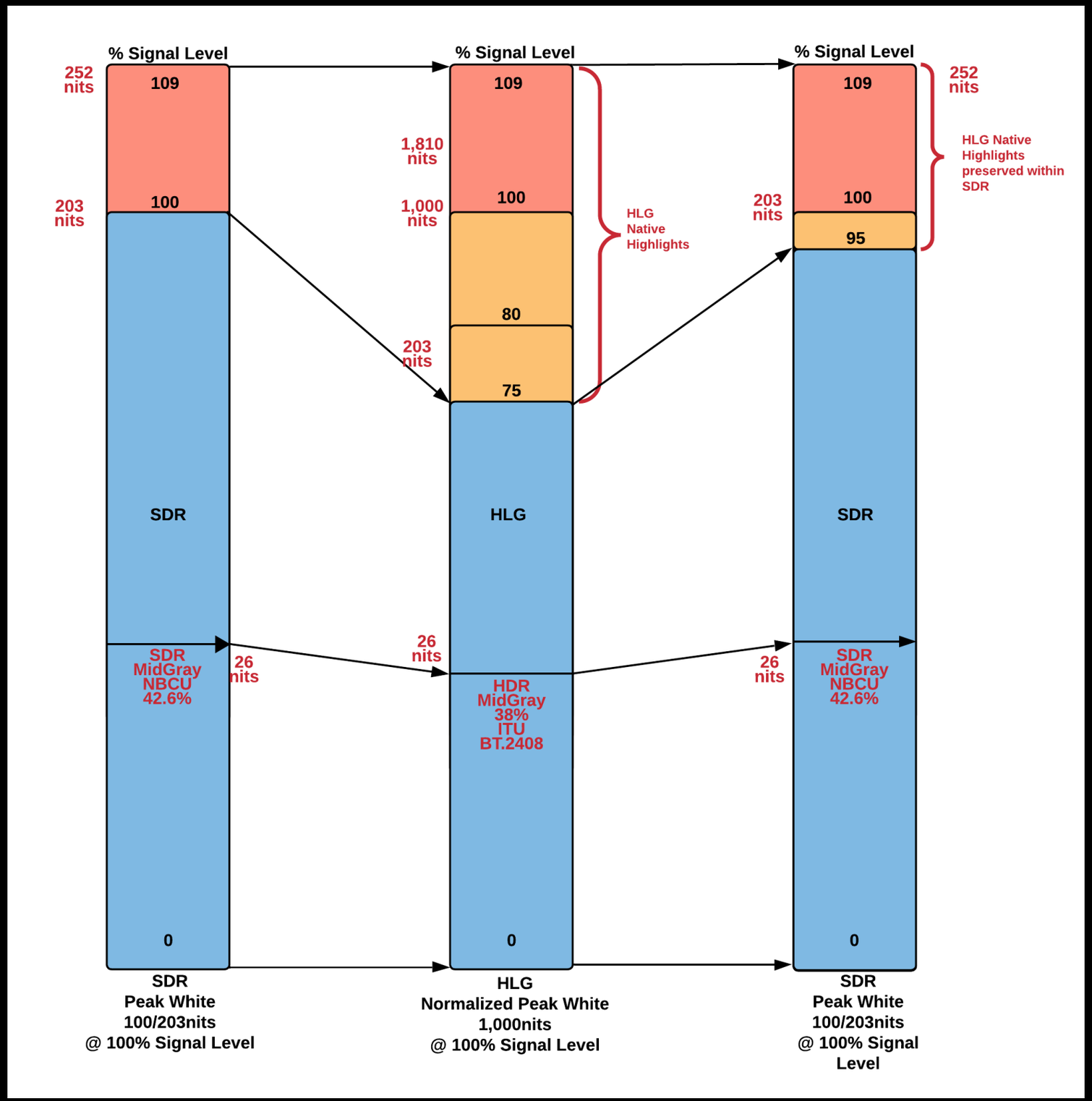
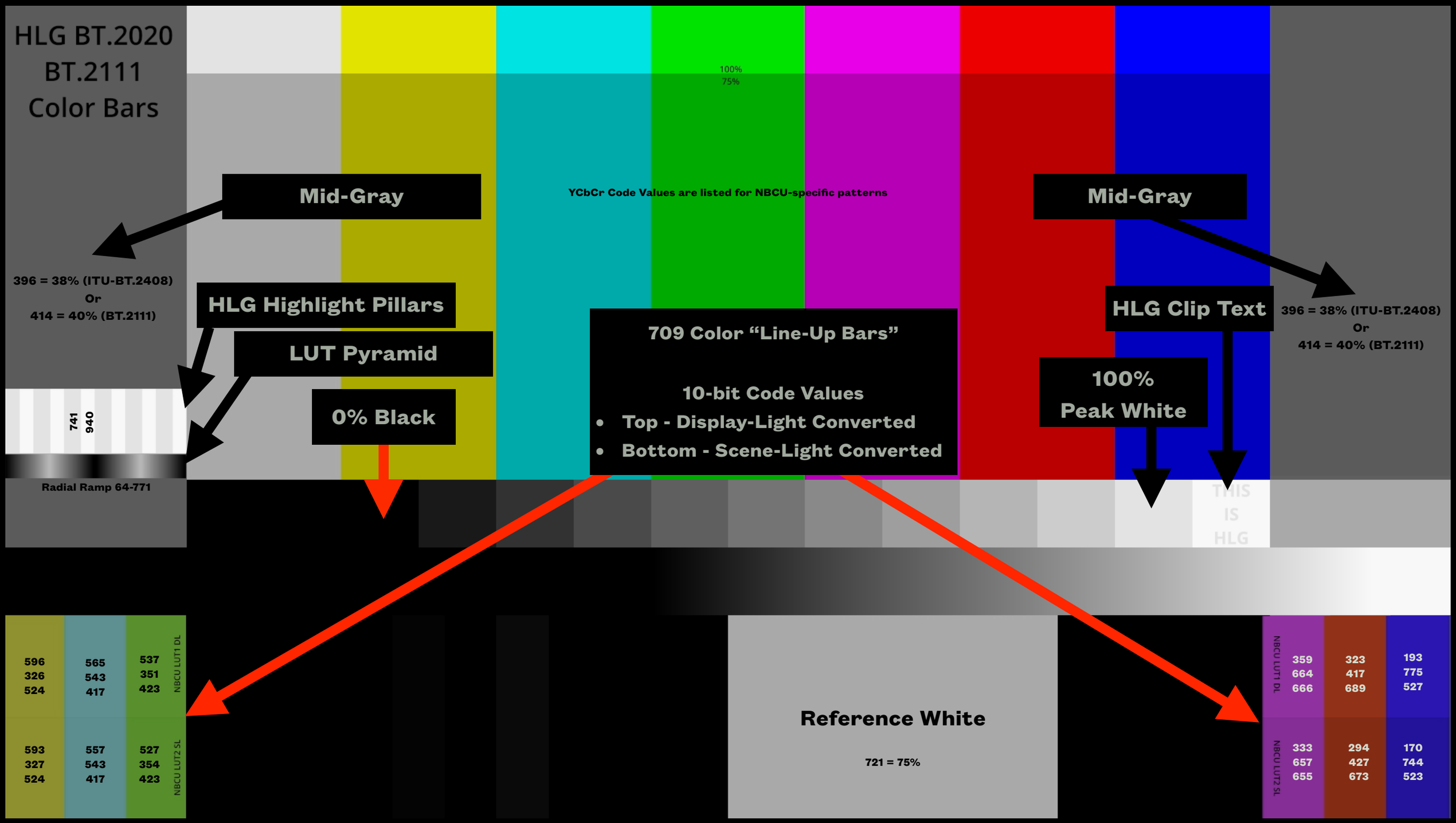
UHD Single-Master HDR-SDR Production

HLG and SDR Video Reference - Short Version

Unified Reference/Graphics White and MidGray

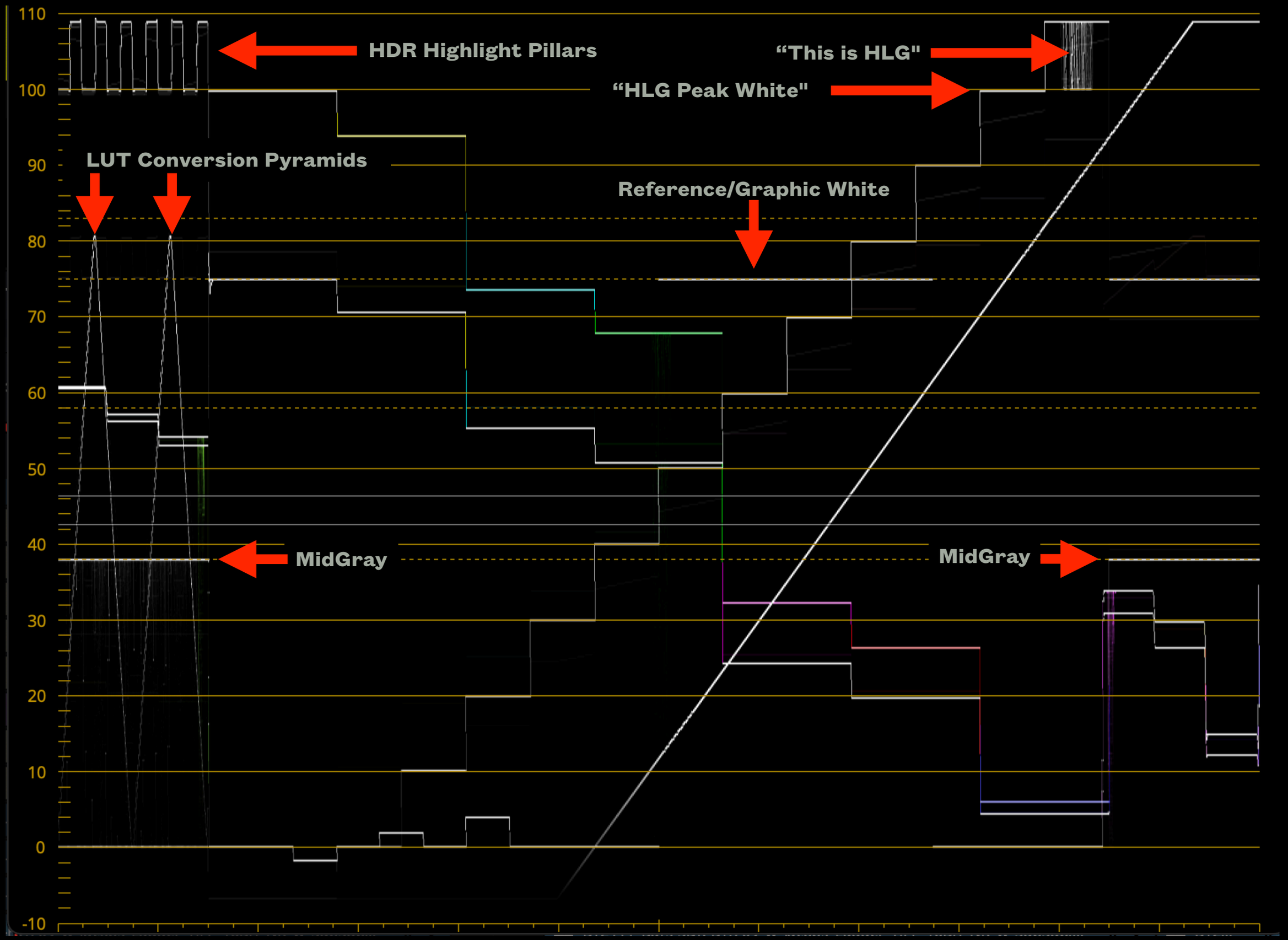


HLG BT.2111 (Fancy) Color Bars



Since this HLG image is viewed in SDR-BT.709 it will not look quite correct

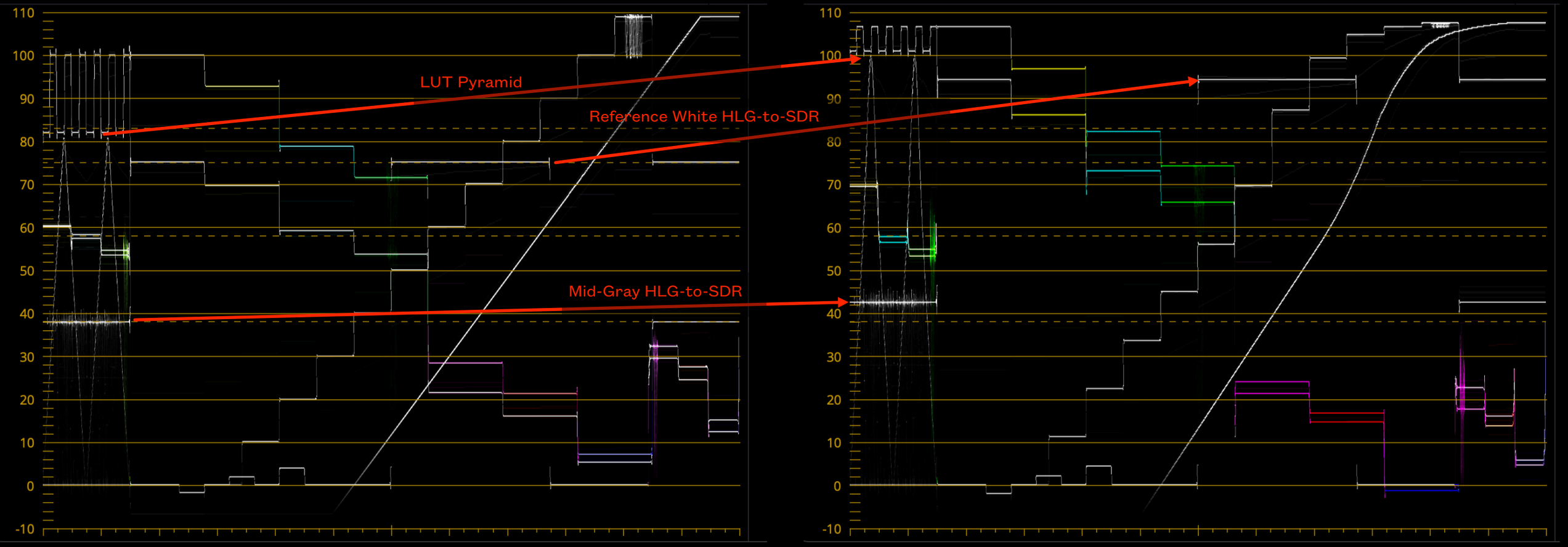
HLG Native BT.2111 (Fancy) Color Bars



HLG to SDR Conversion: NBCU - LUT3

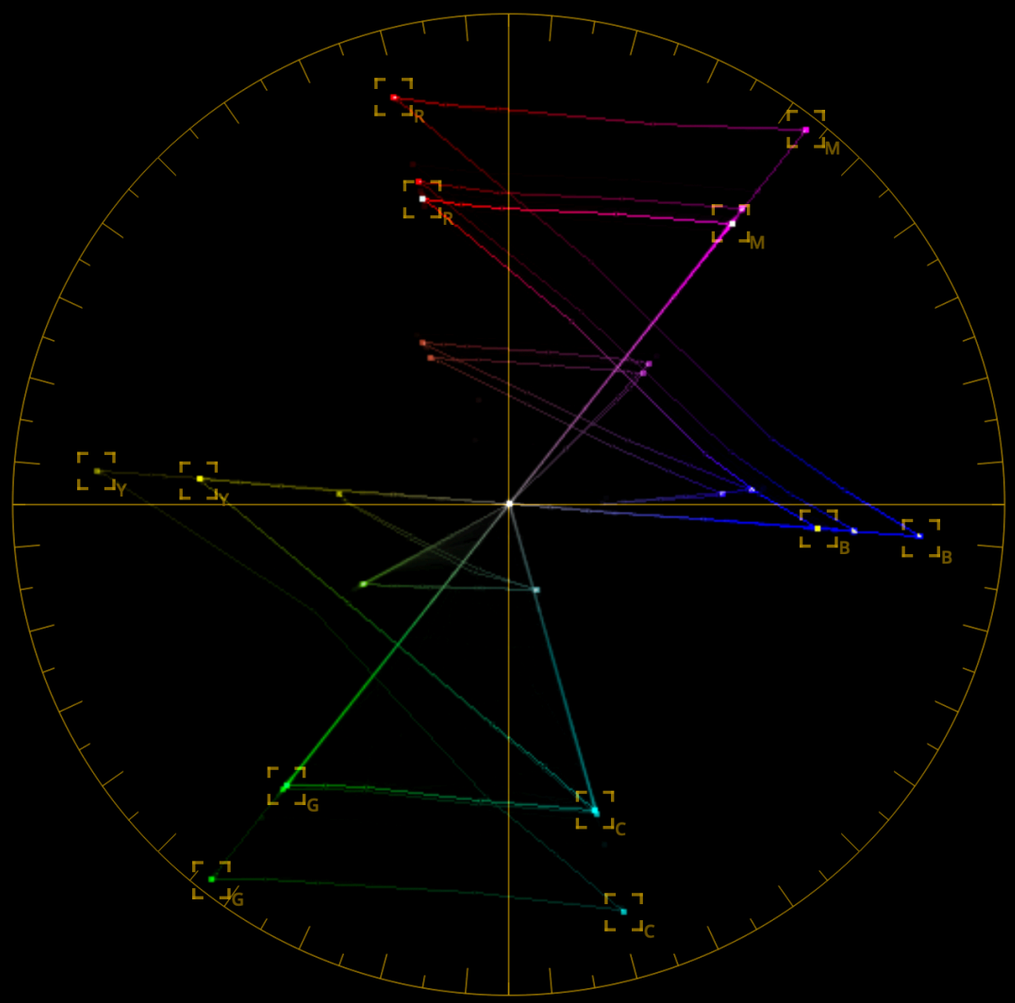
HLG Native Bars

HLG-to-SDR (LUT3)

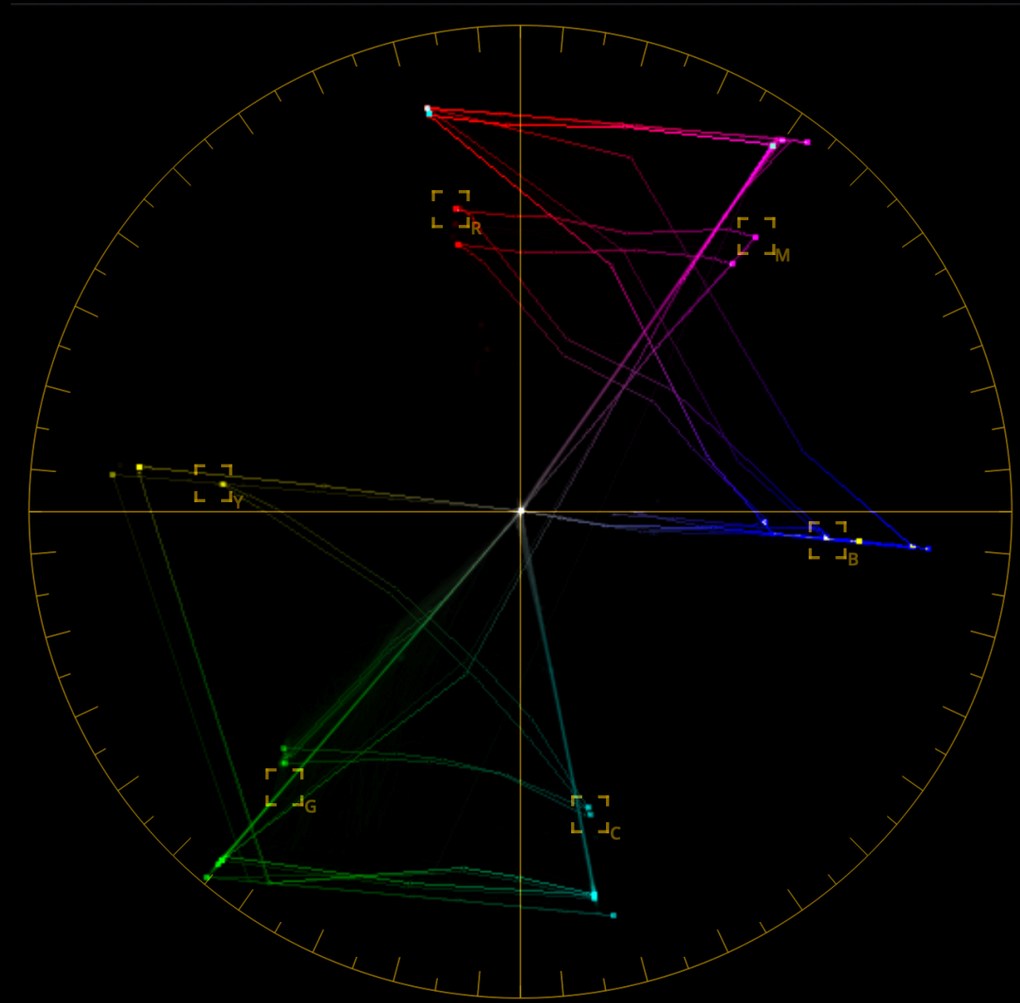


HLG to SDR Conversion: NBCU - LUT3

HLG 100/75%



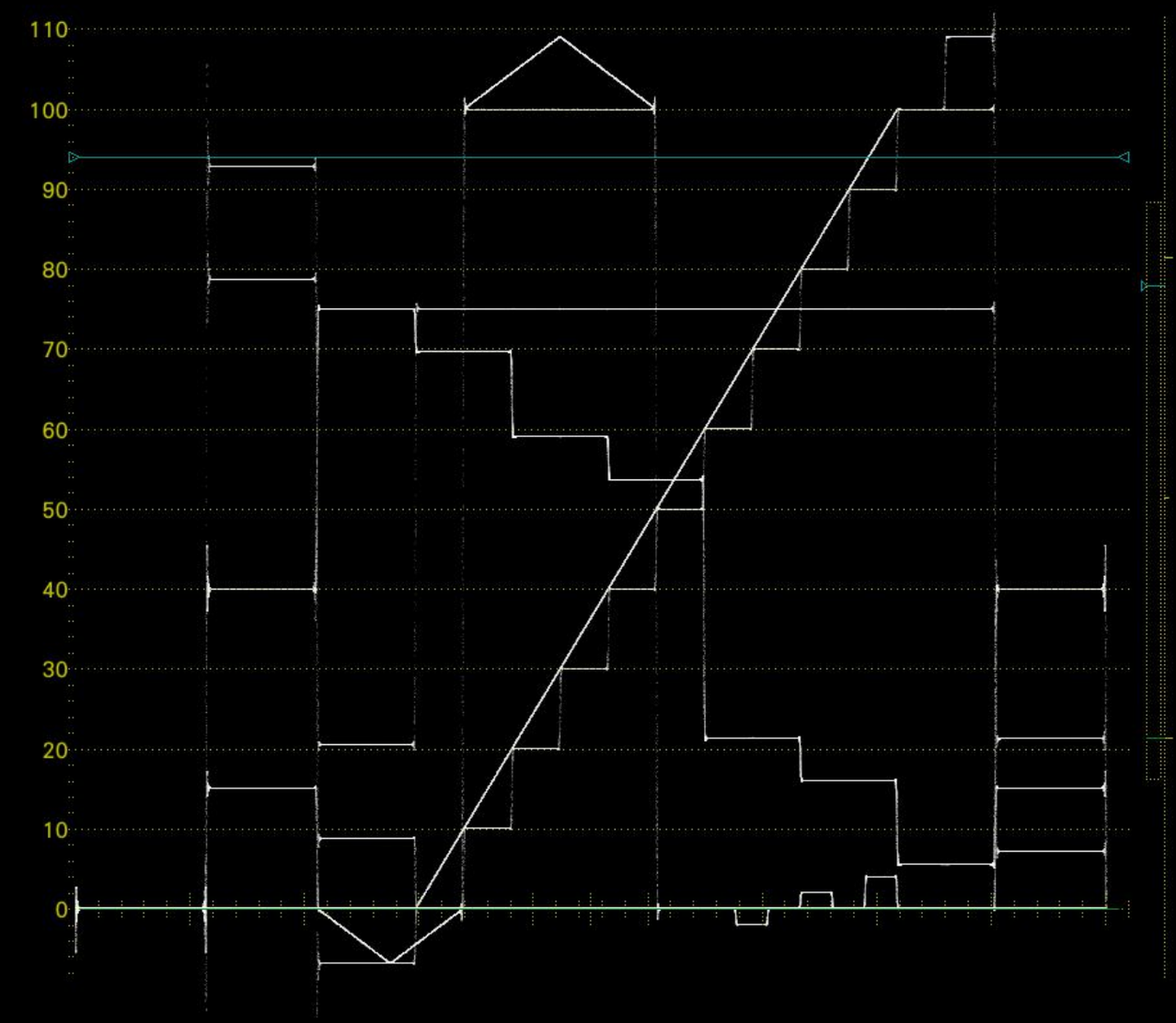
SDR 75%

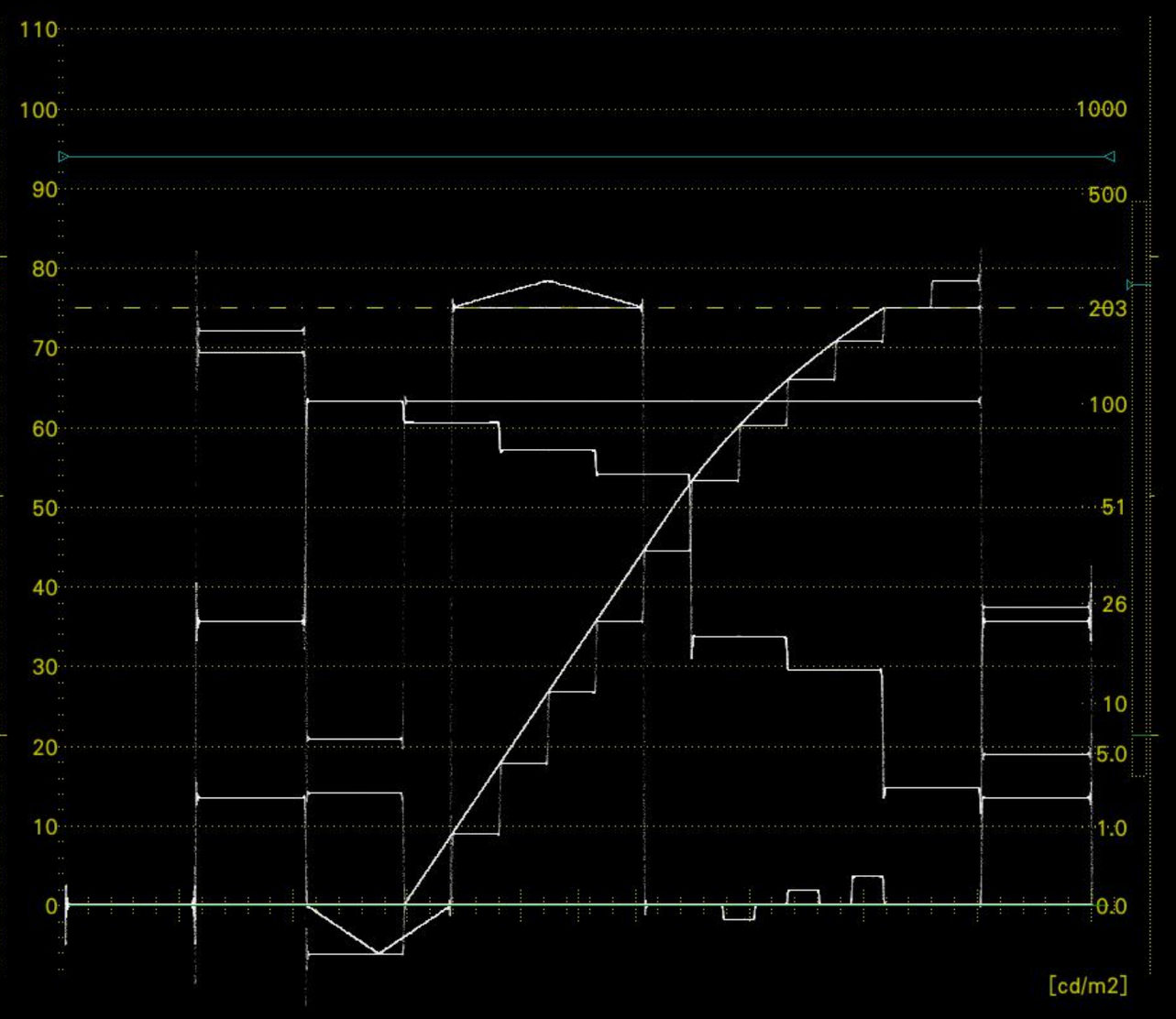


SDR to HLG Direct Upmapping- NBCU LUT1

SDR

Converted SDR-to-HLG





Monitoring HDR and SDR Side-by-Side With a Unified Reference Graphics White and MidGray

HLG REFERENCE DISPLAY
Peak White = 600-or-1000nits (Gamma = 1.2)
REFERENCE WHITE CONTRAST ADJUSTMENT = 203 nits

SDR BT.1886 REFERENCE DISPLAY
Peak White = 203nits
CONTRAST ADJUSTMENT TO 203 nits

Set HLG Graphic/Reference White = SDR Graphics White

HLG @ 75%(203nits) = SDR @ 100%(203nits)

Setting a “unified reference white” luminance level between HLG and SDR displays allows comparisons of both images side-by-side and avoids eye adaption issues to the luminance differences in the main focal areas of the images (see display adjustments on the next page.

SDR to HLG Sony Display Contrast Adjustments

SDR / HDR REFERENCE DISPLAY CONTRAST ADJUSTMENT

10/14/23

***** Picture Adjustment: Make PRESETS that follow the HDR or SDR input selection *****

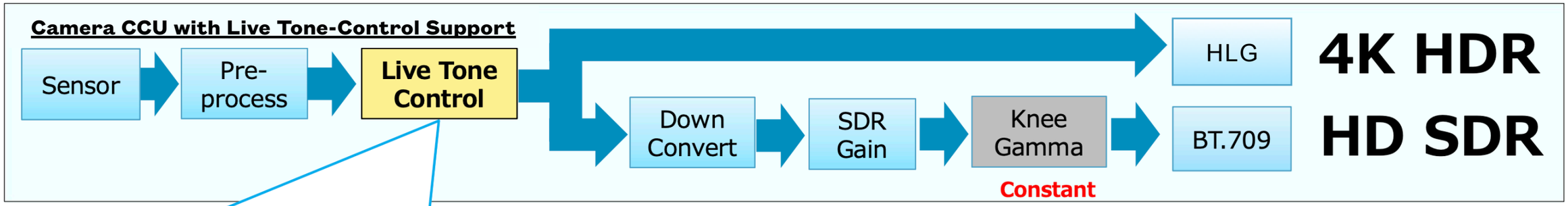
	SDR				HDR				
	SET CONTRAST VALUE	PEAK-WHITE LUMINANCE (nits)	COLOR SPACE / GAMMA		SET CONTRAST VALUE	REFERENCE-WHITE LUMINANCE (nits)	PEAK-WHITE LUMINANCE (nits)	COLOR SPACE / GAMMA	
BVM-HX310	812	203	709 / 2.4	BVM-HX310	400	203	1000	BT.2020 / BT.2100 (HLG)	a-Si TFT Active Matrix LCD
PVM-X2400	812	203	709 / 2.4	PVM-X2400	400	203	1000	BT.2020 / BT.2100 (HLG)	a-Si TFT Active Matrix LCD
PVM-X1800	812	203	709 / 2.4	PVM-X1800	400	203	1000	BT.2020 / BT.2100 (HLG)	a-Si TFT Active Matrix LCD
BVM-X300	812	203	709 / 2.4	BVM-X300	400	203	1000	BT.2020 / BT.2100 (HLG)	OLED
BVM-E171	2030	203	709 / 2.4	BVM-E171	1667	203	~ 600	BT.2020 / HLG 1.2	OLED

HLG Display Levels & Gamma Values

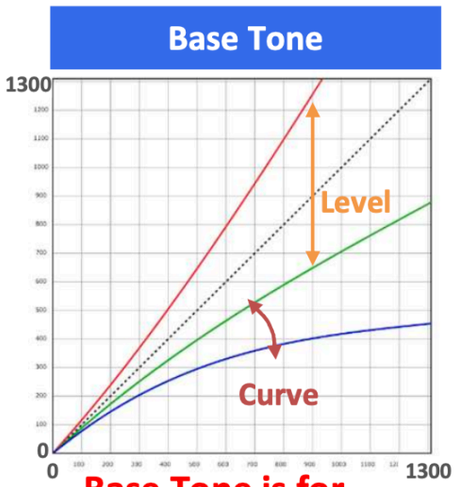
Display: Peak White Luminance Level	600	1000
Black Level	0.00	0.00
HLG Variable System Gamma	1.1068	1.2000
MidGray	20.76	26.072
Graphic White	137.95	203.15

Sony CCU: Live-Tone-Controls

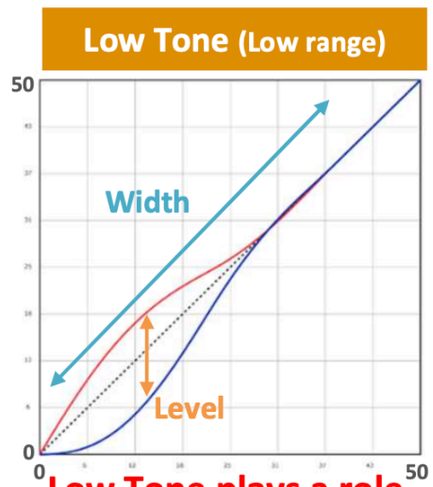
Sony Live Tone-Controls enable flexible tone setting in HDR Productions



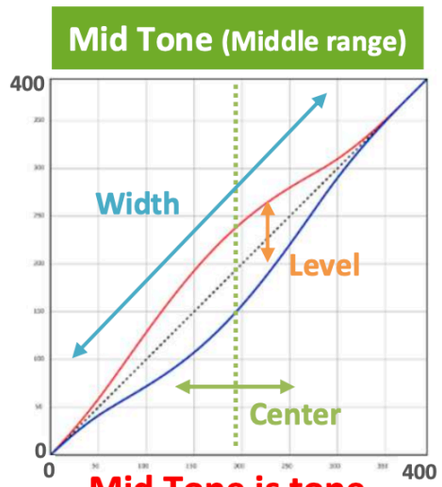
Relation between Tone curve and parameter



Base Tone is for overall tone adjust incl. bright part



Low Tone plays a role adjusting Black Gamma for dark part



Mid Tone is tone control of middle level area.