matrix	N/A	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral

[1] These settings won't affect your colorimetry or luma curves but they will affect overall picture quality if altered.
[2] Using Zebra1 range option. 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.

FULL CAMERA SETUP GUIDE

Menu setup based on the Canon R5. Your camera may not have all the same features so adjust as necessary. For C series users (eg C70), you select the profile type and zebras in the appropriate menus.

1.   Press the Mode button, followed quickly by the Info button to switch into one of the video modes. I recommend M mode so that you have full control over all aspects of the exposure.
2.   Press the Menu button to enter the main menus of the camera. Each page has a section title and number (eg Shoot1) and is how this guide is laid out.
3.   Shoot1 – Set Movie Rec Quality as desired. I recommend setting 4K HQ Mode for most work as this does a clean downscale of the 8K sensor without line skipping, then choose Movie Rec Size as 4K-D or 4K-U depending on your final goal of DCI4K for cinema of UHD for TV. Choose your framerate as appropriate. You can also choose the compression method here. IPB is interframe compressed and gives the smallest file size. All-i is intraframe and creates a larger file size, but is easier to process in post. Canon RAW can only be selected if you choose 8K-D as your resolution at 24.00p (you must DISABLE 4K HQ Mode first for this option to become available). Finally, set Movie Cropping and Sound Recording as desired.

4. Shoot2 – <mark>If you are shooting the HDR-PQ profile, set it ON here along with Highlight Tone Priority to D+. For all other profiles, make sure Highlight Tone Priority is OFF</mark>.

5. Shoot3 – <mark>Set your White Balance to CUSTOM or one of the presets. If you have an SD card inserted for photos, then to set a custom white balance, you need to be in PHOTO mode first, then take a photo of your white balance card. While in PHOTO mode, go into this menu page, select Custom White Balance, then pick the photo you just took, then SET. Now you can use the Mode button to switch back to VIDEO shooting mode and your custom white balance will be set. If you ONLY have a CFExpress card inserted, you can stay in VIDEO mode to Custom White Balance.</mark>

6. If you wish to shoot in the Canon Log profiles (my recommendation for those cameras which support it), go into Canon Log Settings and set <mark>Canon Log ON, View Assist OFF, Color Matrix NEUTRAL, Characteristics 0,0,0 and Color Space BT.709</mark>.

7. If your camera doesn't have Canon Log profiles, you can set <mark>Picture Style to FAITHFUL, then use the Info button to enter the FAITHFUL settings and set Sharpness 0, Contrast 0, Saturation -2, Color Tone 0</mark>. Press OK to set and exit the submenu.

8. Shoot7 – Set your IS (image stabilizer) mode as desired. Set Shutter Button Function for Movies as desired (I recommend Fully-press to Start/Stop movie recording). Set Metering Timer to 30min.

9. Enter Zebra Settings and set Zebra ON. Set Zebra Pattern to Zebra 2, then choose the Zebra 2 value as per the Quick Reference table above depending on which profile you have chosen to shoot.

10. Shoot8 – Set Overheat Control as desired and HDMI Display to Camera + Monitor. Time code can be set as desired (I recommend HDMI time code ON and Rec Command ON).

11. AF1-4 – Set your AF parameters as desired if you use autofocus capable lenses.

12. Network1-2 – Set your wireless settings as desired.

13. Setup1 – Set your Record Function and Card Folder as desired. I recommend using the CFExpress slot for video and an SD card for photos. If you have one of each inserted the defaults split this appropriately. I recommend setting your File Name prefix to something more unique for multi camera situations. You can also format your cards here.

14. Setup2 – Set your Video System here as needed (NTSC or PAL). Framerate options in the Shoot1 menu will change based on this setting.

15. Setup4 – Set HDMI Resolution as needed (Auto is recommended).

16. Setup5 – You can reset the camera here or set up Custom Shooting modes C1-C3 but I recommend caution as the custom modes retain ALL settings which can sometime cause undesired settings such as White Balance shifts etc.

17. C.Fn1 – Set Exposure Level Increments to 1/3 and ISO Speed Setting Increments to 1/3 for the most precision.

18. C.Fn4 – Set Release Shutter W/O Lens to ON if using manual lenses.

19. My Menu1 – Here you can add any functions you wish to access quickly.

You are now ready to use Leeming LUT Pro™ with the maximum picture quality available. <mark>Be sure to visit the website to read up on how to use ETTR (Expose To The Right) principles</mark> 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:

<p align="center">www.LeemingLUTPro.com</p>

HARDWARE / SOFTWARE QUIRKS AND BUGS

1. Custom White Balance requires taking a photo of your white balance card first, then selecting that photo in the Custom White Balance setting. Depending on if you are using both an SD card and CFExpress card, you may have to switch to Photo mode to achieve this (and photos taken in Photo mode on an SD card WON'T show up in Video mode if you switch back to it, although the white balance will be retained between modes if you set it while in Photo mode).
2. Canon RAW uses the C-Log2 profile so the same LUT will work for both profiles.

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 10.6+) 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.

	Faithful	BT.709	C-Log	C-Log2/RAW	C-Log3	HDR-PQ	HLG
Zebras LUT On (ETTR)	95%	95%	100%	100%	105%	80%	75%
Zebras LUT Off (ETTR)	100%	105%	105%	90%	100%	75%	95%
Zebras (18% grey)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Log/HDR	OFF	OFF	ON	ON	ON	OFF	OFF
Camera	Standard	Standard	Canon	Canon	Canon	Standard	Standard
Gamma	Rec709	Rec709	C-Log	C-Log2	C-Log3	Rec709	Rec709
Gamut	Rec709	Rec709	Canon Cinema	Canon Cinema	Canon Cinema	Rec709	Rec709
HDR Auto	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Legalize	ON	OFF	N/A	N/A	N/A	ON	ON
HDMI Trigger	ON	ON	ON	ON	ON	ON	ON
Timecode	HDMI	HDMI	HDMI	HDMI	HDMI	HDMI	HDMI

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.

	Faithful	BT.709	C-Log	C-Log2/RAW	C-Log3	HDR-PQ	HLG
Data Levels	Full	Auto	Full	Full	Full	Auto	Auto

GUIDE CHANGELOG

2021.05.27   Initial release.