L e e m i n g   L U T   PRO

Camera Setup Guide:	Sony Picture Profiles
Based On:	Sony A7S3 (firmware 2.11) & A7III
Colour Space:	Rec709 gamma 2.4
Target Exposure:	ETTR
LUT Version:	Athena III & Pro III
LUT Release Date:	2021.10.07
Guide Version:	2022.12.05

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 :)

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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.   Sony camera with Picture 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 Sony Picture Profiles.

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.

	Cine2	S-Log2	S-Log3	HLG	HLG3	S-Cinetone
Zebras (ETTR)[2]	91+	106+	94+	99+	99+	109+
Zebras (18% grey)[3]	45	73	71	65	65	45
Zebras (skin tone)[3]	73	93	85	86	86	73
Picture Profile	PP1	PP2	PP3	PP4	PP5	PP6
Gamma	Cine2	S-Log2	S-Log3	HLG	HLG3	S-Cinetone
Color Mode	Still	S-Gamut3.Cine	S-Gamut3.Cine	BT.2020	BT.2020	S-Cinetone
Saturation	0	0	0	0	0	0
Black Level	0	0	0	0	0	0
Detail[1]	-7	-7	-7	-7	-7	-7
Camera Generation	≤ 2020	All	All	All	All	≥ 2021
Recommended Bit Depth	8 bit	10 bit	10 bit	8 / 10 bit	8 / 10 bit	8 / 10 bit

[1] These settings won't affect your colorimetry or luma curves but they will affect overall picture quality if altered.
[2] Using Lower Limit+ zebra option.
[3] Using Std+Range ±2 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 (≥ 2021)

Based on the A7S3. Your camera may not have all the same features so adjust as necessary.

Due to the plethora of menus and sub-menus, the location of each setting will be referred to by their section name first in **BLUE**, then the respective menu page within that section, as shown at the top of each menu page of the camera.

1. **Setup** – Reset/Save Settings - Setting Reset - Restore defaults before continuing further, to ensure no buried settings changes will affect the image quality.
2. **Setup** – Area/Date - NTSC/PAL Selector as required, depending on your project. You may have to format your SD card after changing this so be sure you have backed up your footage! The guide is based on the NTSC option.
3. Rotate the top dial to MOVIE mode and the EXPOSURE dial to 0.
4. From here on in, the customisations will be done from top to bottom in the menu sections.
5. **Shooting** – Image Quality – File Format – Choose XAVC S 4K for H264 or XAVC HS 4K for H265 (you can also use the I option for All-Intra codec).
6. **Shooting** – Image Quality – Movie Settings – Rec Frame Rate as desired (I recommend 24p as default) and Record Setting to 100M 4:2:2 10bit or whichever 10bit options are available, for maximum image quality. Set your S&Q as desired depending on which high speed framerate you want to use.
7. **Shooting** – Shutter/Silent – Release w/o Lens – Set to ENABLE.

8.   **Shooting** – Audio Recording, TC/UB, Image Stabilization – Set these as desired.
9.   **Shooting** – Shooting Display – Emph disp dur REC – Set ON (red border for REC).
10.   **Shooting** – Marker Display – Set as desired.
11.   **Exposure/Color** – White Balance – Custom 1 – Set using a spectrally neutral white balance card. You can also set your Shockless WB to the speed you wish it to change if using Auto WB if shooting run and gun style.
12.   **Exposure/Color** – Color/Tone – D-Range Optimizer OFF, Creative Look OFF, Picture Profile to one of the profile settings in the Quick Reference at the top of this document. Select each Picture Profile in turn from PP1 – PP6 (as applicable) by pushing right on the control wheel to first RESET the Picture Profile slot, then adjust the settings as per the Quick Reference. This must be done regardless of whether or not you did the full camera settings reset as they otherwise remain what they were previously.
13.   **Exposure/Color** – Zebra Display – Set ON and set Zebra Level to Custom 2 (C2) with Type set to Lower Limit using the value listed in the Quick Reference for the Picture Profile you have chosen to shoot in.
14.   **Focus** – Peaking Display – Peaking Display ON, Peaking Level HIGH, Peaking Color RED, or as desired.
15.   **Setup** – Operation Customize – Custom Key Setting (Movie or all) - I've found the following to be useful for video shooting, but you can adjust as you wish:

Rear1 - Button 2 (AEL)	Focal Length (for manual lenses)
Rear1 - Button 3 (AF-ON)	Focal Magnifier (for manual lenses)
Rear1 - Button 4 (C1)	Picture Profile
Rear1 - Button 4 (C3)	Zebra Level
Top - Button 2 (C2)	White Balance

16.   **Setup** – Finder/monitor – Display Quality and Finder Frame Rate to HIGH.
17.   **Setup** – Display Option – Gamma Display Assist to OFF (for shooting ETTR, using this ON can give you a false sense of exposure).
18.   **Setup** – Power Setting Option – Set Auto Power OFF Temp to HIGH.
19.   **Setup** – Sound Option – Audio signals OFF (to prevent beeps etc).
20.   **Setup** – External Output – HDMI Resolution as desired, HDMI Output Settings as follows: Rec. Media dur HDMI Output ON, Output Resolution 2160p (or as desired), RAW Output as desired (if ON, set RAW Output Setting to the framerate you desire, Color Gamut for RAW Output to S-Gamut3.Cine/S-Log3, Time Code Output ON. Rec Control ON). Set HDMI Info Display OFF to ensure a clean output signal without overlays, and CTRL for HDMI ON.

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

FULL CAMERA SETUP GUIDE (≤ 2020)

Based on the A7III. Your camera may not have all the same features so adjust as necessary.

Due to the plethora of menus and sub-menus, the location of each setting will be referred to by their section name first in **BLUE**, then the respective menu page within that section, as shown at the top of each menu page of the camera.

1. **Setup7** - Setting Reset - Restore defaults before continuing further, to ensure no buried settings changes will affect the image quality.
2. **Setup2** - NTSC/PAL Selector as required, depending on your project. You may have to format your SD card after changing this so be sure you have backed up your footage! The guide is based on the NTSC option.
3. Rotate the top dial to MOVIE mode and the EXPOSURE dial to 0.
4. From here on in, the customisations will be done from left to right in the menu sections.
5. **Exposure2** - Exposure step 0.3EV increments for finer control.
6. **Color/WB/Img.Processing** - White Balance CUSTOM1, DRO/Auto HDR OFF, Picture Effect OFF.
7. Set Picture Profile ON, then select each Picture Profile in turn from PP1 – PP6 (as applicable) by pushing right on the control wheel to first RESET the Picture Profile slot, then adjust the settings as per the Quick Reference table above. This must be done regardless of whether or not you did the full camera settings reset as they otherwise remain what they were previously.
8. **Focus Assist** - Peaking Setting – Peaking Display ON, Peaking Level HIGH, Peaking Color RED, or as desired.
9. **Movie1** - Exposure Mode MANUAL EXPOSURE, File Format XAVC S 4K, Record Setting 24p100M (or as desired), S&Q Settings – Record Setting 50/60p, Frame Rate 50/60p (check your camera as some models have better bitrates with normal framerate settings, in which case it's better not to use S&Q).
10. **Movie2** - Audio Recording ON, Rec Level as needed, Audio Level Display ON.
11. **Movie3** - Audio Out Timing LIVE, Marker Display ON, Marker Settings as required.
12. **Shutter/SteadyShot** - SteadyShot ON, SteadyShot Settings as required.
13. **Display/Auto Review1** - Disp Button as required, Zebra Setting - Display ON, Zebra Level CUSTOM2 – Type LOWER LIMIT to accurately show the ETTR overexposure limit. Don't forget to adjust the Zebras to match the Picture Profiles, otherwise the ETTR warning function of the zebras will not work as intended.
14. **Custom Operation1** - For Custom Key (Movie) settings, I've found the following to be useful for video shooting, but you can adjust as you wish:

     Custom Button 1   White Balance
     Custom Button 2   Picture Profile
     Custom Button 3   Zebra Level
     Custom Button 4   SteadyShot Focal Length
     Down Button   Peaking Display Selector
     AF-ON Button   Focus Magnifier (for use with manual lenses)

15. **Custom Operation2** - MOVIE button ALWAYS.
16. **Network1** - Airplane Mode ON to save battery unless you are using the wireless functionality.
17. **Setup1** - Gamma Disp. Assist OFF (the zebras are designed to function with this set to off, and may not behave as expected with it set to on).

18.   **Setup2** - Auto Pwr Off Temp HIGH, NTSC/PAL Selector as required, Touch Operation ON.
19.   **Setup3** - HDMI Settings as required depending on your external recorder or monitor.

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:

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

HARDWARE / SOFTWARE QUIRKS AND BUGS

1.   ==Be careful with S-Log2 and S-Log3 for 8bit 4:2:0 shooting as they have an increased risk of banding due to the lack of tonal precision in 8 bits (this is NOT the fault of the LUTs)==. I advise using one of the linear profiles for better image quality.
2.   To Custom White Balance [rotate the TOP DIAL to M - not needed with newer cameras], press the button you've chosen for WB (set earlier to Custom White Balance), choose Custom Setup and aim the target circle in the middle of the white balance card. Make sure the image is correctly exposed (no clipping but not too dark), then press OK to set the Custom White Balance. Then OK again to install it into the Custom slot. [Rotate the TOP DIAL back to MOVIE if using an older camera.]
3.   Using the zebras, ETTR (Expose To The Right) until you see the clipping point of the zebras, then adjust your exposure down until the zebras just disappear. ==IGNORE the EV meter for ETTR shooting== as it will give you a false sense of exposure. Similarly, ignore how the image looks on screen in terms of being "too bright". As long as your zebras aren't showing, you can expose brighter with no danger of overexposure.
4.   The Cine2 zebras are set a bit lower than full clipping to maintain a good highlight rolloff, so they won't match the exact luma curve of the other profiles if doing an A-B comparison.
5.   Stick with one Picture Profile when shooting for consistent colorimetry and luma. ==I recommend S-Log3 for most 10bit cameras and Cine2 for 8bit cameras.== The other profiles can be used on both but most will have better quality on 10bit cameras.
6.   The S-Log3 LUTs work perfectly when the Sony is recording RAW data as long as you have the gamut set correctly.
7.   ==For Davinci Resolve, S-Cinetone needs Clip Attributes set to FULL==, otherwise it will be clipped in highlights and shadows and the LUTs won't work properly.

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==.

	Cine2	S-Log2	S-Log3	HLG	HLG3	S-Cinetone
Zebras (ETTR)	75%	90%	85%	90%	90%	85%
Log/HDR	OFF	OFF	OFF	OFF	OFF	OFF
Camera	Standard	Standard	Standard	Standard	Standard	Standard
Gamma	Rec709	Rec709	Rec709	Rec709	Rec709	Rec709
Gamut	Rec709	Rec709	Rec709	Rec709	Rec709	Rec709
HDR Auto	OFF	OFF	OFF	OFF	OFF	OFF
Legalize	ON	ON	ON	OFF	OFF	ON
HDMI Trigger	ON	ON	ON	ON	ON	ON
Timecode	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 LUTs work properly.

	Cine2	S-Log2	S-Log3	HLG	HLG3	S-Cinetone
Data Levels	Auto	Auto	Full	Auto	Auto	Full

==NOTE: S-Cinetone internally recorded also needs Clip Attributes set to FULL==, otherwise they will be clipped in highlights and shadows and the LUTs won't work properly. All the other direct from camera profiles are fine with Auto set.

GUIDE CHANGELOG

2022.12.05   Fixed Data Levels to FULL for S-Log3 recorded externally with Legalize OFF (thanks to Gerald Undone for spotting my mistake).

2021.10.07   Initial release.