JVC KENWOOD

3D-LUTs file for J-Log1 of GY-LS300CH Reference Manual

Version 1.0

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I n d e x

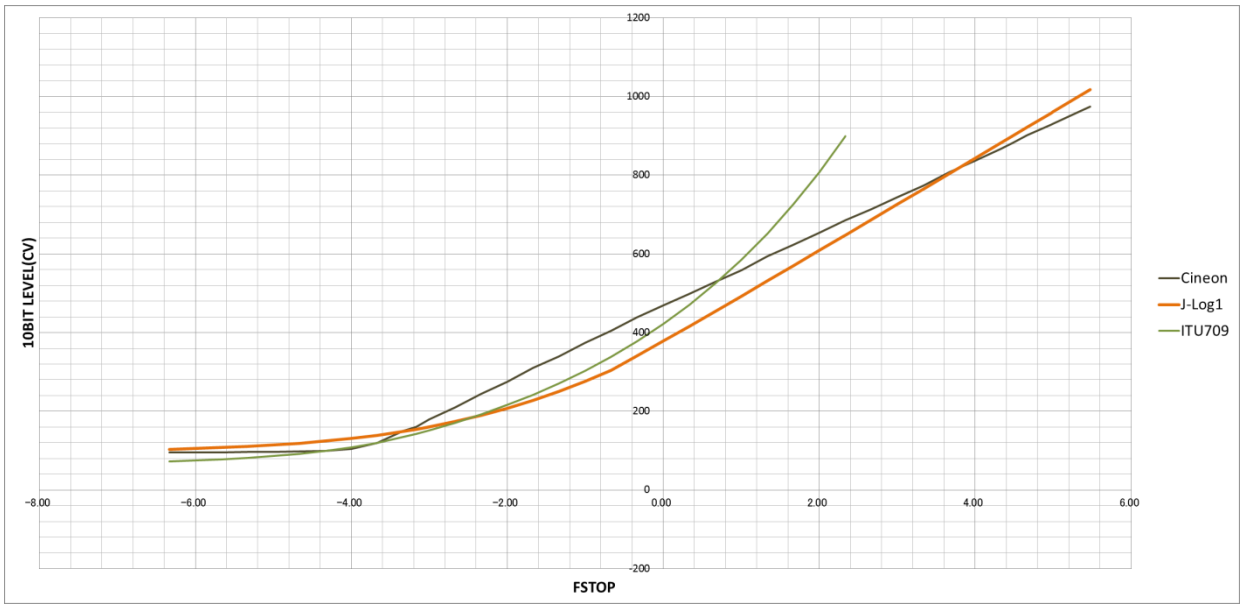
1. J-Log1 and 3D-LUT files

Firm up Ver.2.0 of GY-LS300 enables to record J-Log1 gamma log characteristics. When J-Log1 gamma is selected, contrast characteristics become lower compared to the Rec.709 specifications, since 800% dynamic range is coded in flat characteristics of the logarithmic curve as shown below. Also, because no color correction is applied, displayed video will result in low contrast with thin coloration on a monitor with Rec.709 color space. Log characteristics are said to be close to negative film characteristics.

Normally, in post-production color grading is applied to recordings made using the log characteristics with non-linear editing software and/or plug-in grading software. This grading work is equivalent to film processing.

Thus, grading is required with video recorded using J-Log1 gamma as it cannot be displayed on a conventional monitor with the correct coloration. Hence, in order to view videos recorded using the log characteristics on a conventional monitor with Rec.709 specifications without uncomfortable coloration, a set of files called 3D-LUT – each of which is created in advance using lookup table by converting R, G, B log data to match the Rec.709 characteristics – is made available.

Preset 3D-LUTs can be used with non-linear and grading tools, which are capable of adjusting tone curve to achieve videos with appropriate coloration on a monitor with Rec.709 color space, making it a useful starting point for color grading.



0% (BLACK)			Reflection 2%			Reflection 18%			Reflection 90%			Reflection 800%		
IRE	10bit Code	8Bit Code	IRE	10bit Code	8Bit Code	IRE	10bit Code	8Bit Code	IRE	10bit Code	8Bit Code	IRE	10bit Code	8Bit Code
3.7 %	96	24	10.3 %	154	39	35.9 %	379	95	66.5 %	646	162	108.8 %	1017	254

Fig. 1 J-Log1 Characteristics

2. 3D-LUTs for GY-LS300 provided by JVC

http://pro.jvc.com/pro/attributes/4k/soft/J-log_cube_files.zip

In order to maintain the 800% dynamic range achieved with the J-Log1 gamma even after converting to Rec.709 specifications, the characteristics of preset 3D-LUTs are also capable of achieving gamma characteristics without knee compression or clipping for gradation of scene reflectivity ratio from 100% to 800%, and for gamma to output 75IRE for 100% reflectivity ratio against 100IRE for 100% reflectivity ratio under Rec.709 specifications. Also, 3D-LUTs are capable of achieving corrected coloration characteristics relative to the converted gamma characteristics so that images can be viewed with a monitor with Rec. 709 specifications without incompatible color reproducibility.

There are 2 main 3D-LUTs available depending on the camera's white balance color temperature settings at the time of recording: 1) "Tungsten LUT" optimal for shooting in Tungsten light (3,200K color temperature) white balance, and 2) "Daylight LUT" optimal for shooting in daylight (5,600K color temperature) white balance. User can select the 3D-LUT file closest to the color temperature of white balance at the time of recording.

3D-LUTs are available for the following common non-linear software and plug-in grading software. Please select the appropriate LUT for the grading software in use.

Please refer to below for an example workflow using 3D-LUTs. Grading of videos recorded with J-Log1 using the software featured effects instead of the 3D-LUTs is also possible.

Table.1 3D-LUTs FILES

No	MAKER	SOFT/DEVICE	PLUG IN	LUTs FileName	Format	GridSize	Camera Setting
1	Adobe	Premiere Pro CC	No need or after efect ..etc	JVC_LS300_JLog1_to_Rec709_Daylight_32g_adobe.cube	.cube	32^3	DayLight
				JVC_LS300_JLog1_to_Rec709_Tungsten_32g_adobe.cube			Tungsten
2	Apple	Final Cut Pro X	Need Color Grading Sentral "Lut Utility" ..etc	JVC_LS300_JLog1_to_Rec709_Daylight_32g_fcp.cube	.cube	32^3	DayLight
				JVC_LS300_JLog1_to_Rec709_Tungsten_32g_fcp.cube			Tungsten
3	Black Magic	Davinci Resolve	No need	JVC_LS300_JLog1_to_Rec709_Daylight_33g_davinci_shaper.cube	.cube	1D-Lut 1024 + 3-DLut 33^3	DayLight
				JVC_LS300_JLog1_to_Rec709_Tungsten_33g_davinci_shaper.cube			Tungsten
	Black Magic or Avid or FujiFilm	Davinci Resolve or MediaComposer 7/8 or IS-mini	No need or IS-mini Manager Plus	JVC_LS300_JLog1_to_Rec709_Daylight_33g_davinci_noshaper.cube	.cube	33^3	DayLight
				JVC_LS300_JLog1_to_Rec709_Tungsten_33g_davinci_noshaper.cube			Tungsten
4	Atomos	Shogun	No need	JVC_LS300_JLog1_to_Rec709_Daylight_17g_atomos.cube	.cube	17^3	DayLight
				JVC_LS300_JLog1_to_Rec709_Tungsten_17g_atomos.cube			Tungsten
5	Eizo	ColorEge CG247 Monitor	Color Navigater Nx	JVC_LS300_JLog1_to_Rec709_allround_33g_display_shaper.cub	.cub	1D-Lut 1024 + 3-DLut 33^3	All

List of 3D-LUTs files, as of Oct, 2015

Note 1: JVC-provided 3D-LUT .cube files for DaVinci Resolve contain "noshaper" and "shaper". Because DaVinci supports Shaper LUT, compensation accuracy between LUT and GRID will improve by selecting the Shaper LUT. In contrast, the Noshaper LUT is versatile and can be used with a range of third party plug-ins.

Note 2: Normally most of NLE software programs apply the 3D-LUT to the zone of 100 IRE or less. J-Log1 of GY-LS300CH has the information of the "super white area" beyond 100 IRE. It is important to adjust the GAIN on each NLE software before applying the 3D-LUT to maximize the effectiveness of 800% dynamic range.

Workflow example using 3D-LUTs

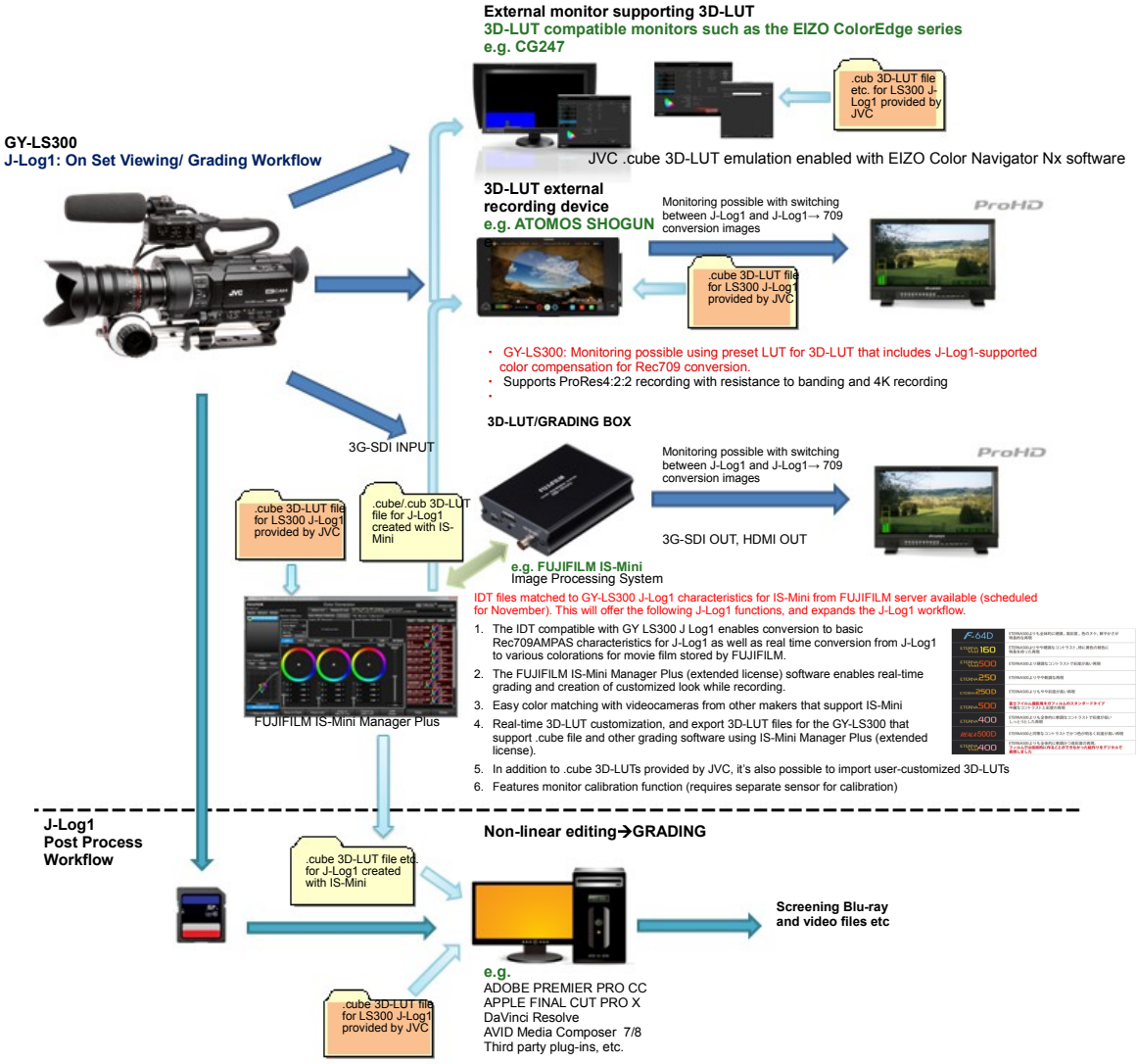


Fig.2: 3D-LUTs Workflow