



JVC J-Log1 Formula

GY-HC500series
GY-HC900series
GY-LS300

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J-Log1_J-GAMUT

- The primary color points of J-Log1 are below table 1.
- J-GAMUT called J-Log1_LS300 color gamut is red triangle line in below chromaticity diagram.
- Rec.2020 cover ratio 80.3%.DCI-P3 cover ratio 93.8%.DCI-P3 area ratio 111.9%
Rec.2020 cover ratio is 80.3%, thereby It is able to convert to Rec.2020 with small coefficients.

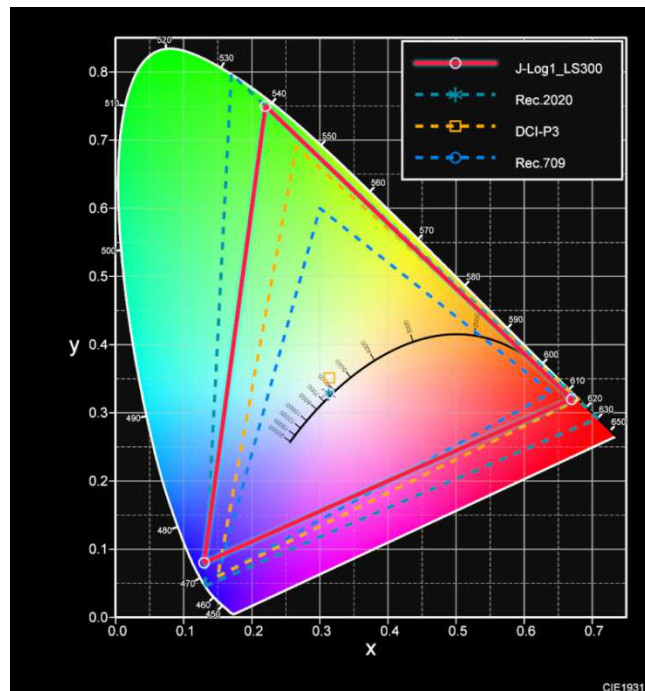


Table.1

J-Log1	Primary Color Point		
	x	y	z
R	0.67	0.32	0.01
G	0.22	0.75	0.03
B	0.13	0.08	0.79
W	0.3127	0.329	0.3583

Color space convert of J-GAMUT

- Convert matrix formulas from J-GAMUT(J-Log1_LS300 gamut) to others color space.

- J-Log1_J-GAMUT \rightarrow XYZ

$$\begin{aligned} X &= (\quad 0.5986 \quad 0.1781 \quad 0.1737)(R_{J-Log1}) \\ Y &= (\quad 0.2859 \quad 0.6072 \quad 0.1069)(G_{J-Log1}) \\ Z &= (\quad 0.0089 \quad 0.0243 \quad 1.0558)(B_{J-Log1}) \end{aligned}$$

- J-Log1_J-GAMUT \rightarrow Rec2020 R,G,B

$$\begin{aligned} R_{2020} &= (\quad 0.923646 \quad 0.083636 \quad -0.00728)(R_{J-Log1}) \\ G_{2020} &= (\quad 0.063214 \quad 0.863136 \quad 0.07365)(G_{J-Log1}) \\ B_{2020} &= (\quad 0.006748 \quad 0.0000534 \quad 0.993198)(B_{J-Log1}) \end{aligned}$$

- J-Log1_J-GAMUT \rightarrow Rec709 R,G,B

$$\begin{aligned} R_{709} &= (\quad 1.496066 \quad -0.36834 \quad -0.12773)(R_{J-Log1}) \\ G_{709} &= (\quad -0.04348 \quad 0.967429 \quad 0.076053)(G_{J-Log1}) \\ B_{709} &= (\quad -0.01557 \quad -0.08827 \quad 1.103845)(B_{J-Log1}) \end{aligned}$$

J-Log1 gamma Formula

- **J-Log1 formula**

$ln < 11.34\%$

$$J\text{-Log1} = 0.85 \cdot \text{LOG10}((ln+0.86)/6.23+0.73)+0.117$$

$ln \geq 11.34\%$

$$J\text{-Log1} = \text{LOG10}(((ln+0.86)/100)^{0.786}) + 1.2$$

* $ln = \text{Scene Reflection}(\%)$. ex. $ln=18 \rightarrow 10\text{bit_code} = 379$

$$10\text{bit code} = \text{round}(((1023-64)/1.9221) \times J\text{-Log1} + 64)$$

$$= \text{round}(498.9 \cdot J\text{-Log1} + 64)$$

$$8\text{bit code} = \text{Int}(10\text{bit code}/4)$$

- **J-Log1 Inverse formula**

convert from 10BIT CV of J-Log1_10bit_code .

$$J\text{-Log1} = (J\text{-Log1_10bit_code}-64)/498.9$$

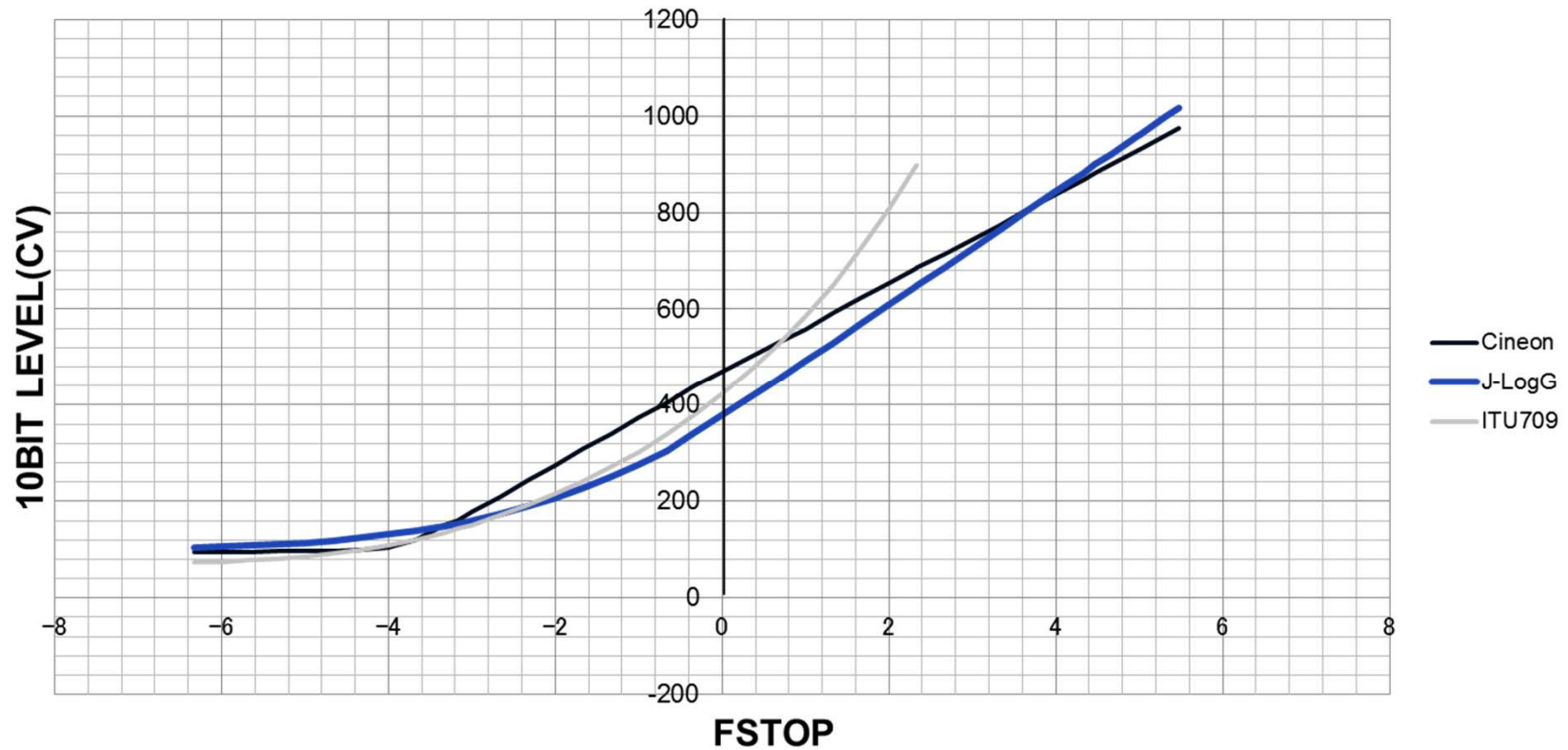
if (10BIT CV < 304.484) then

$$ln(\%) = (10^{((J\text{-Log1}-0.117)/0.85)} - 0.73) \times 6.23 - 0.86$$

if(10BIT CV \geq 304.484) then

$$ln(\%) = 10^{((J\text{-Log1}-1.2)/0.786+2)-0.86}$$

J-Log1 Characteristic graph.



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

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