

S-Log2 Technical Paper

V1.0

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S-Log2

- “S-Log2” is customized log for F65.
 - Total latitude is wider than S-Log.
 - White code value is lower.
 - Black code value is the same as S-Log.
- S-Log2 is used for SDI monitoring
 - Easy to recognize white clipping
 - Contrast is low. It looks very milky.
 - Color becomes pale.
- S-Log2 is used for recording gamma at HD
 - S-Log2 reserves contrast from dark and bright.
 - Colorist needs to grade to finish final tone and color.

S-Log2 Conversion Formula

Conversion of IRE values between Scene Linear and S-Log2

Scene Linear to S-Log2 : IRE base

$x \geq 0$

$$y = (0.432699 * \log_{10}(155.0 * x / 219.0 + 0.037584) + 0.616596) + 0.03$$

$x < 0$

$$y = x * 3.53881278538813 + 0.030001222851889303$$

Where x: IRE in Scene-Linear space
 y: IRE in S-Log2 space

S-Log2 to Scene Linear : IRE base

$x \geq 0.030001222851889303$

$$y = 219.0 * (\text{power}(10.0, ((x - 0.616596 - 0.03) / 0.432699)) - 0.037584) / 155.0$$

$x < 0.030001222851889303$

$$y = (x - 0.030001222851889303) / 3.53881278538813$$

Where x: IRE in S-Log2 space
 y: IRE in Scene-Linear space

Note:

A reflection is calculated by multiplying an IRE by 0.9.

$$\text{Reflection} = \text{IRE} * 0.9$$

IRE vs. Code Value

IRE to CV

$$CV^* = WV * IRE / 100 + Black$$

CV to IRE

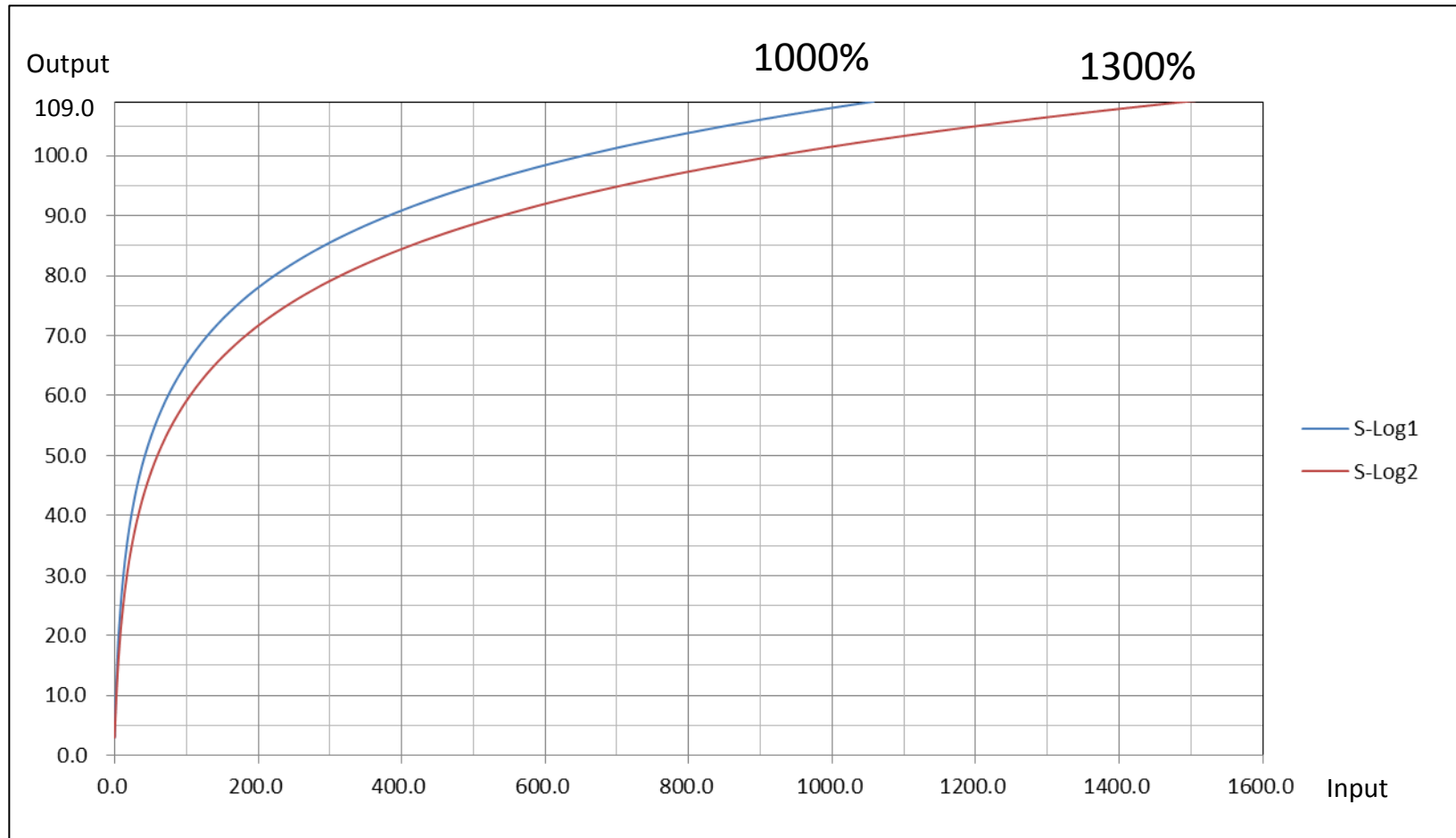
$$IRE(\%) = (CV - Black) / WV$$

	IRE	10bit	12bit	16bit
Black	0%	64	256	4096
White	100% (1.0)	940	3760	60160
Max Value	109.5% (1.095)	1023	4095	65535

	10bit	12bit	16bit
White Value without Black(WV) Black = 0CV	876	3504	56064

S-Log1 vs. S-Log2

S-Log2 is extended dynamic range to support full F65 latitude.



IRE and CV of S-Log2 @ISO800

	0% (Absolute Black)		18% Gray		90% white	
	IRE	10bit CV	IRE	10bit CV	IRE	10bit CV
S-Log1	3%	90	38%	394	65%	636
S-Log2	3%	90	32%	347	59%	582

S-Log1/S-Log2 10bit to Scene Linear(IRE)

S-Log1 (10bit) to Scene Linear : IRE base

$x \geq 90$

$$y = (\text{power}(10.0, ((x-64)/(940-64) - 0.616596 - 0.03) / 0.432699)) - 0.037584$$

$x < 90$

$$y = ((x-64)/(940-64) - 0.030001222851889303) / 5.0$$

S-Log2 (10bit) to Scene Linear : IRE base

$x \geq 90$

$$y = 219.0 * (\text{power}(10.0, ((x-64)/(940-64) - 0.616596 - 0.03) / 0.432699)) - 0.037584 / 155.0$$

$x < 90$

$$y = ((x-64)/(940-64) - 0.030001222851889303) / 3.53881278538813$$

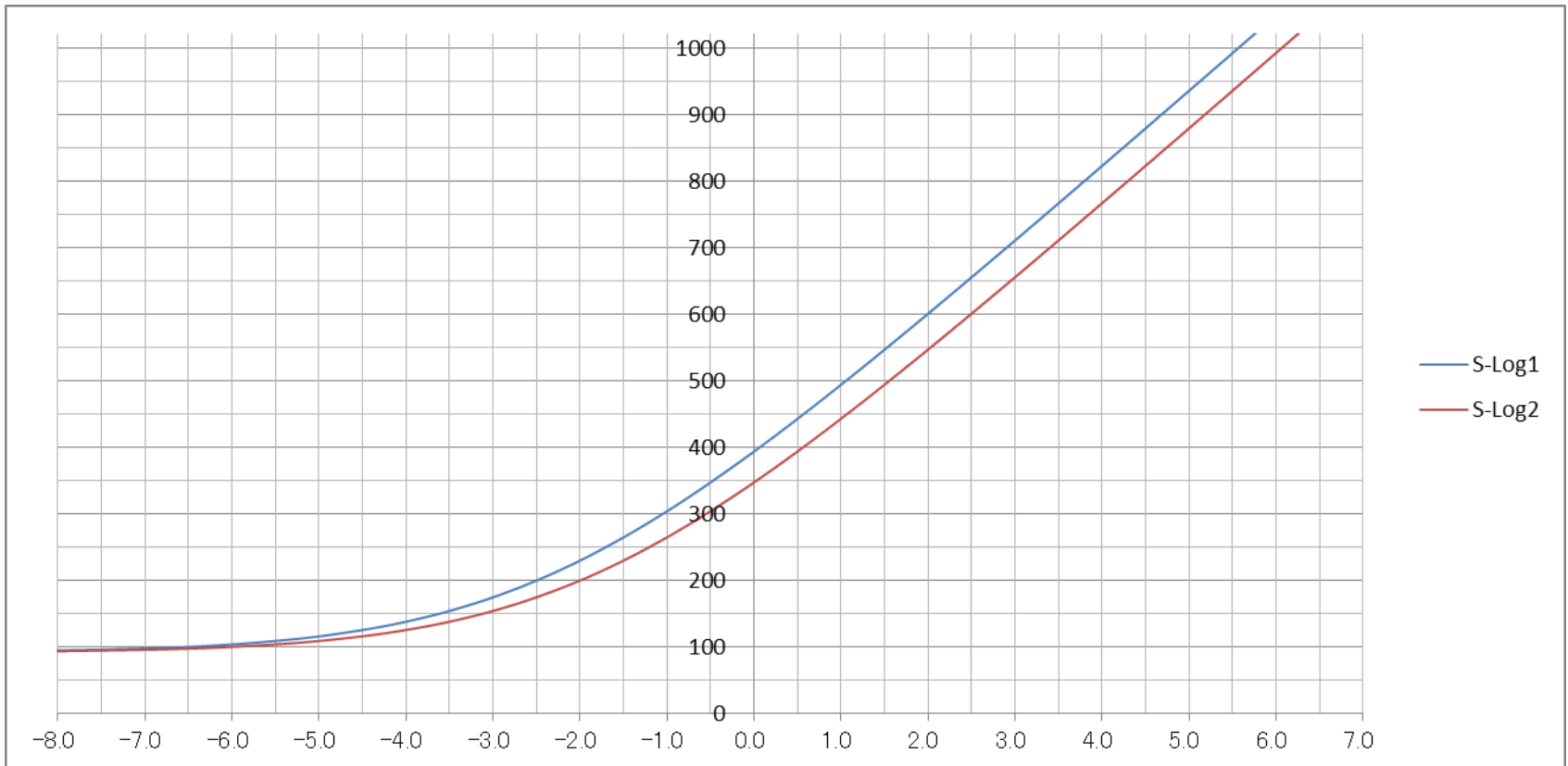
x : S-Log 10bit code value

y : IRE

Reflection = y * 0.9

S-Log1/S-Log2

Stop vs. 10bit Code Value



FAQ

Q. Which process is it better to use “Full” or “Head” in post tools?

A. You should choose “Head”. When you choose “Full”, high light value over 100% and under 0% will be clipped.

Q. Is current “S-Log” is renamed “S-Log1”?

A. Yes. F65 and SR-PC4 menu display “S-Log1” for Gamma setting at HD mode. But there are other products to use as “S-Log”, so both name will be mixed “S-Log” and “S-Log1” for the meantime.