

# Color Correcting in any NLE

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# Overview

- Color Theory
- Room Setup
- How to read scopes
- HSL Correcting
- Matching
- Key based Secondaries



Survey question 1:  
Do you know how the  
PARADE scope works?



Survey question 2:  
Any FCPX users?





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# Spanish Castle Illusion

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Your Eyes Lie



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# A moment on room setup

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# “Pro” color correction

- Hardware scopes
- Grey (neutral) back wall
- No natural light
- D65 light
- Broadcast Monitor (Flanders Scientific)





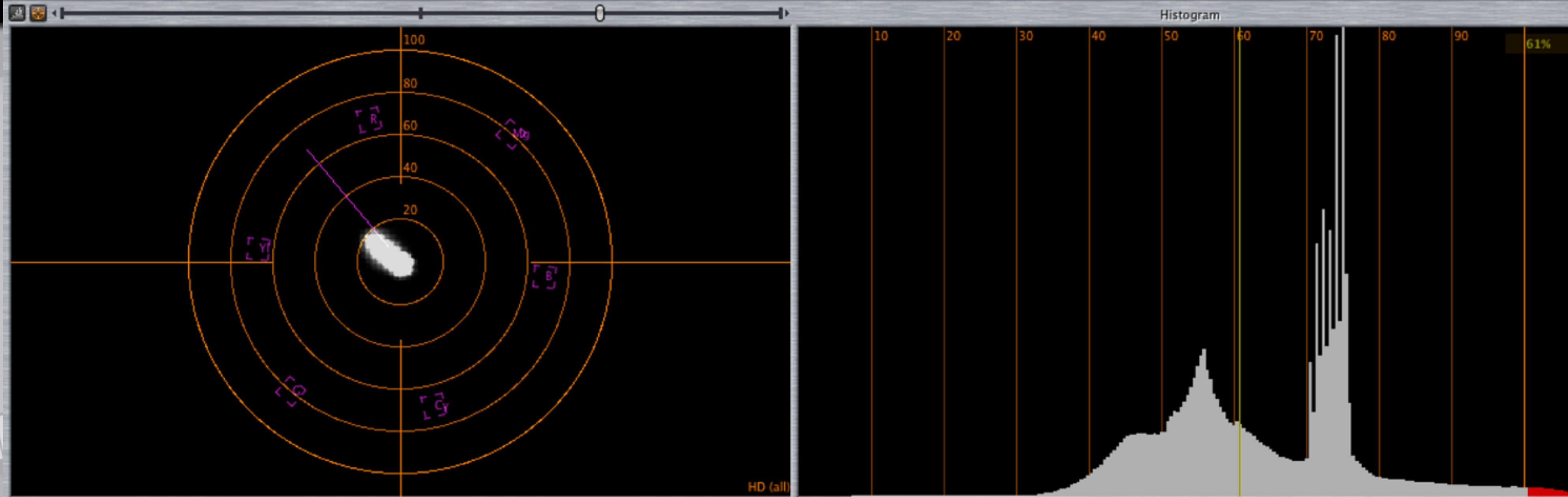
But what about my NLE?



# Every NLE has...

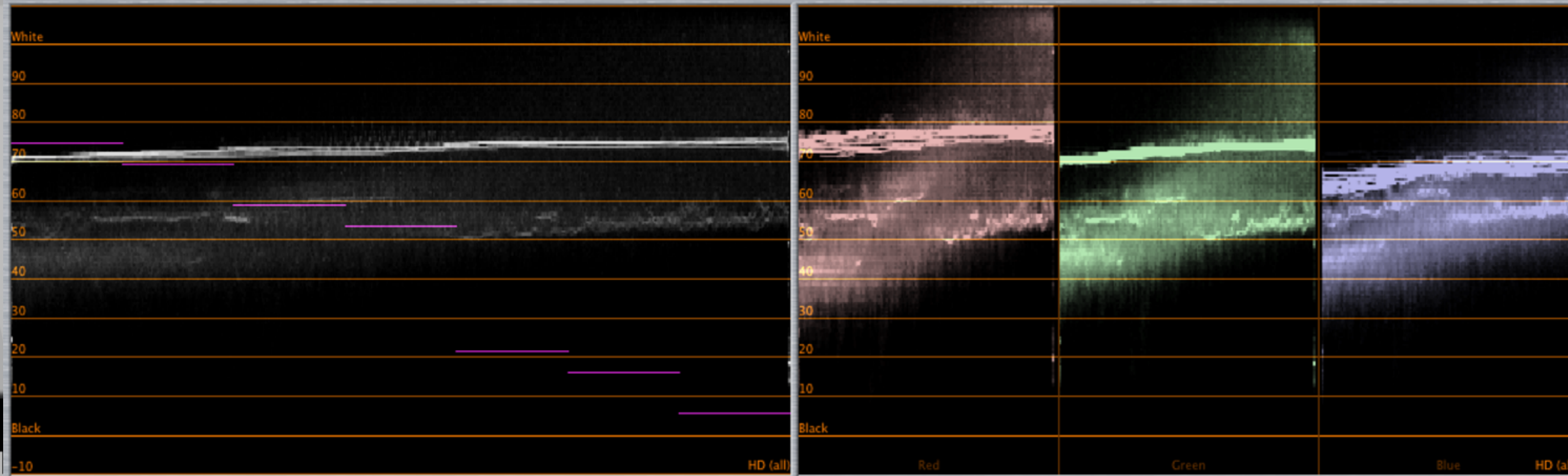
- Scopes for monitoring the signal
- A form of a 'three way' color corrector
- Legalizers





Waveform Monitor

Histogram



White

90

80

70

60

50

40

30

20

10

Black

-10

HD (all)

4A

White

90

80

70

60

50

40

30

20

10

Black

Red

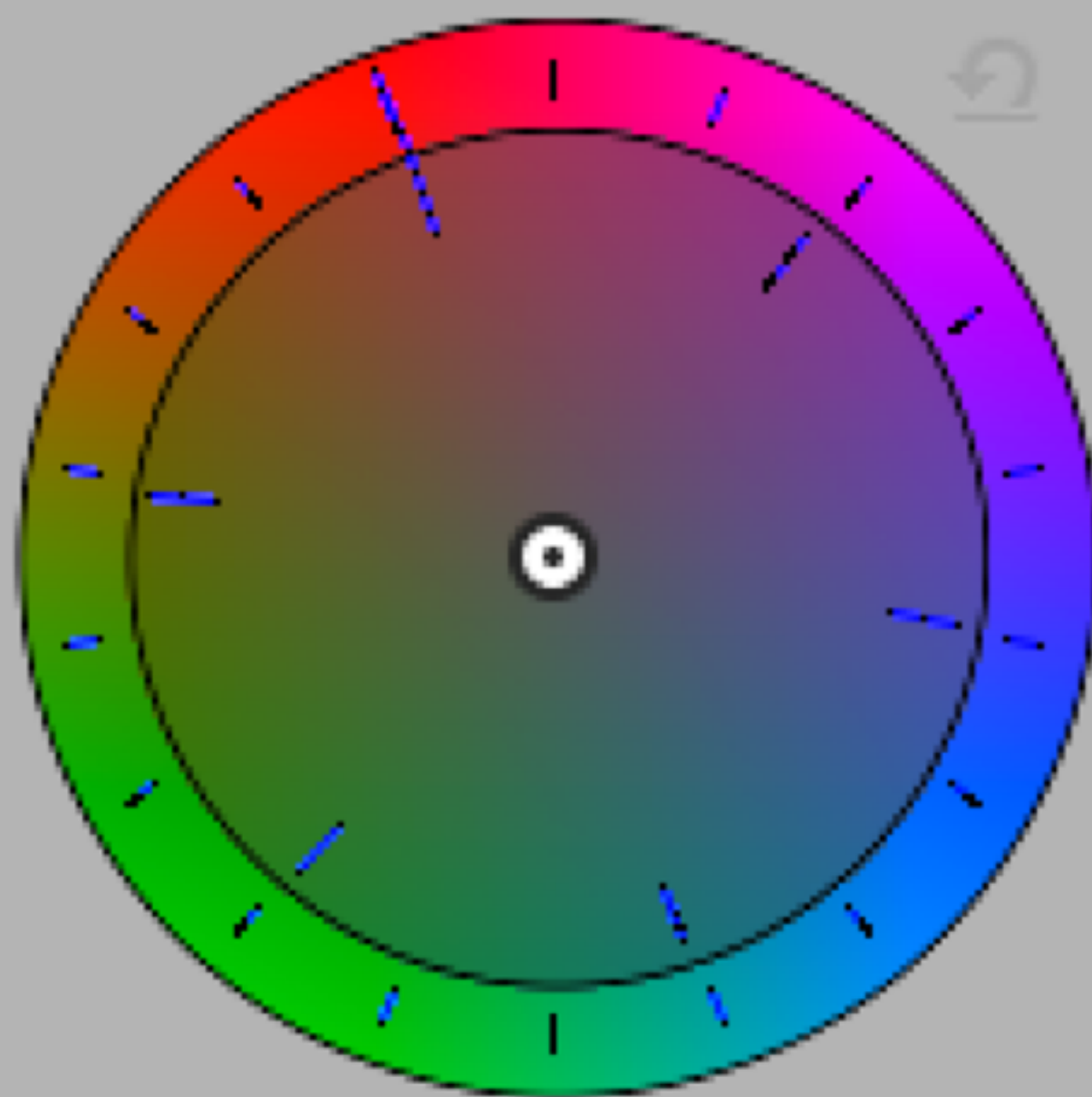
Green

Blue

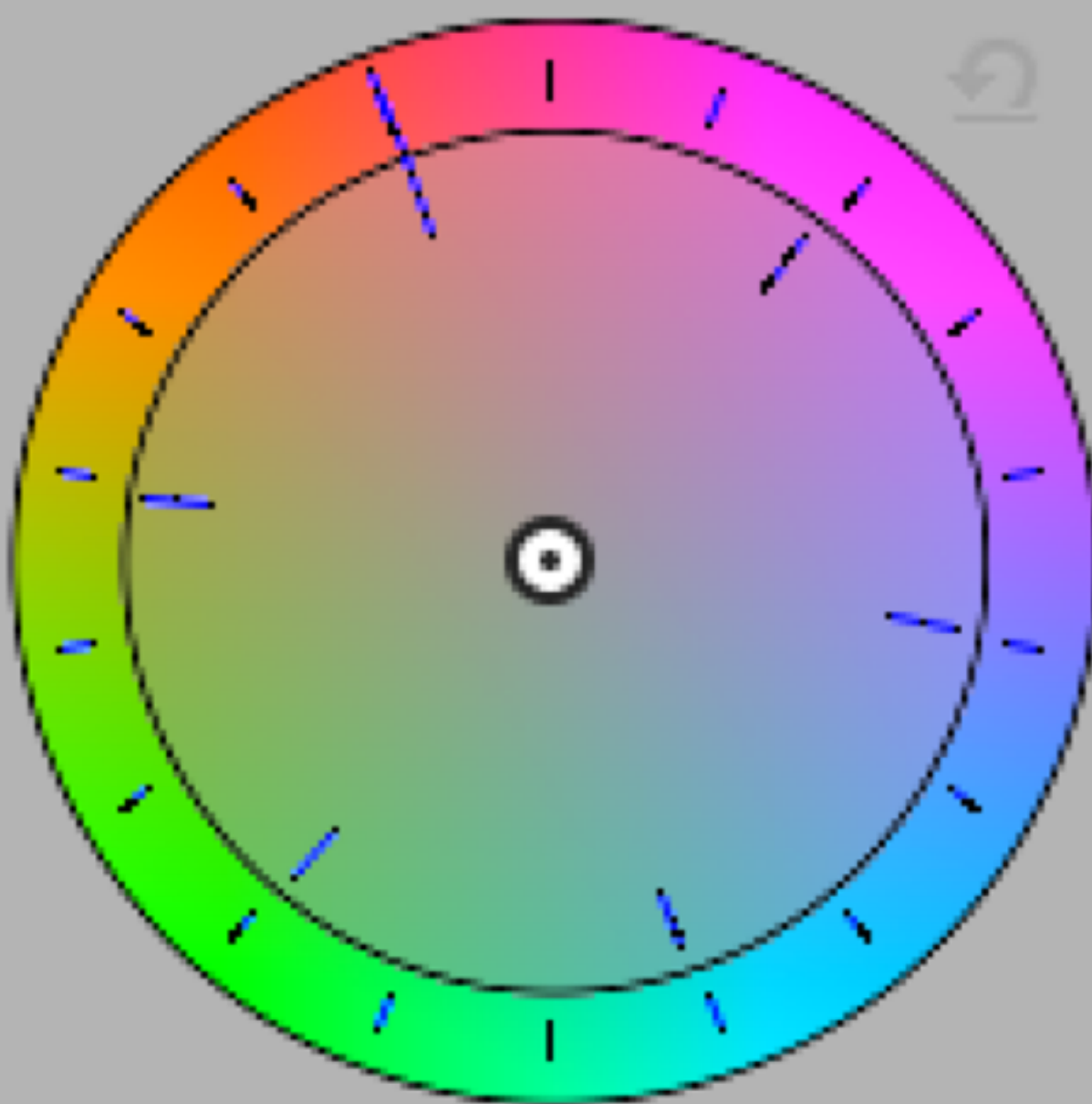
HD (all)



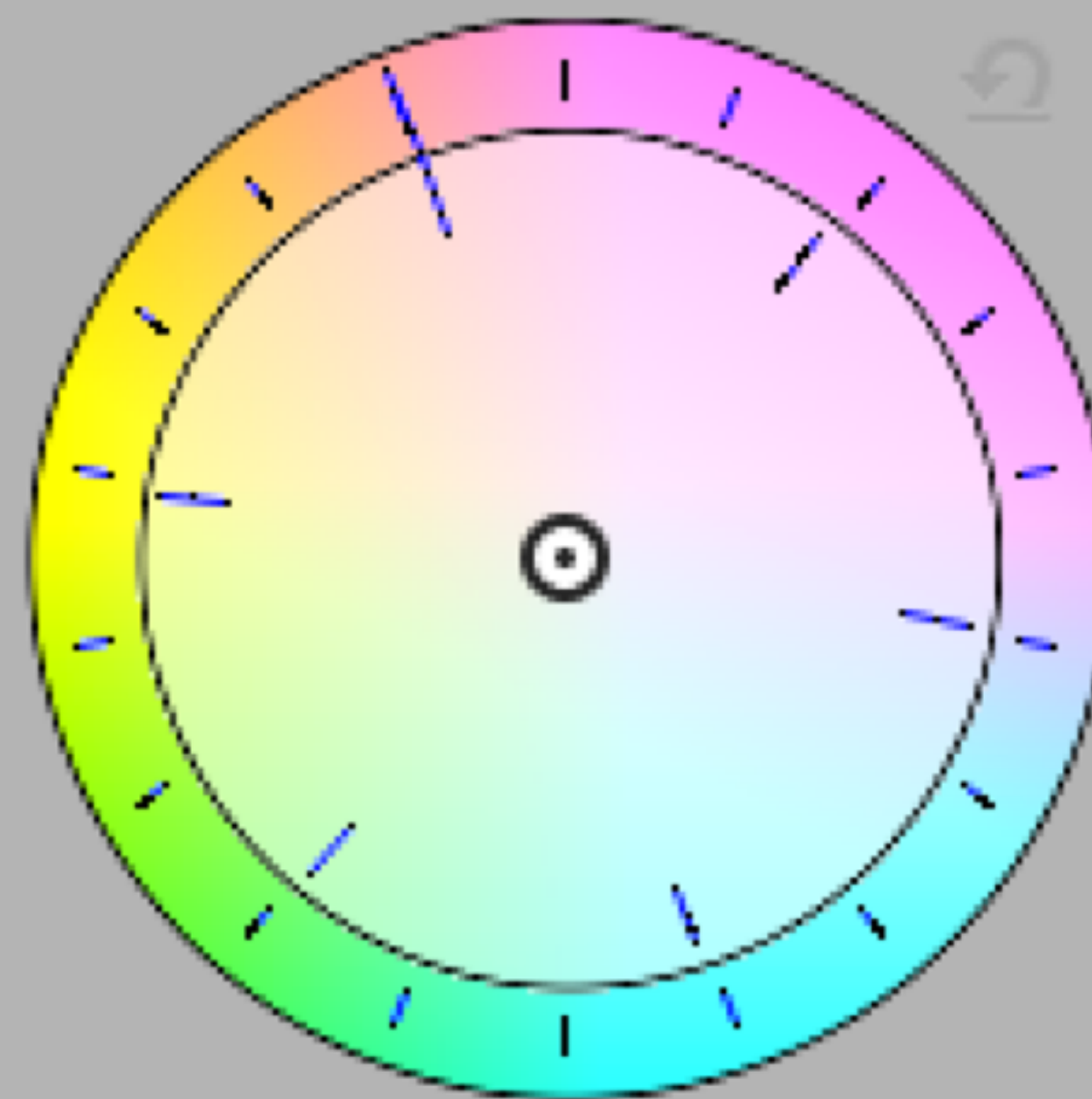
☐ Master



Shadows



Midtones



Highlights



Input Levels:

0.0

1.0

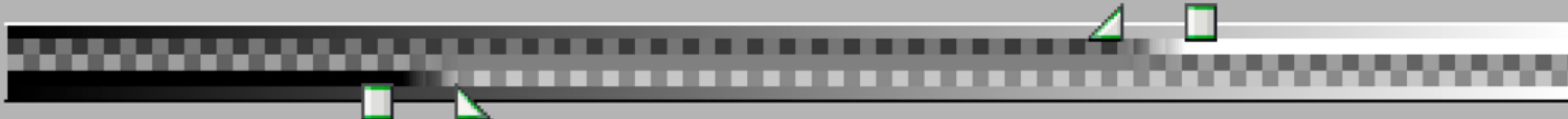
255.0

Output Levels:

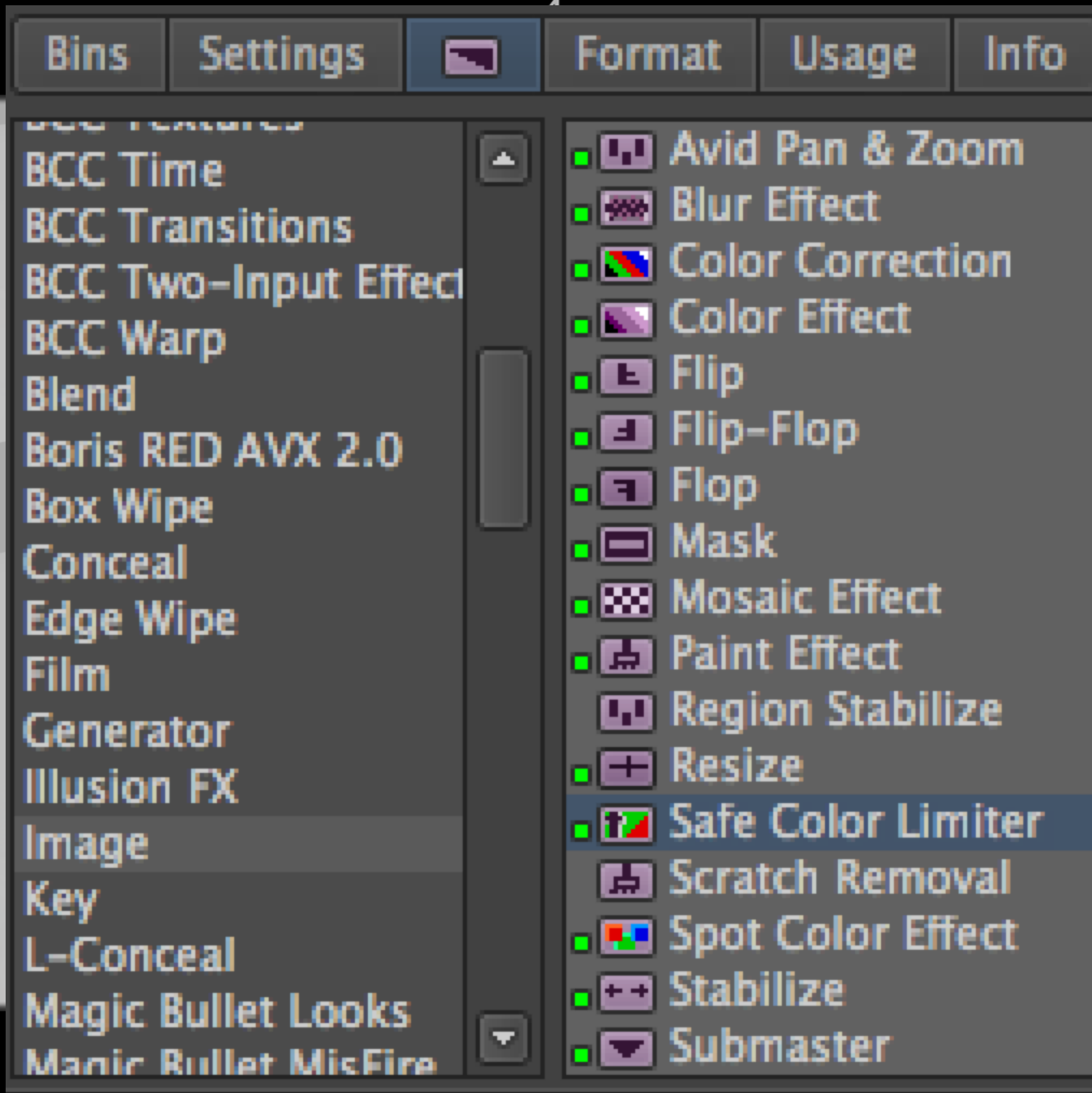
0.0

255.0

► Tonal Range Definition







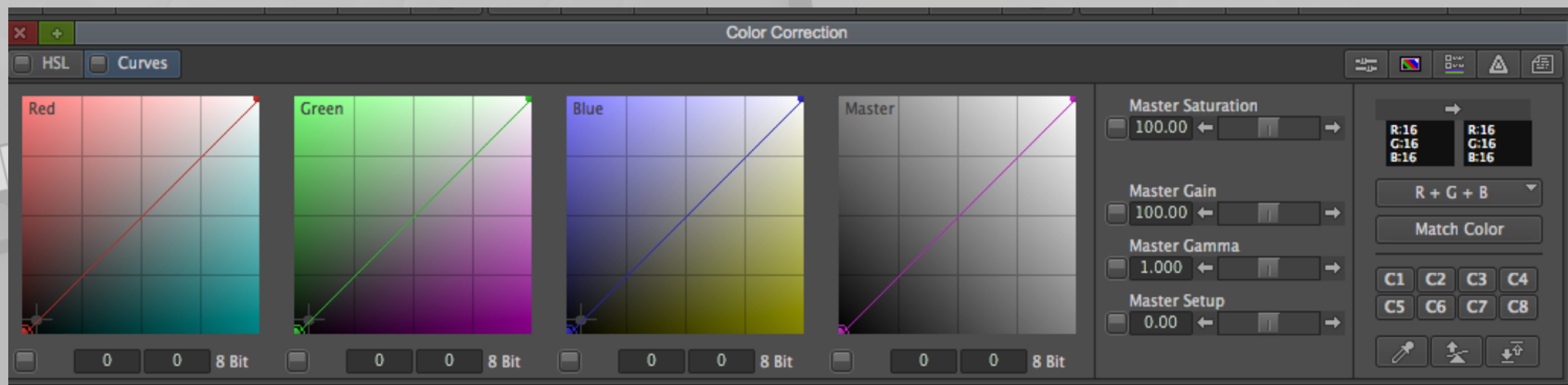




# Some NLEs have...

- Curves
- Matching
- Secondaries









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▼ Secondary Color Correction

☐ Show Mask


Center




▶ Hue

▶ Saturation

▶ Luma

▶  Soften

0.00

▶  Edge Thinning

0.00

Invert

None



▶ Auto Levels

▶ Shadows





# Color Theory



# Goals of Color Correction

- Expand Dynamic Range
- Neutralize Color Cast
- Shot to Shot Matching
- “Looks”





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# Color Space

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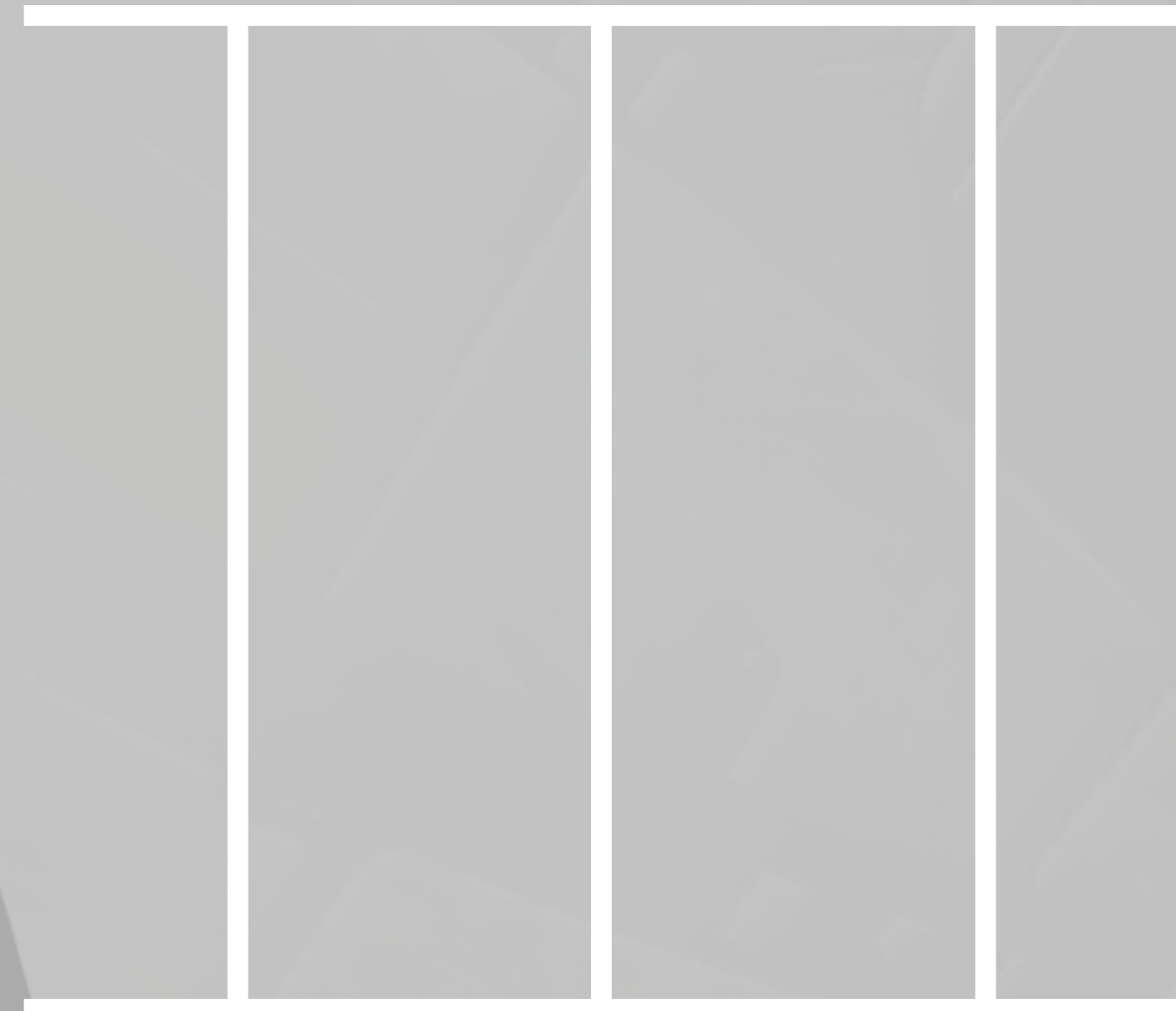
5



# RGB

R G B

- Computer 'mostly' work in RGB
- What's the value for White?
- Black?





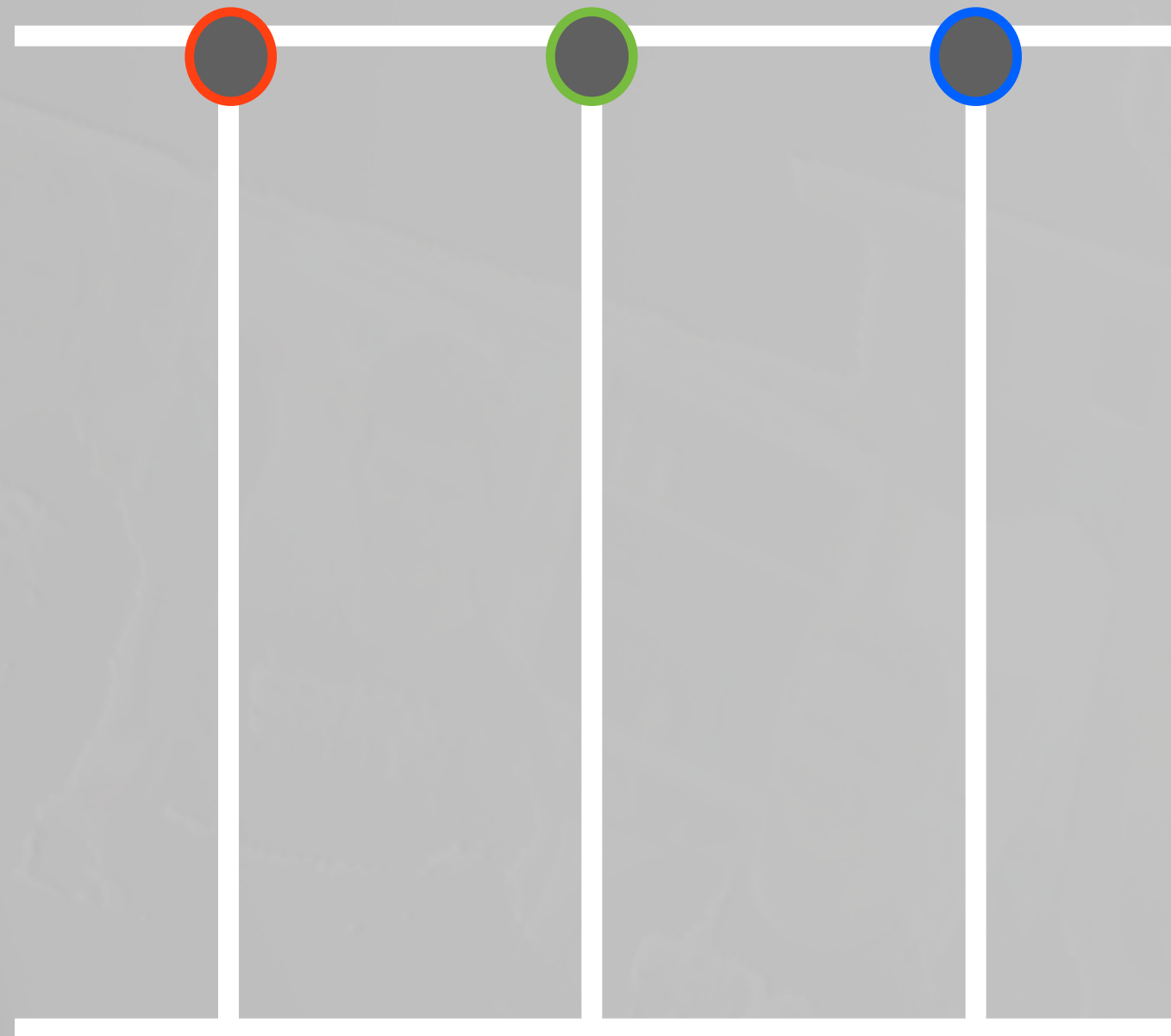
# Value for White?

255 255 255

R

G

B



100%

255



# Value for Black?

0

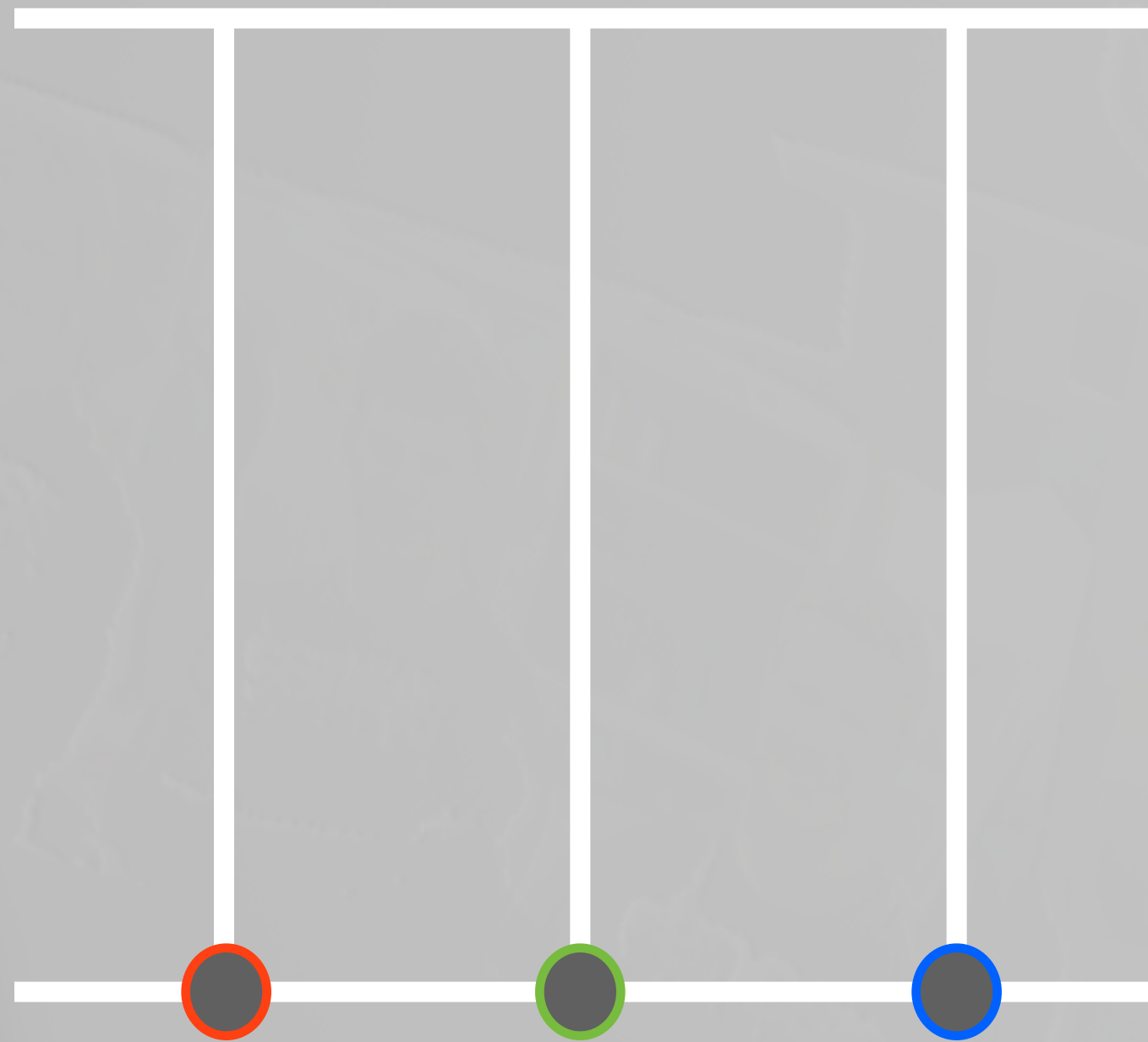
R

0

G

0

B



0%

0





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# RGB

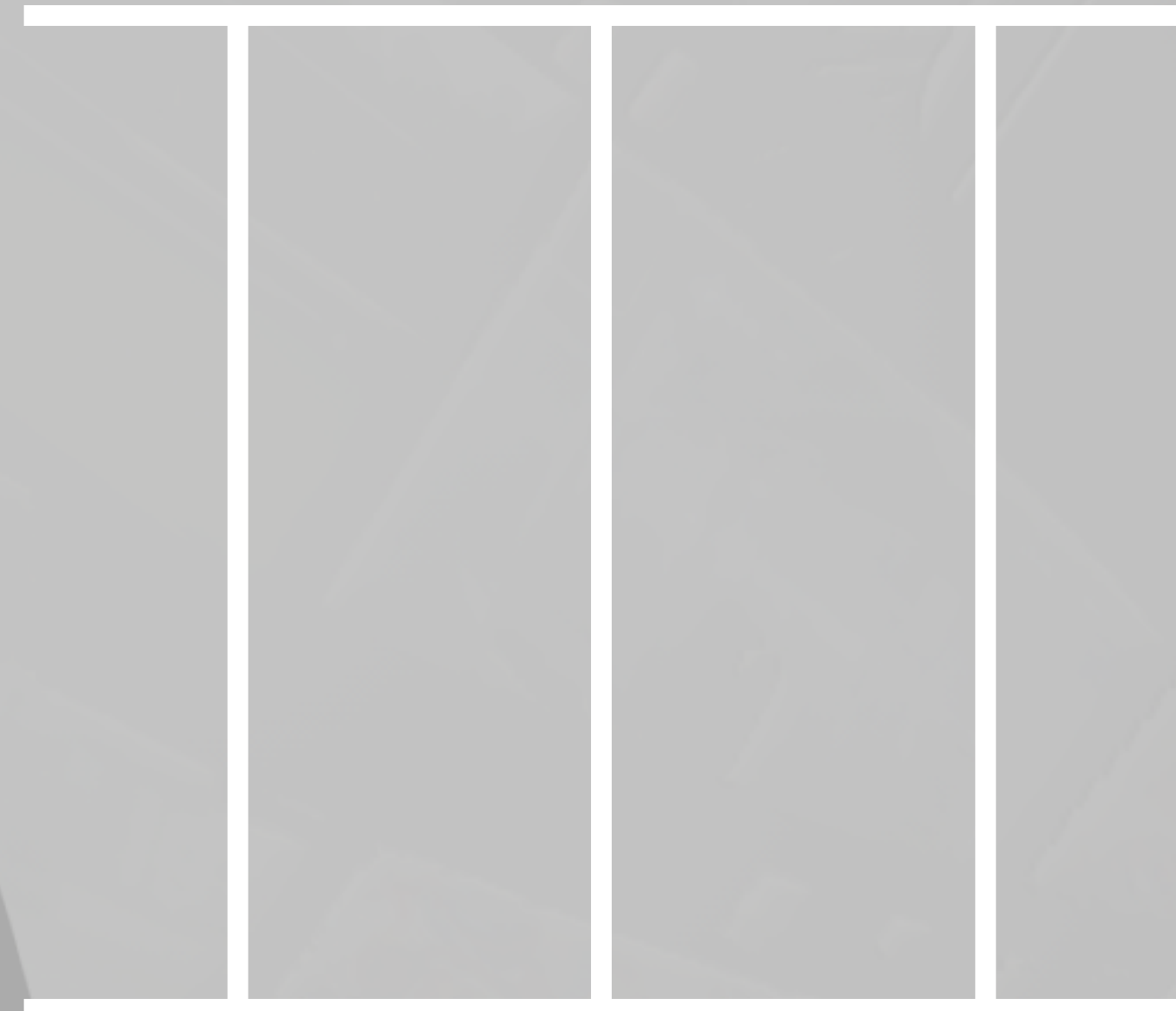
- Color values
- 0,0,0 black
- 255,255,255 white
- What's grey?

R

G

B

255



0

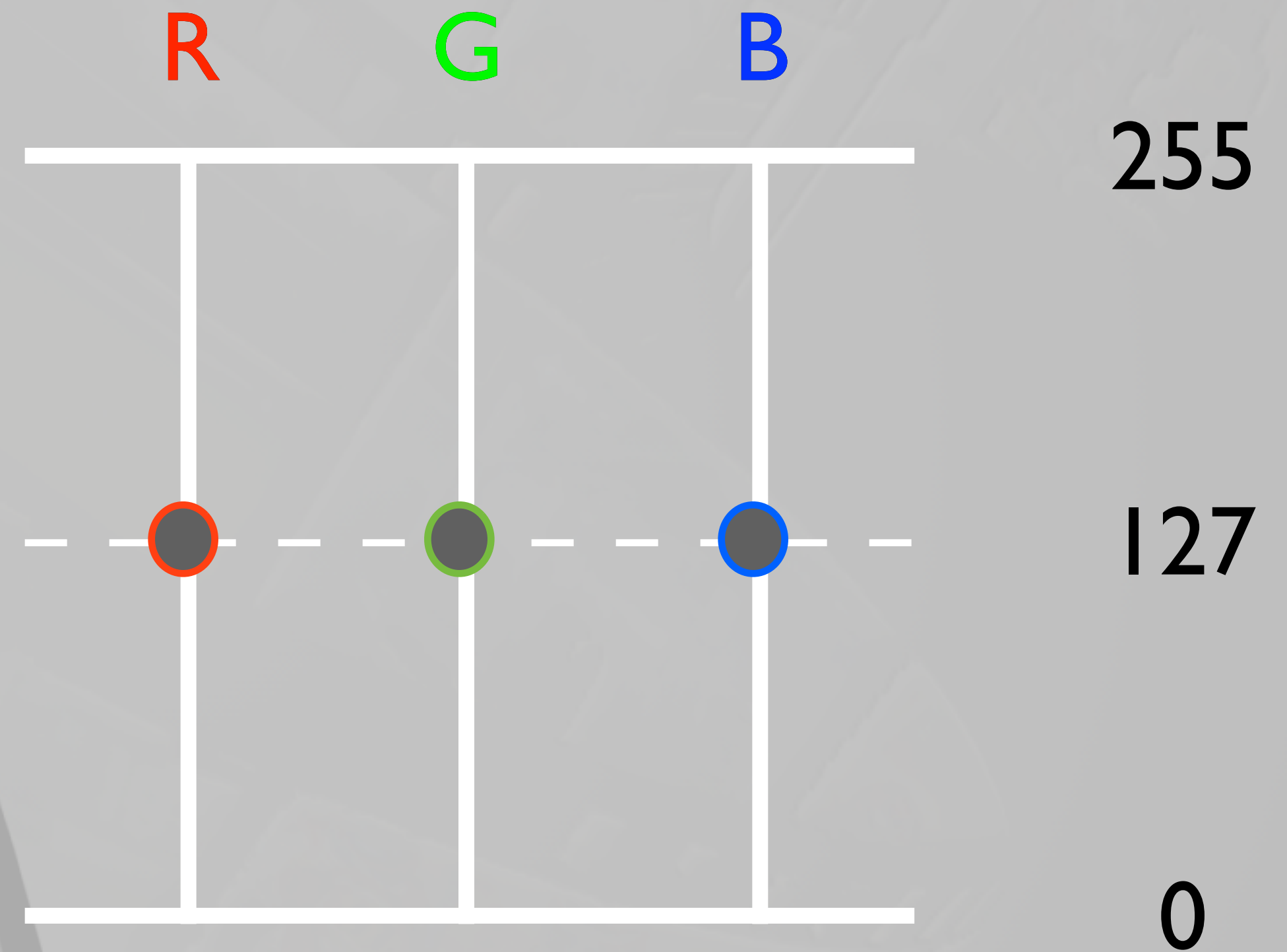
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# RGB

- All three the same = Grey between 0(black) + 255 (white)
- Any value that's the same in RGB is a 'grey'





# Dynamic range

- It's the Difference between the darkest and lightest point
- Key: Measure Dynamic Range
  - Waveform Monitor
- Restore/Create Appropriate Dynamic Range



# Goals of Color Correction

- Expand Dynamic Range
- Neutralize Color Cast
- Shot to Shot Matching
- “Looks”





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# More on Color Space

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What kind of ink is in  
your printer (hint, it's not  
RGB)

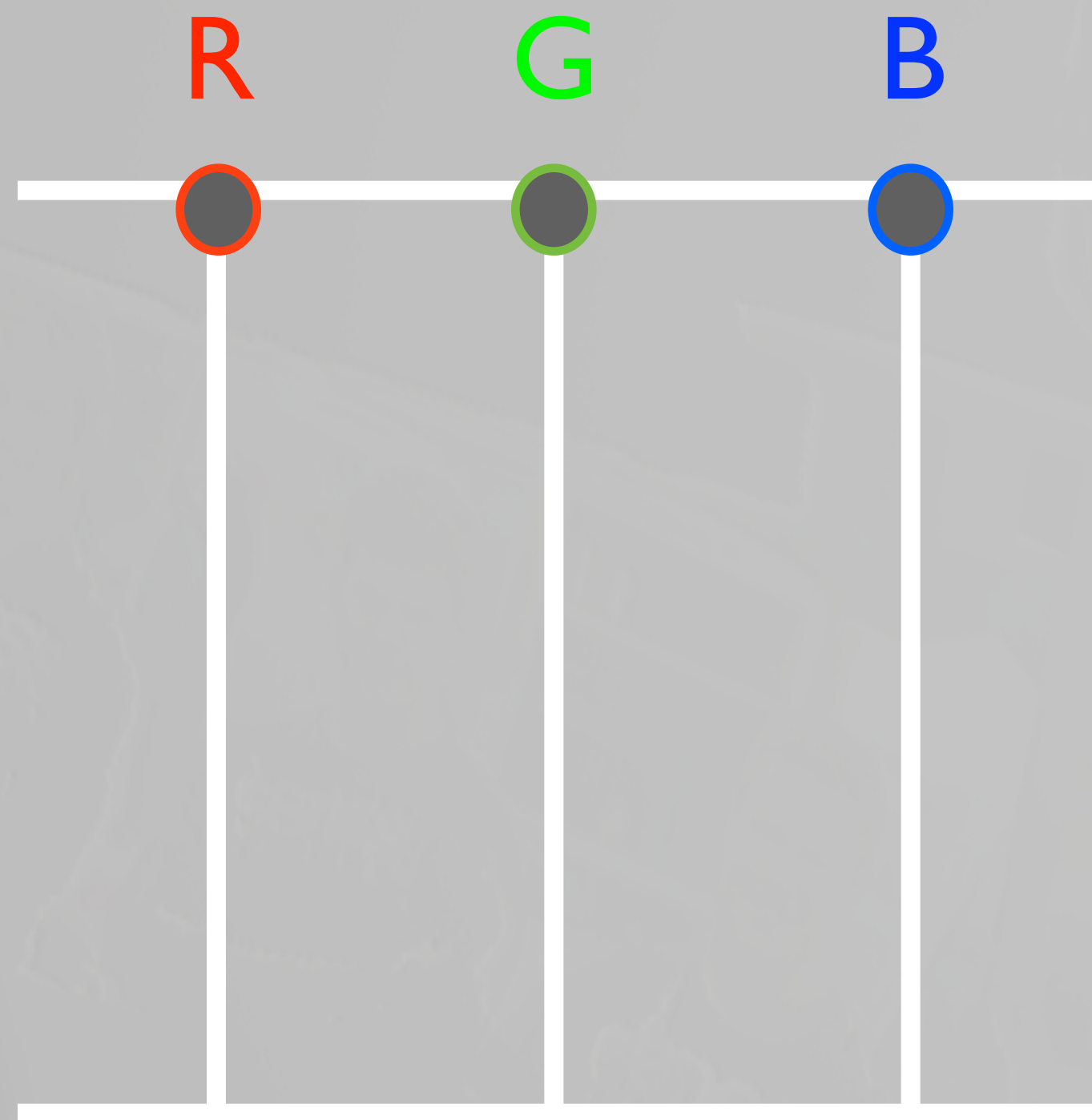
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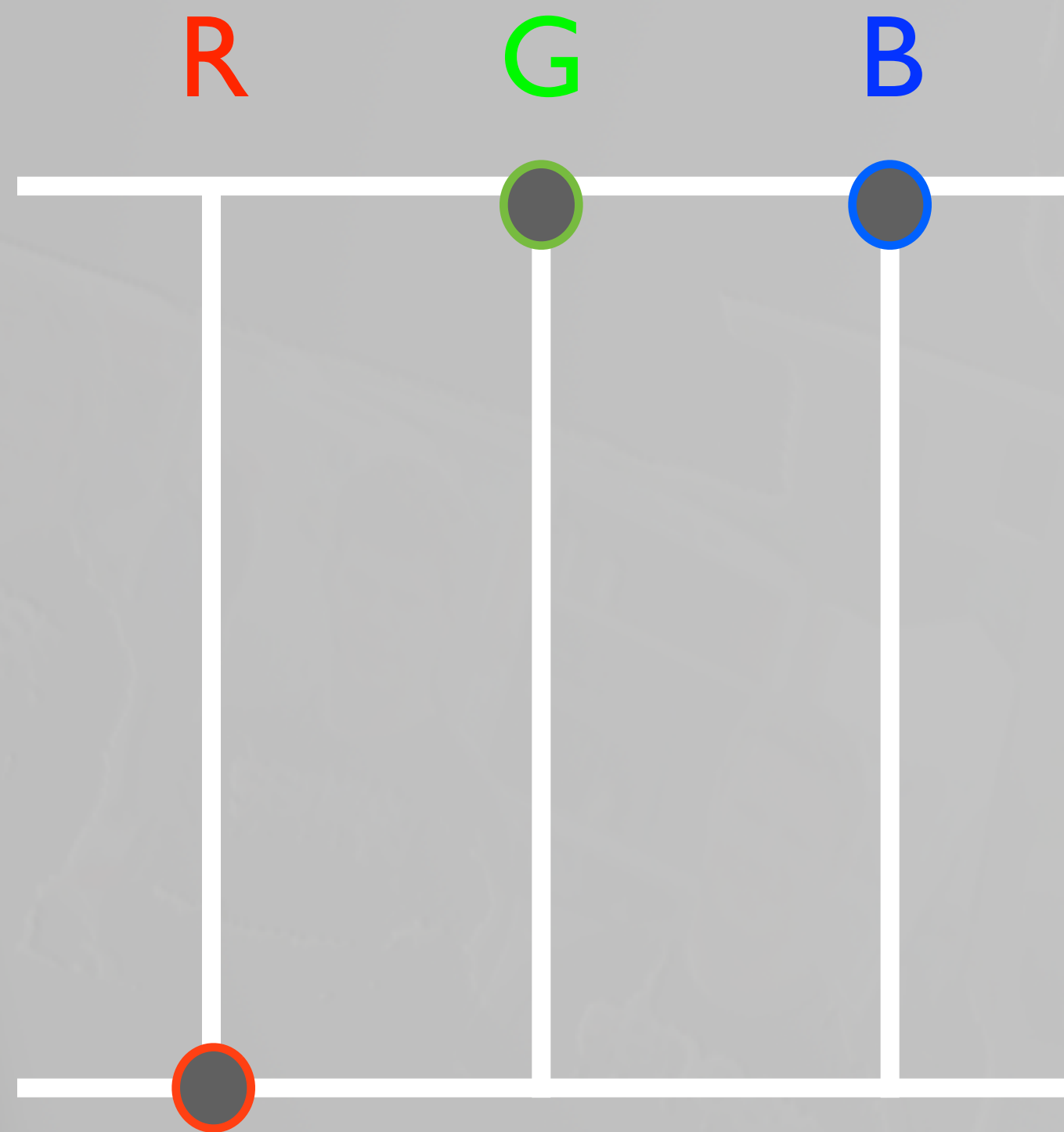
# What happens if there is no Red?



100%  
255,255,255



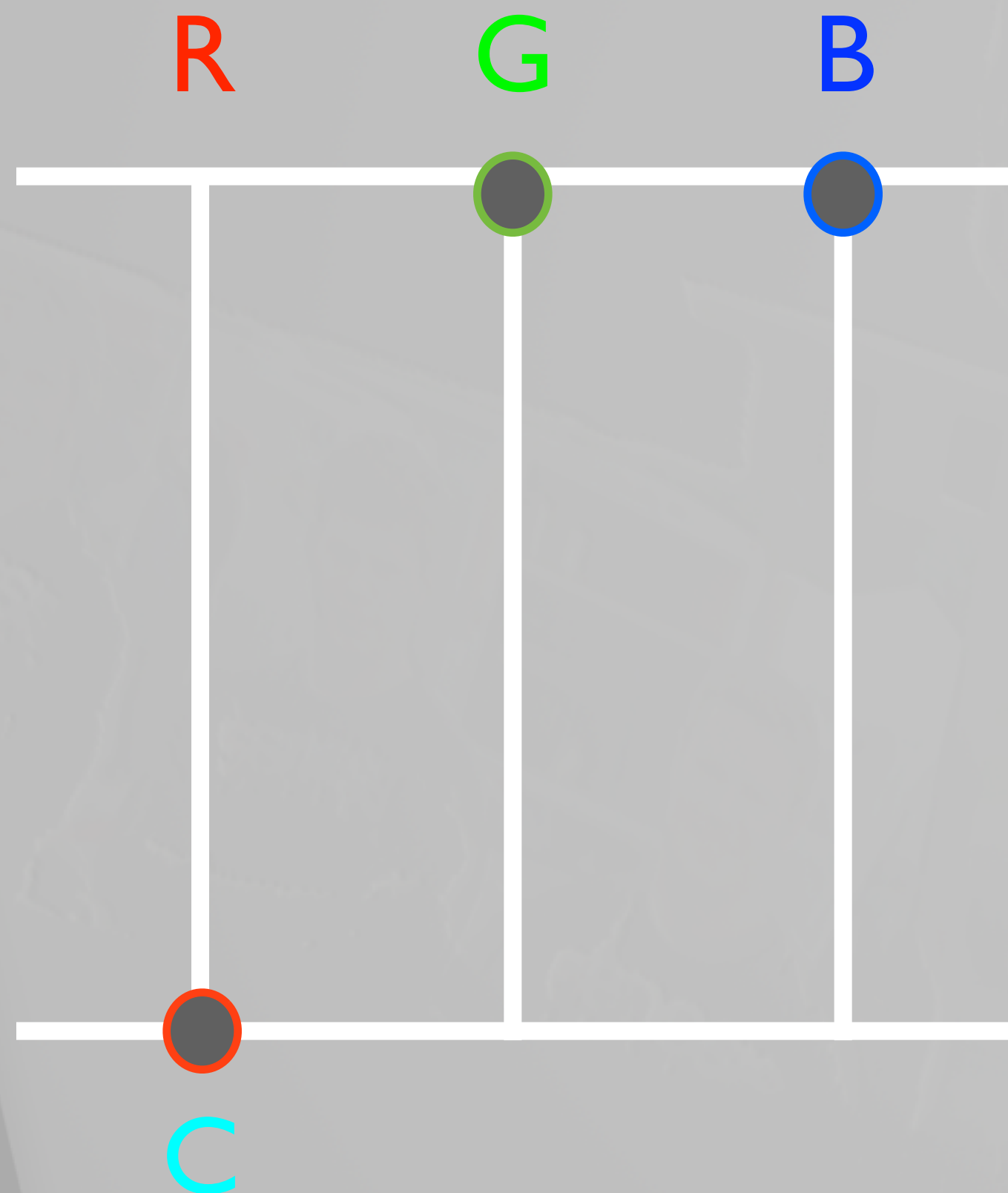
# What happens if there is no Red?



0,255,255



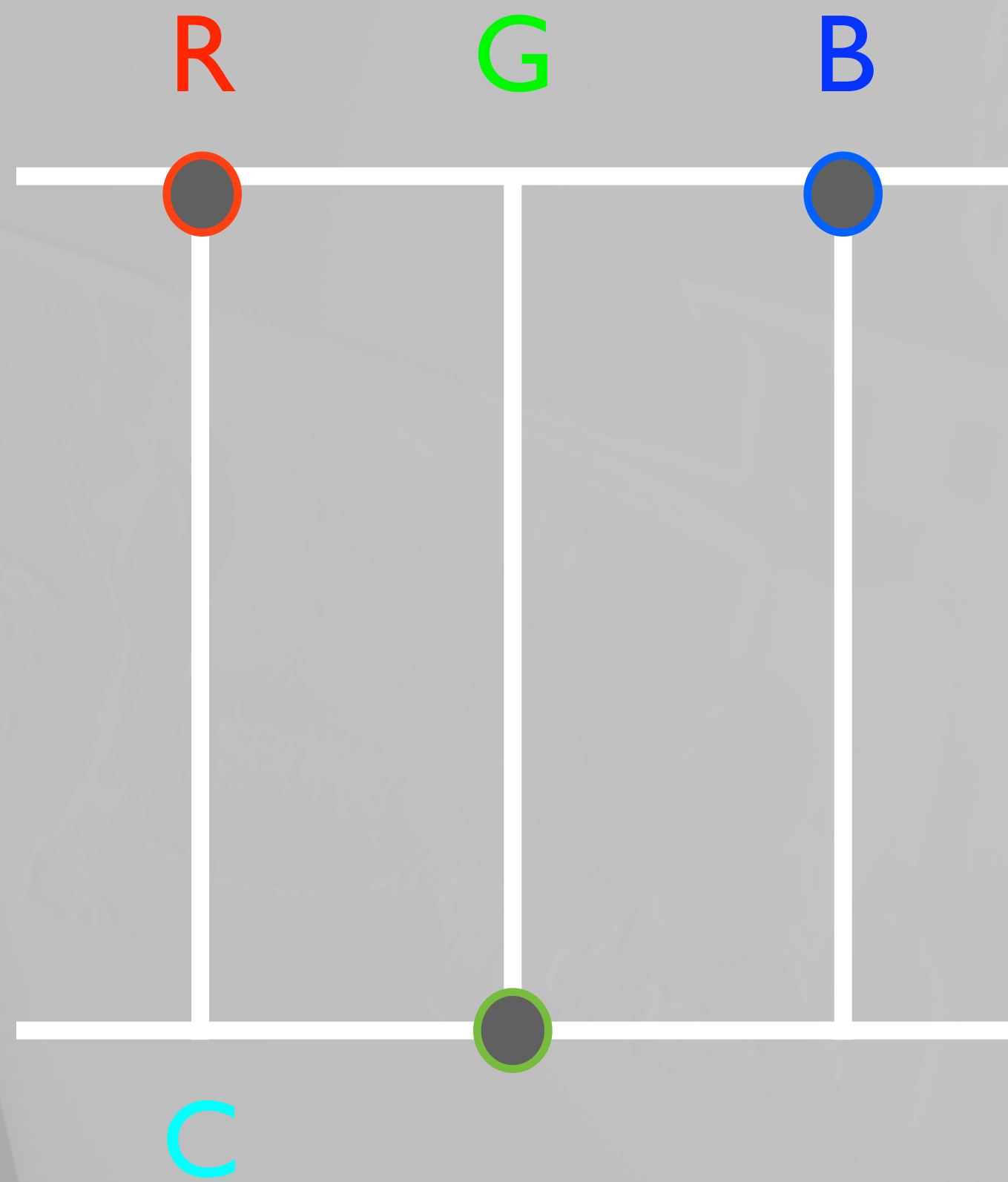
# What happens if there is no Red?



CYAN



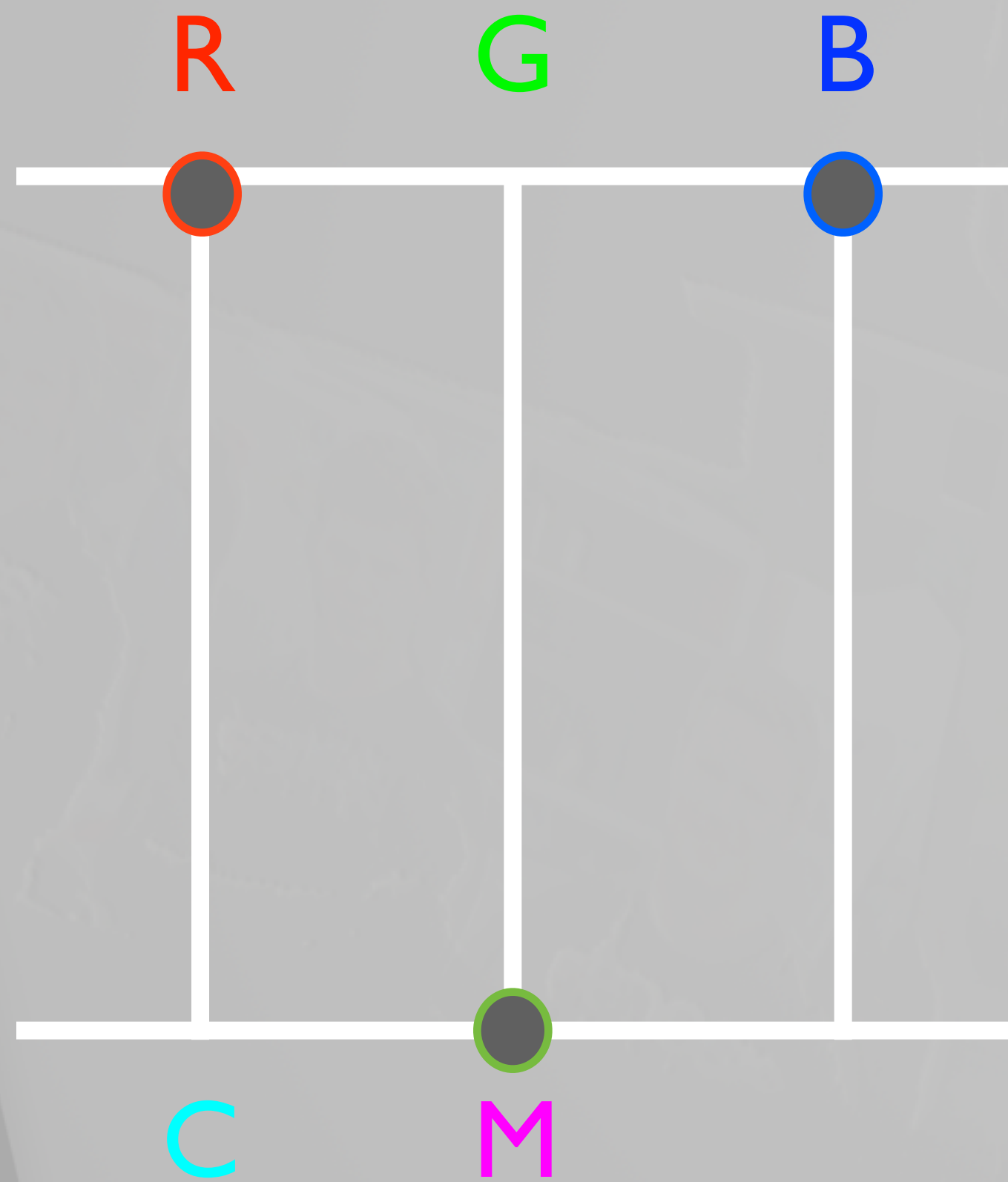
# What happens if there is no Green?



255,0,255



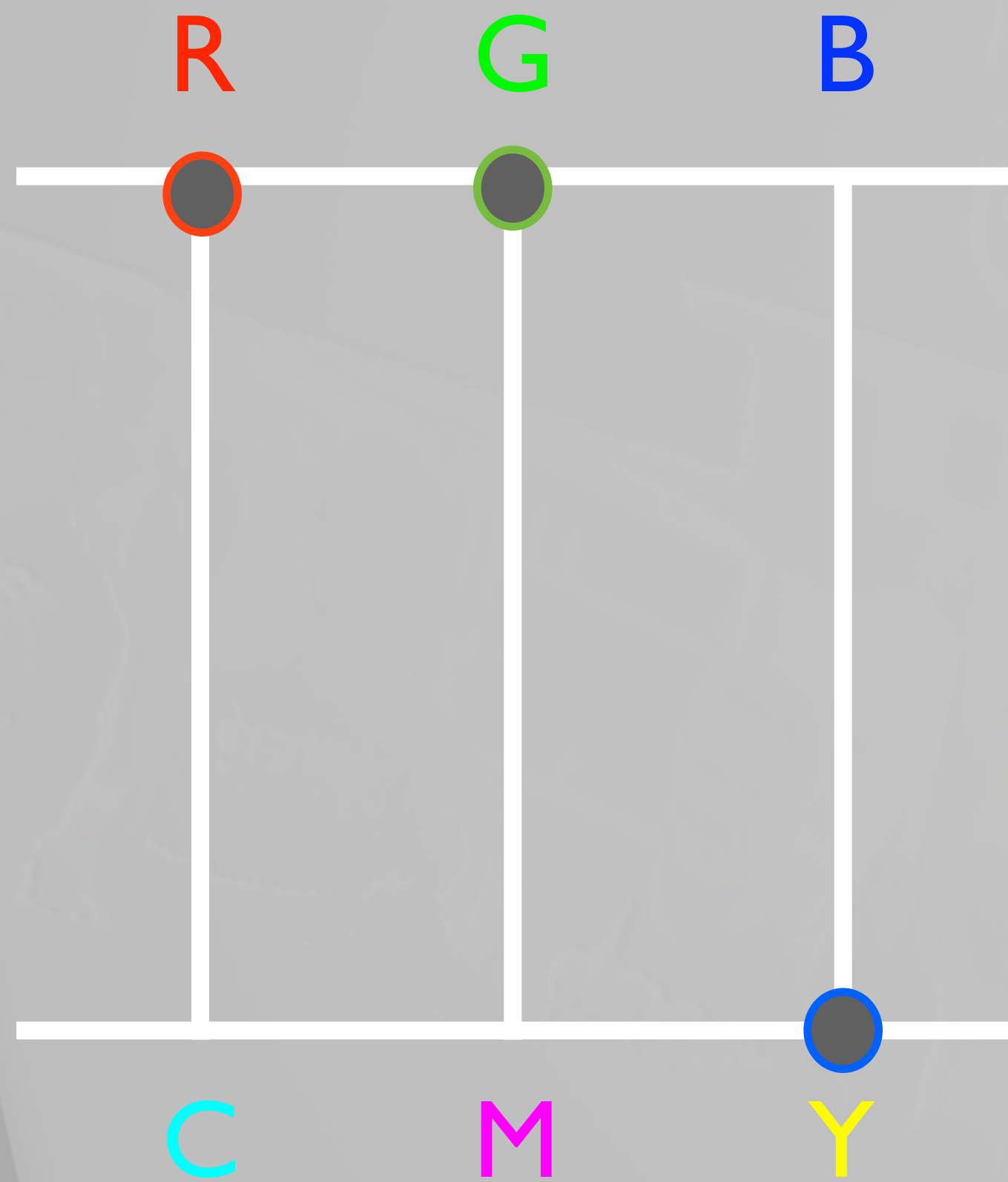
# What happens if there is no Green?



MAGENTA



# What happens if there is no Blue?



Yellow



These colors are  
opposites!

R

G

B

C

M

Y



These colors are  
opposites!

R

M

B

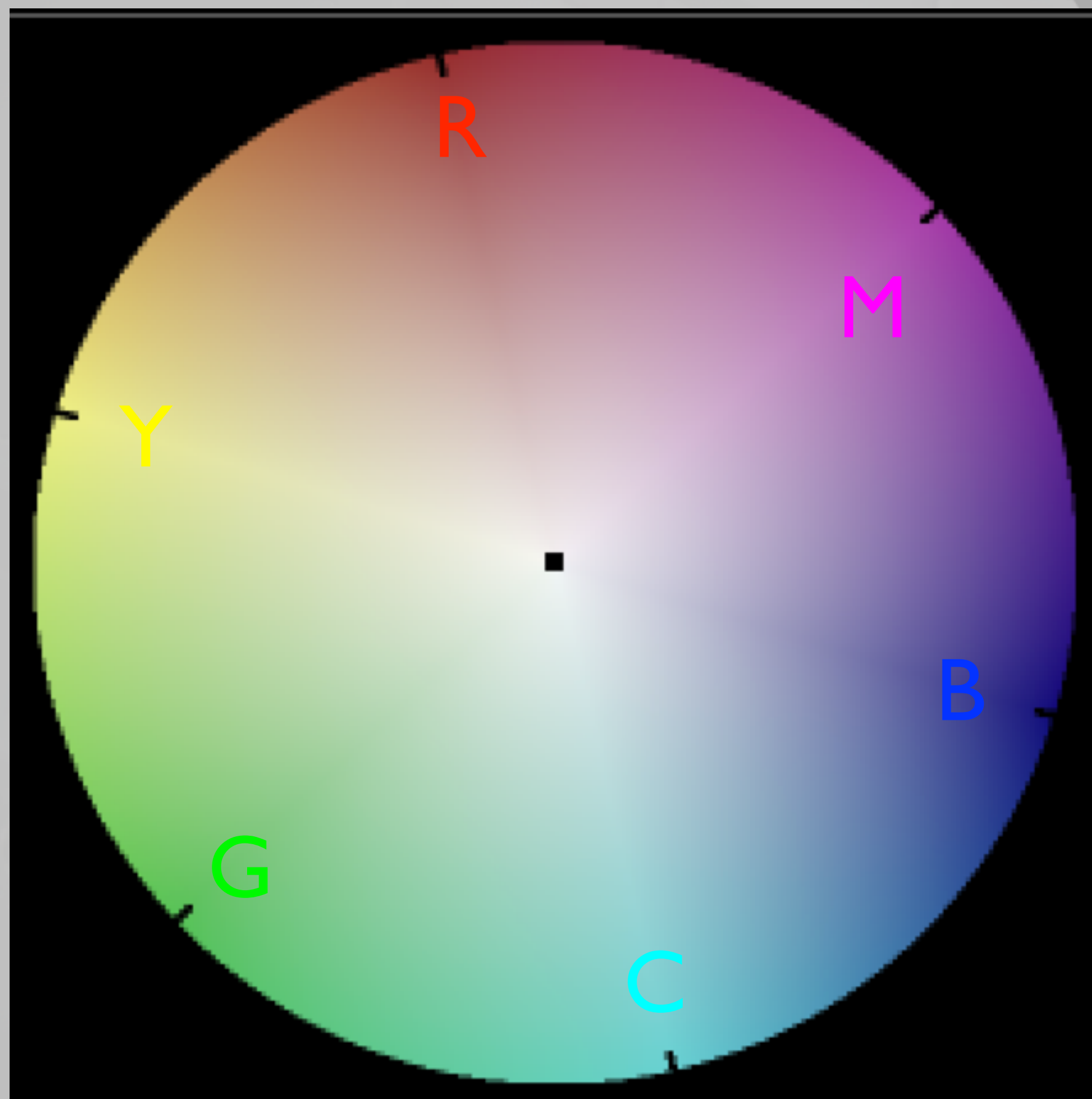
Y

G

C



These colors are  
opposites!

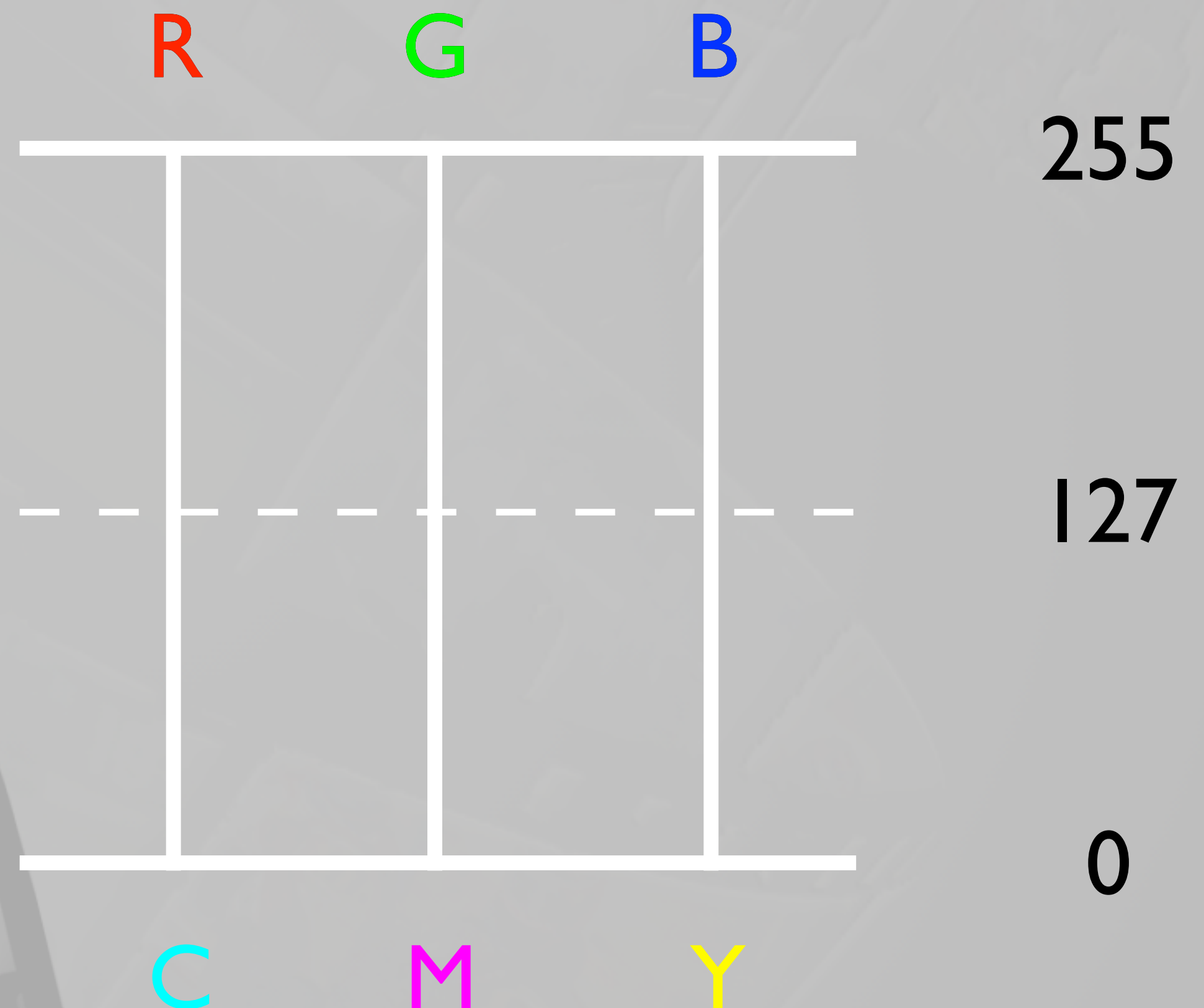






# CMYK

- Print
- Opposite of RGB
- Subtractive space
- nothing to do with video...but....





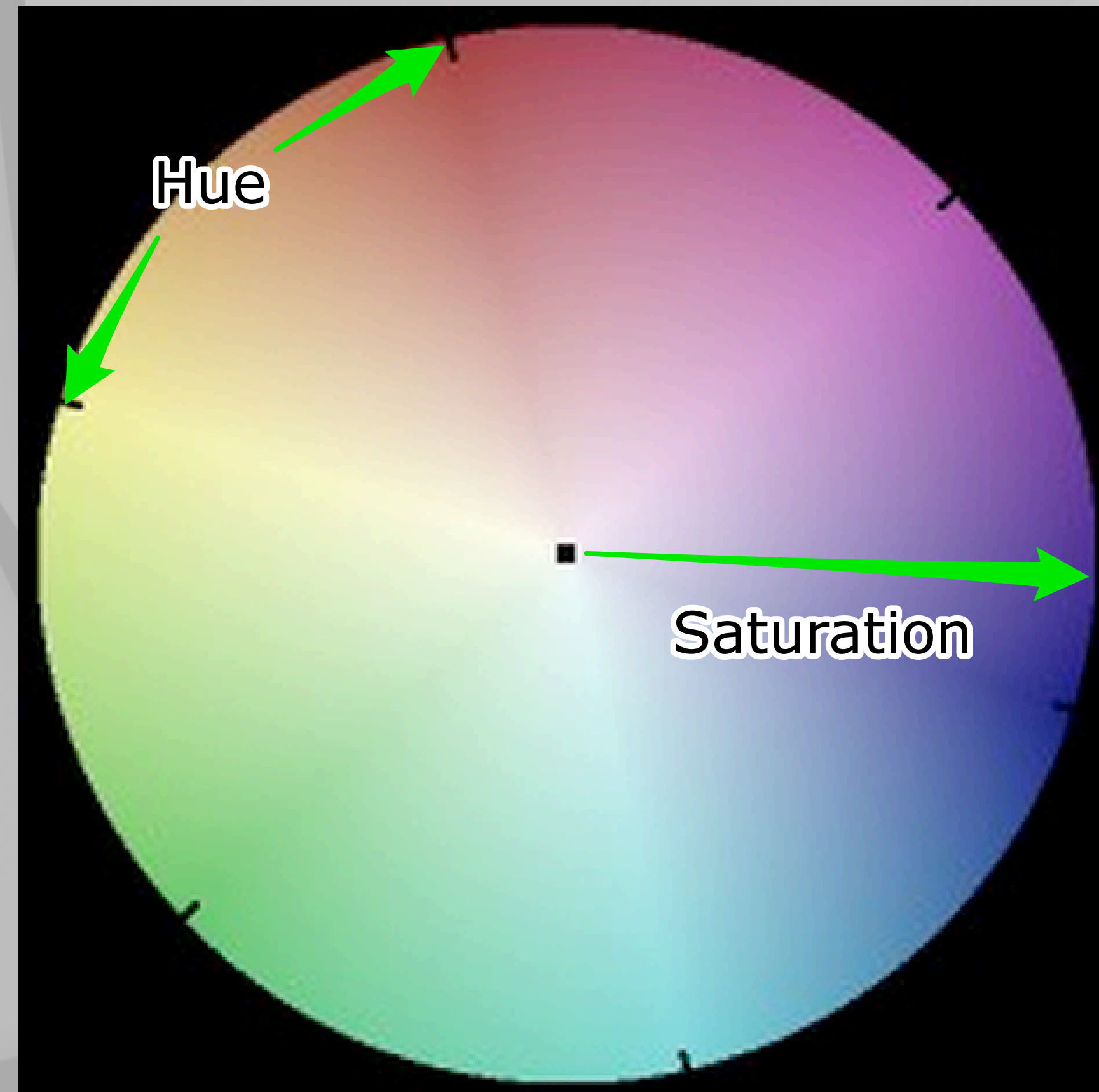
# Video is not RGB

- Y Cr' Cb'
- Luma + Chroma
- Brightness + Color



# Understanding Color

- Hue – What angle?
- Saturation
- Brightness is separate
- Mix opposite value





# Neutralizing Color Cast

- Measurement of neutral items
  - Vectorscope
  - Parade
- Adjustment to 'neutralize' a color cast





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# SCOPES

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# 3 Scopes

- Waveform
- Vectorscope
- Parade

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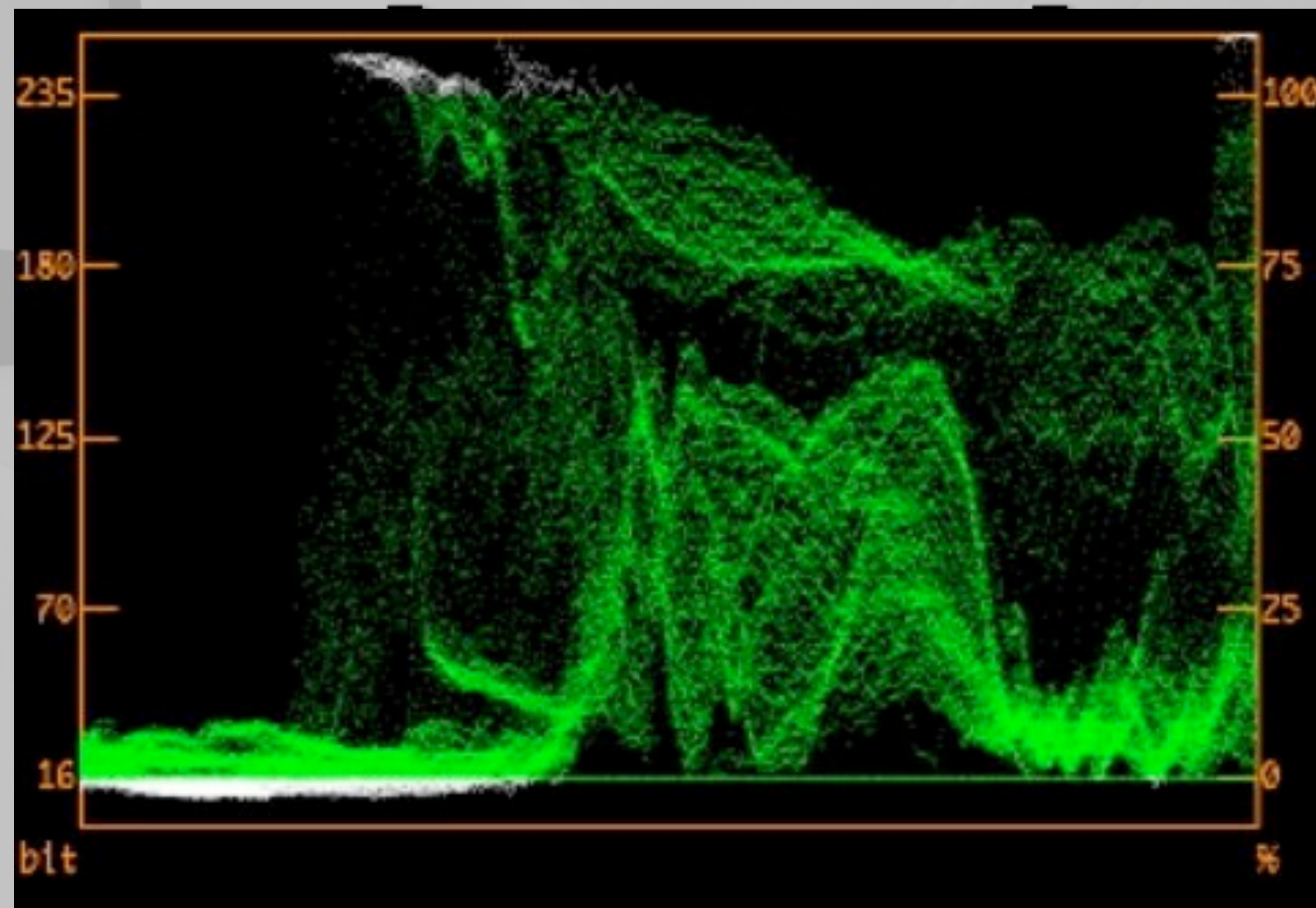
# Waveform

Measures Luma

Horizontally Matches picture

Top= Bright  
Bottom = Dark

Trick – Divide screen into 3  
vertical sections







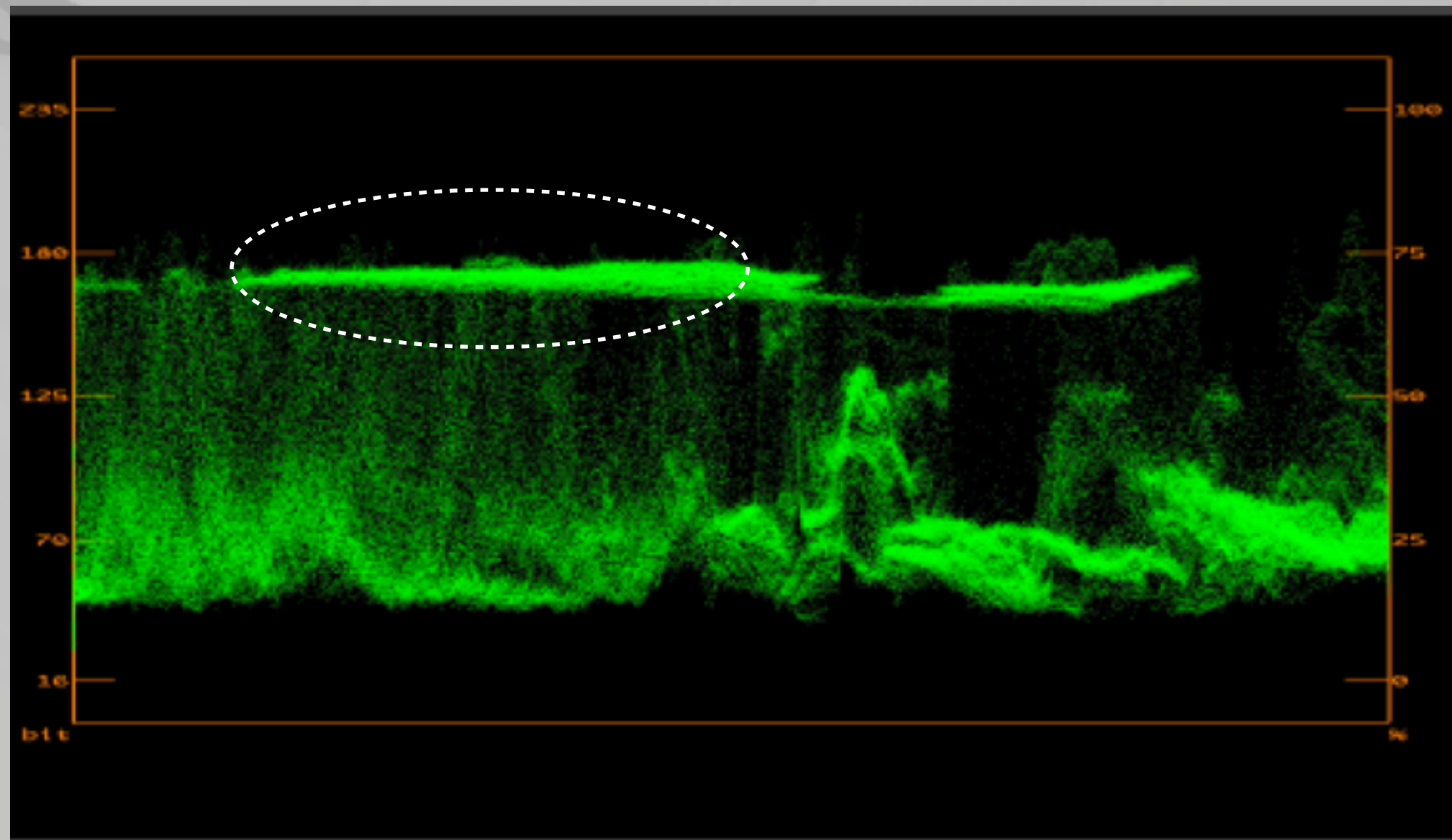
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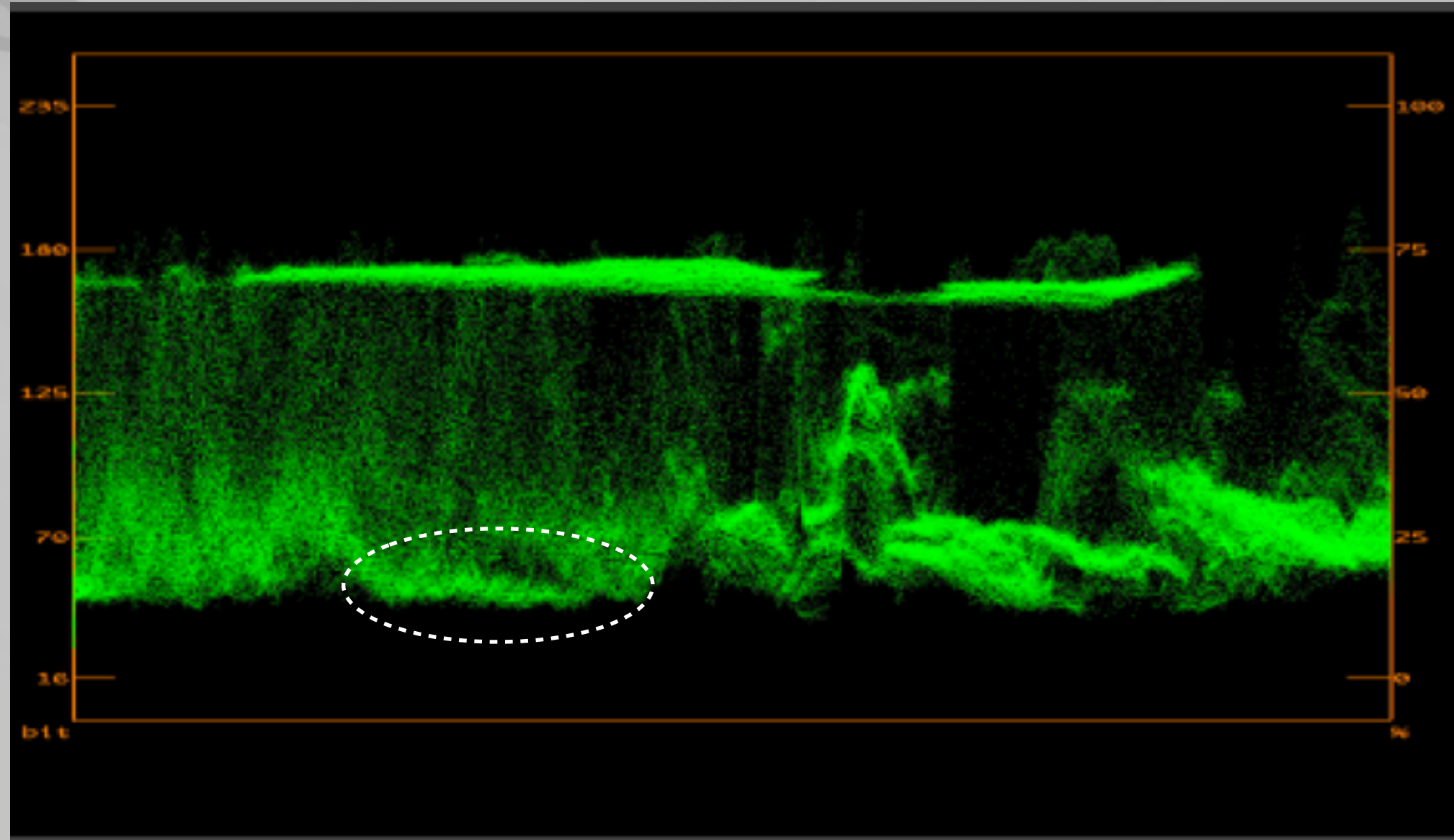
c-400

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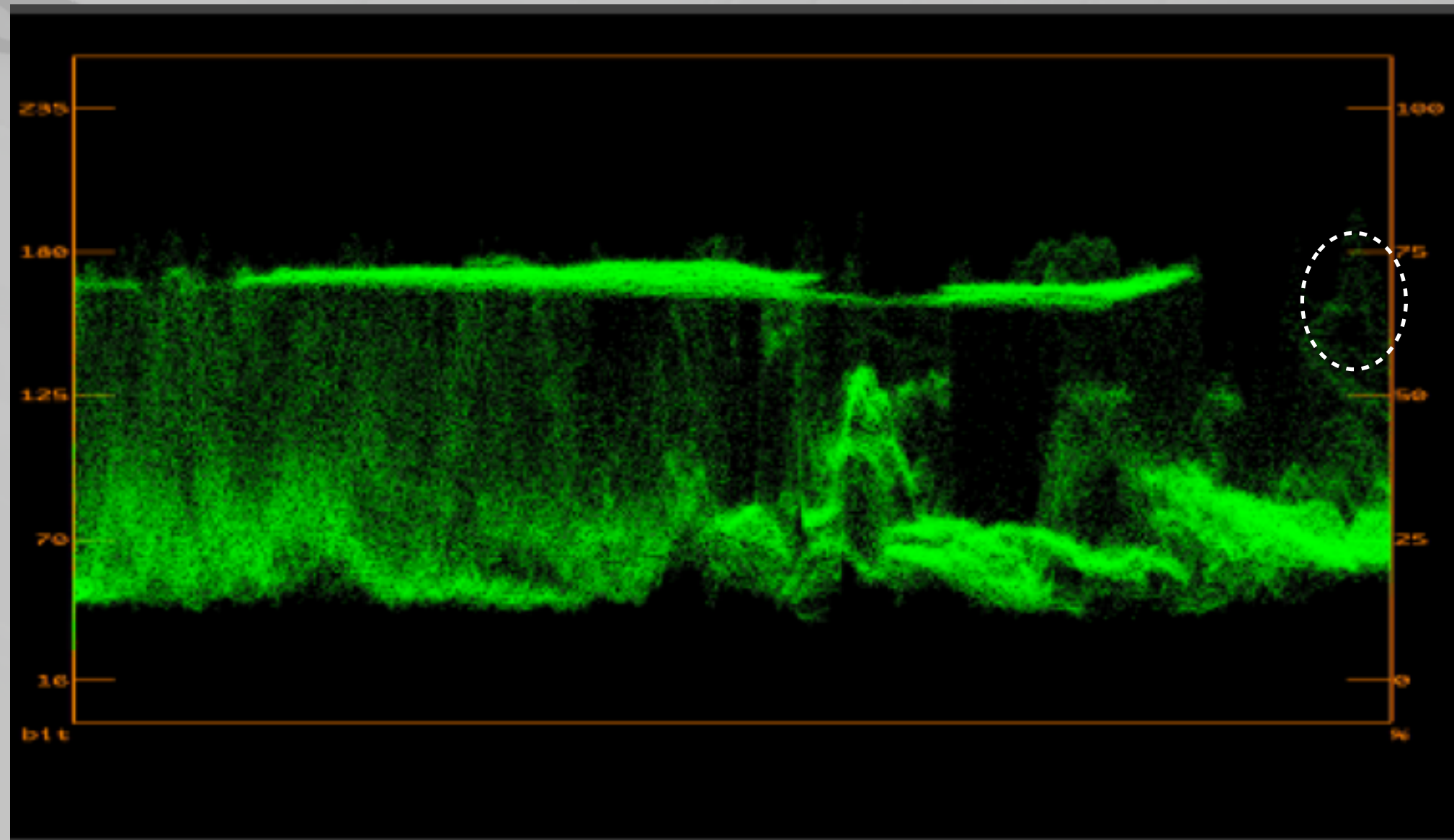
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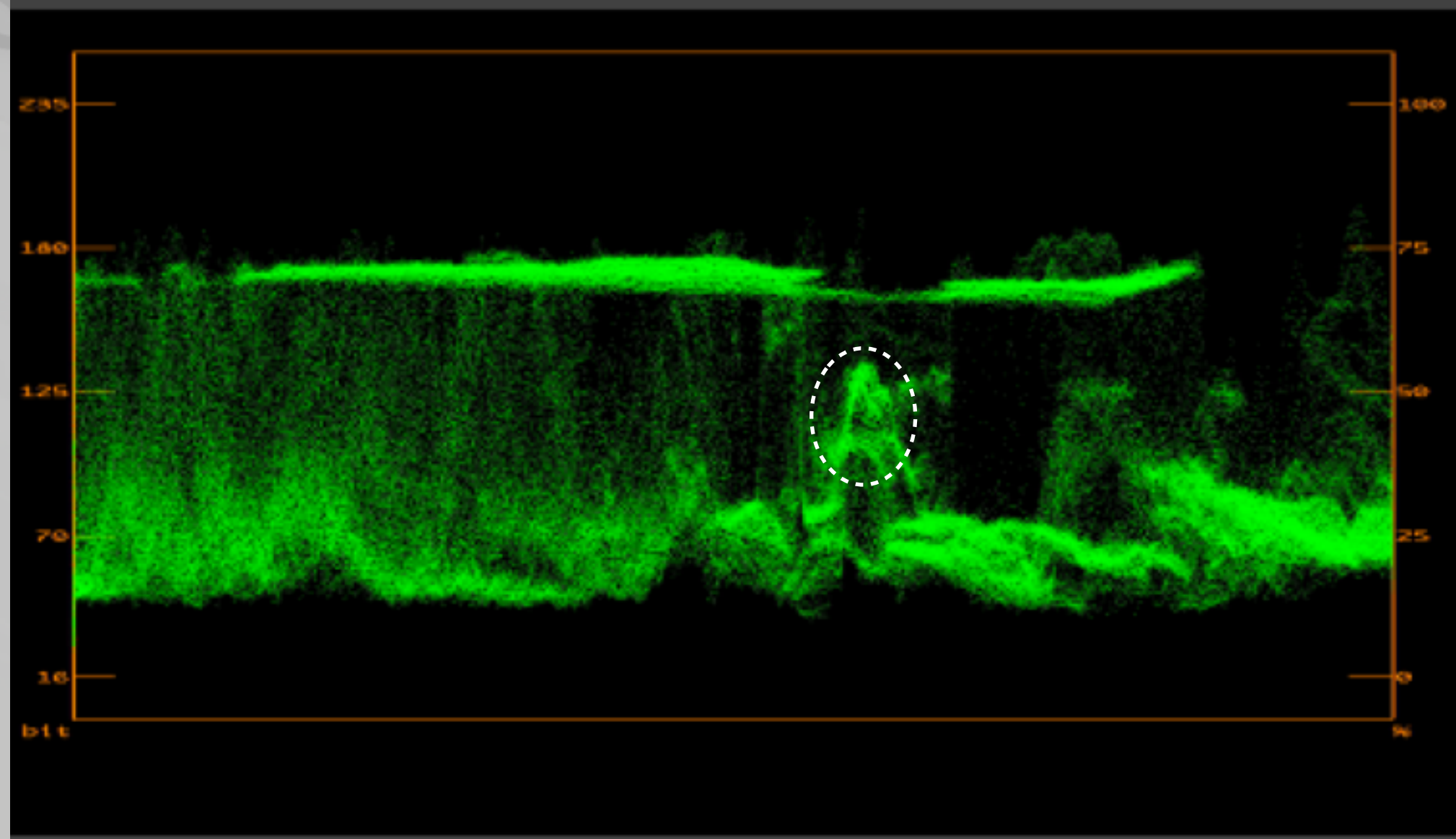
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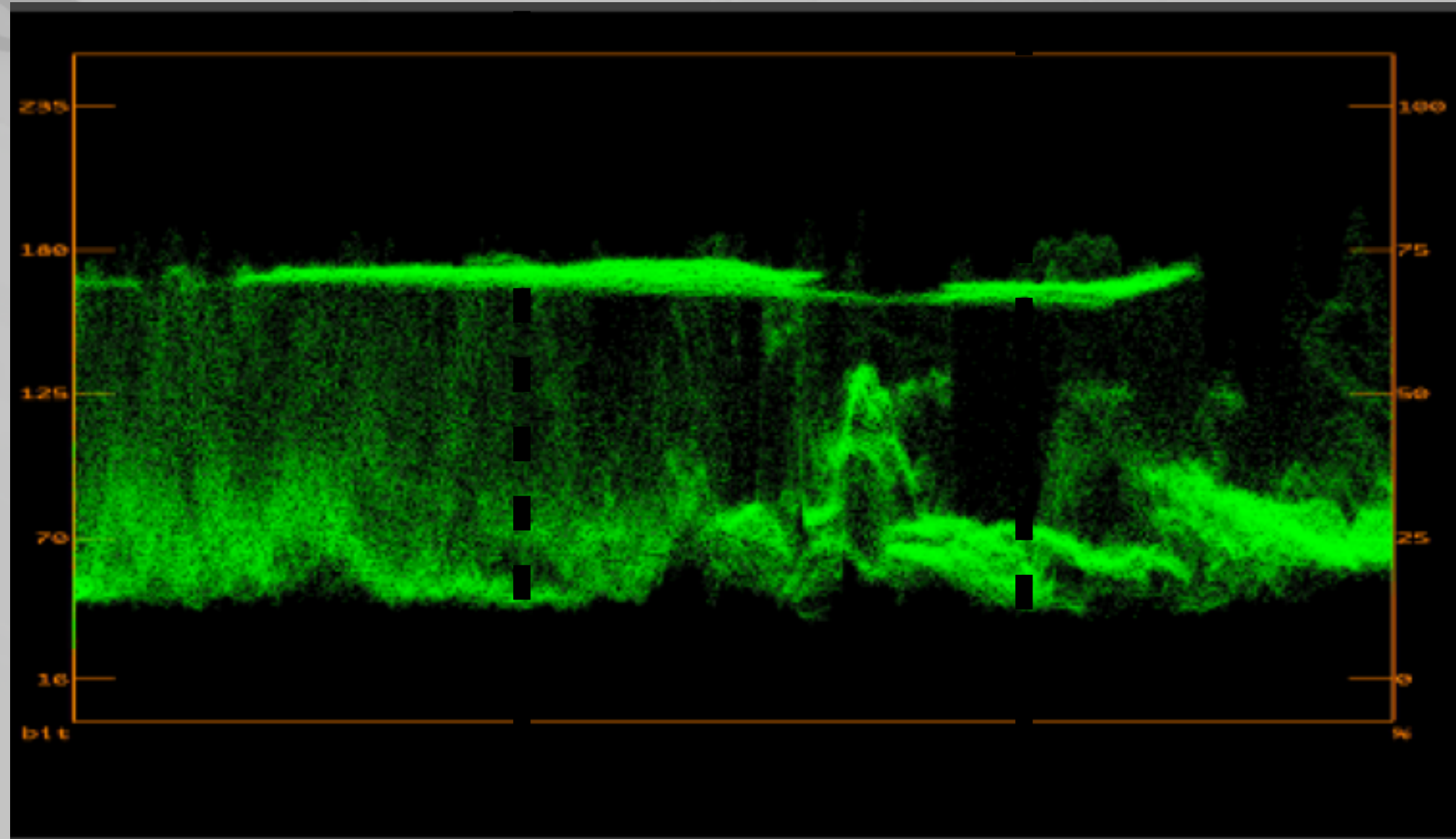
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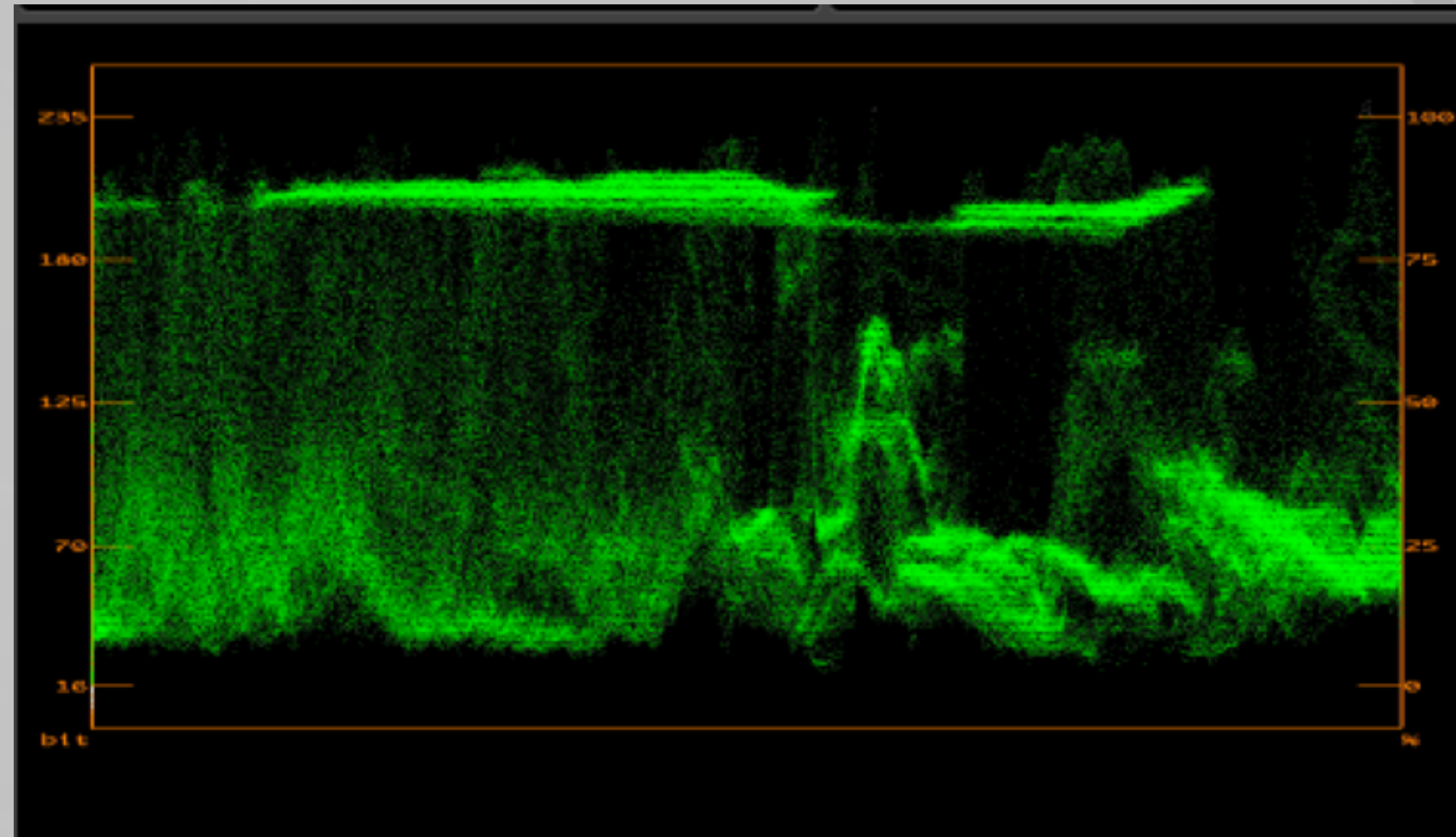
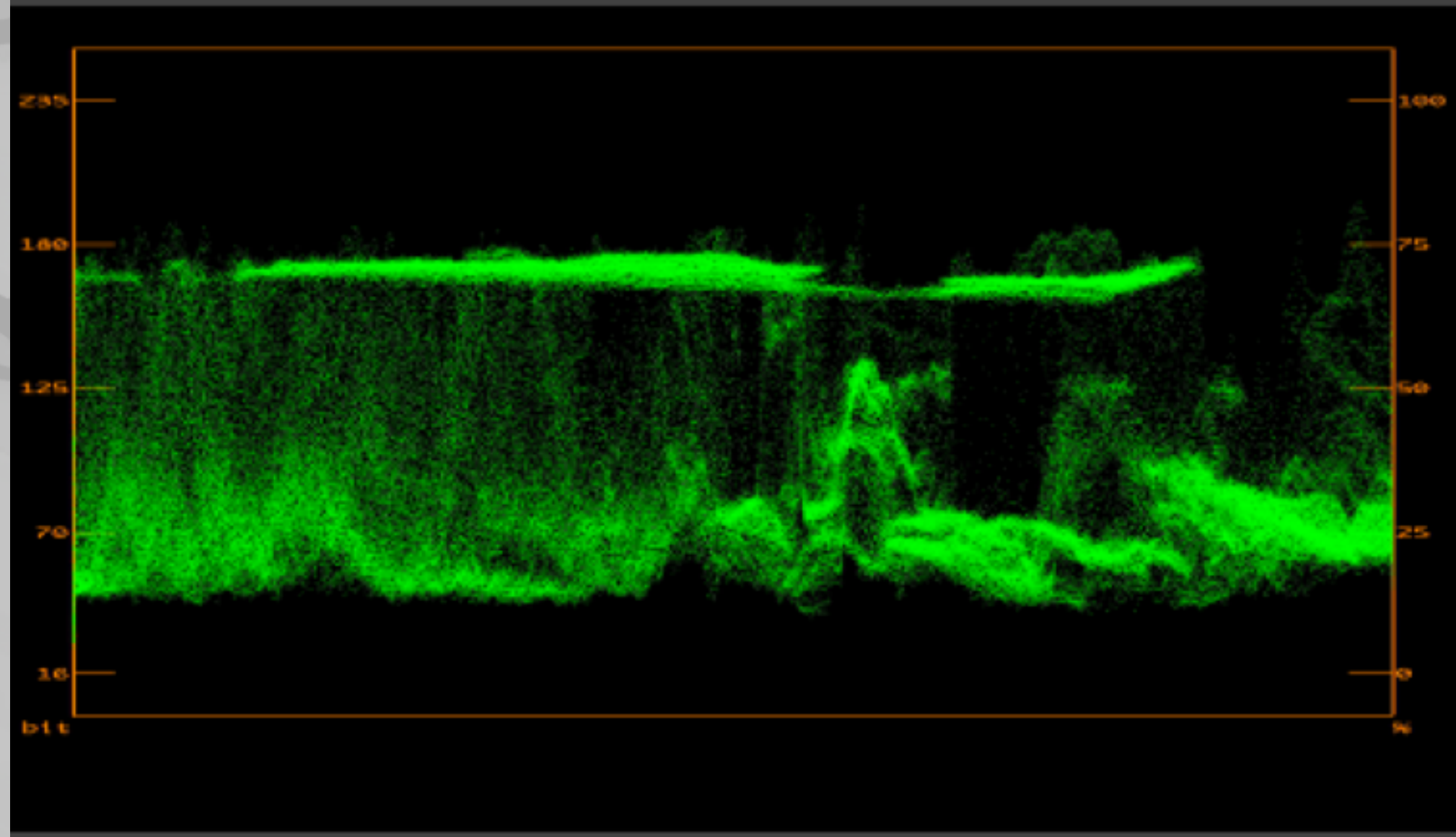
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# Waveform

- Dynamic Range
- Find elements using 3rds
- Think vertically in percentage – normal exposure is ~ 70%

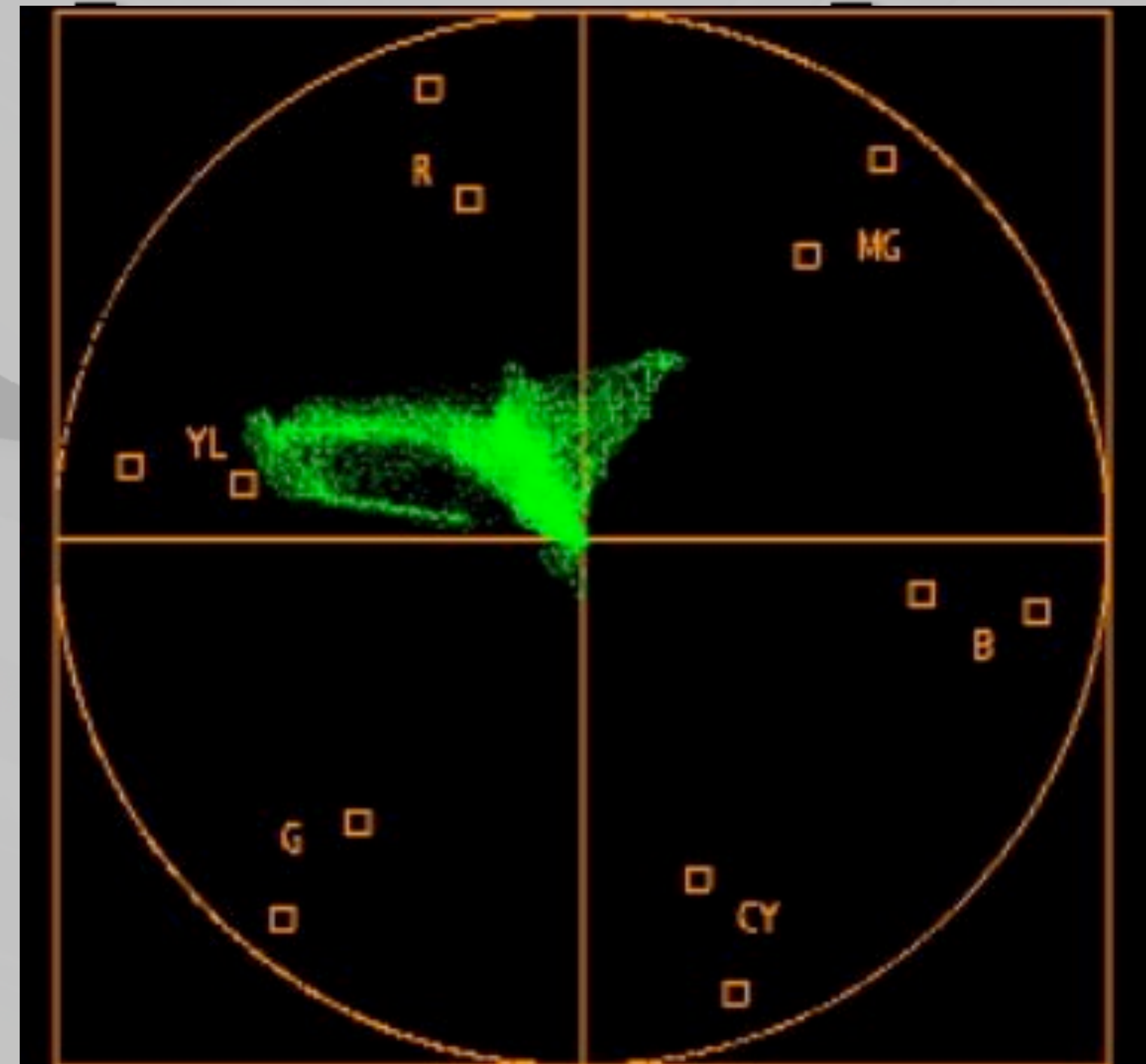


# Vectorscope

No correspondence with the position of the pixels

“Vector” of Colors

Tip Draw an invisible line 1/2 way between Yellow and Red = all fleshtones







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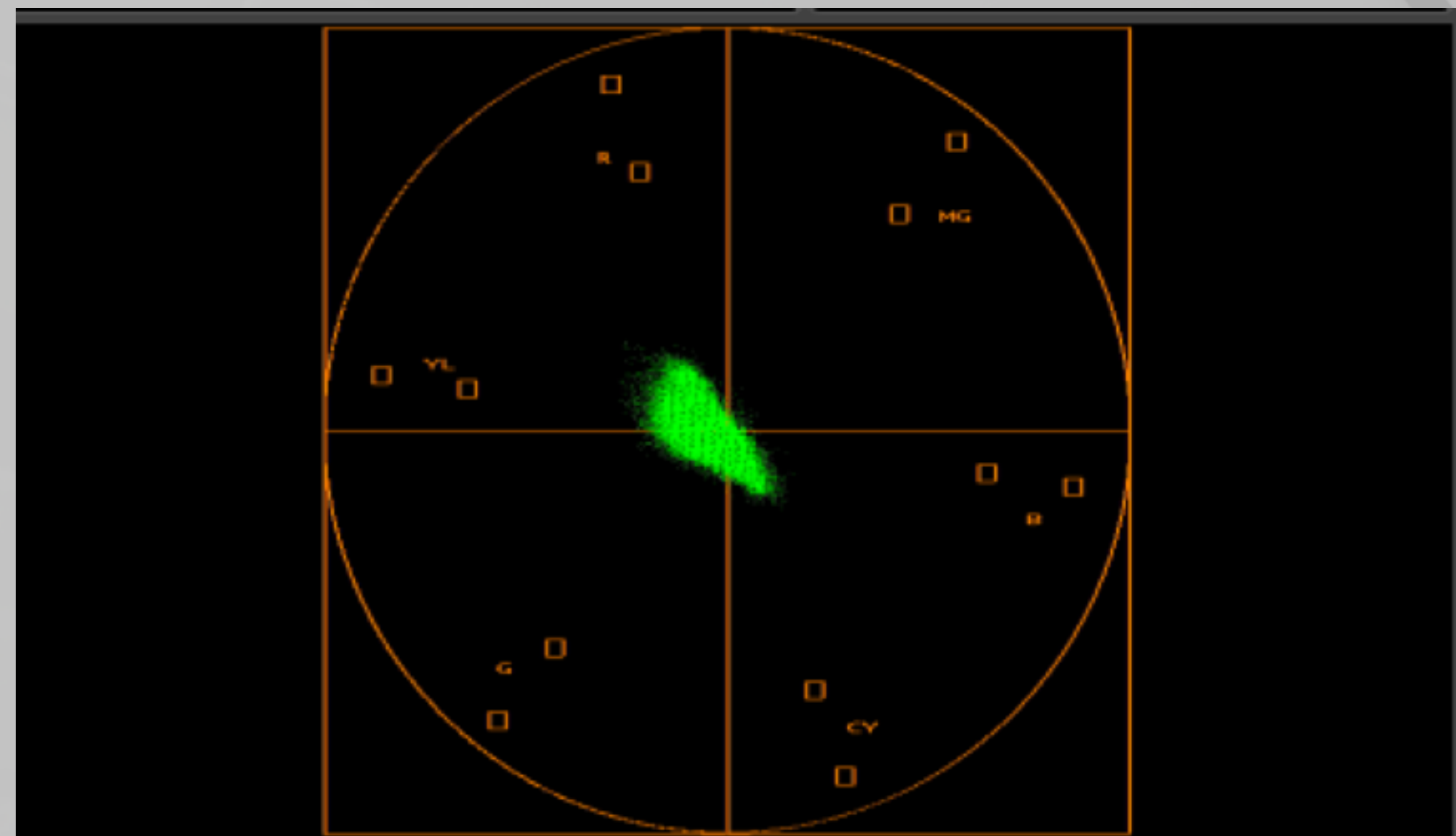
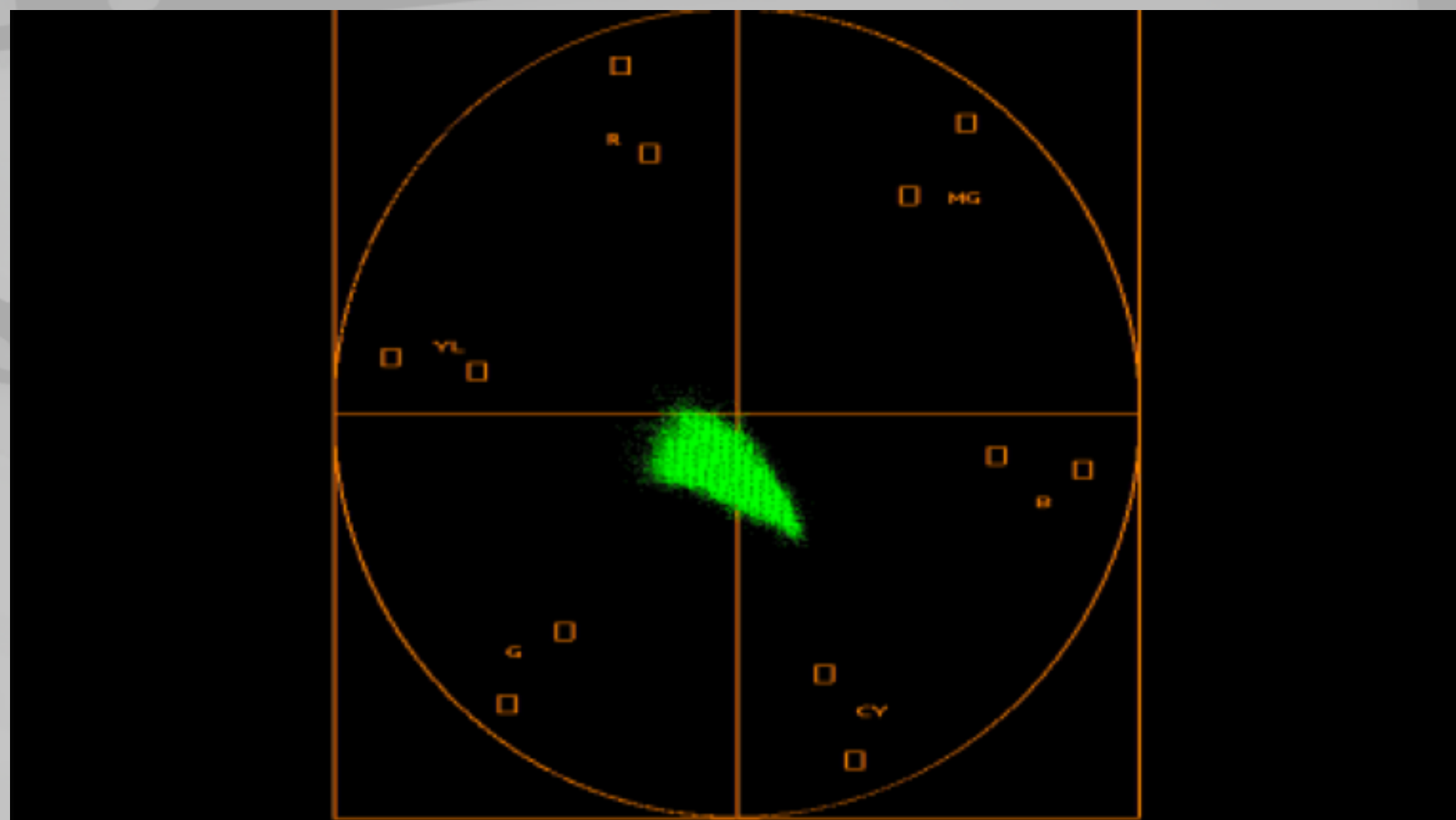
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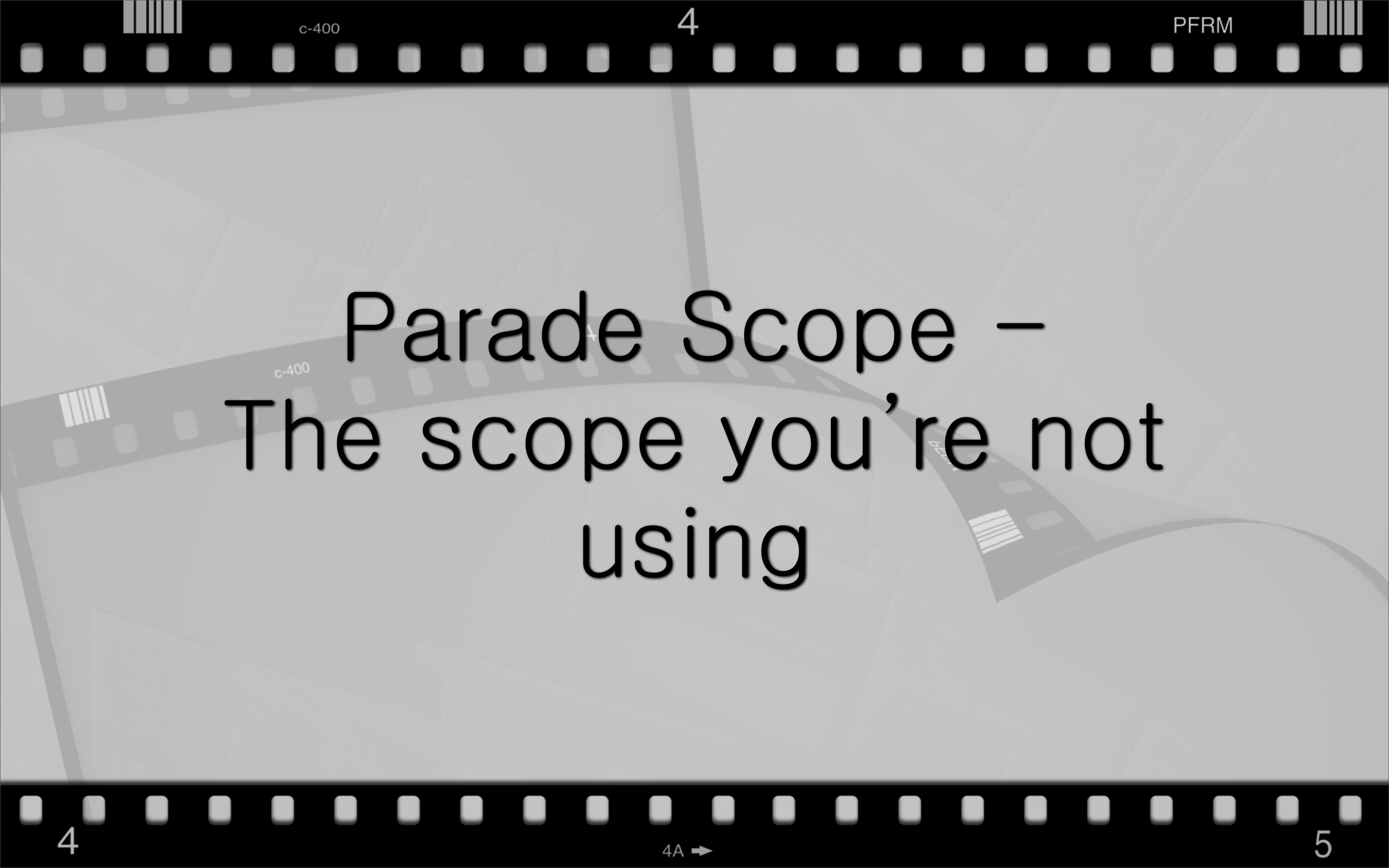




# Vectorscope

- Vectors of Color
- Fleshtones very important
- Can use any effect with crop to help examine
- Overall picture



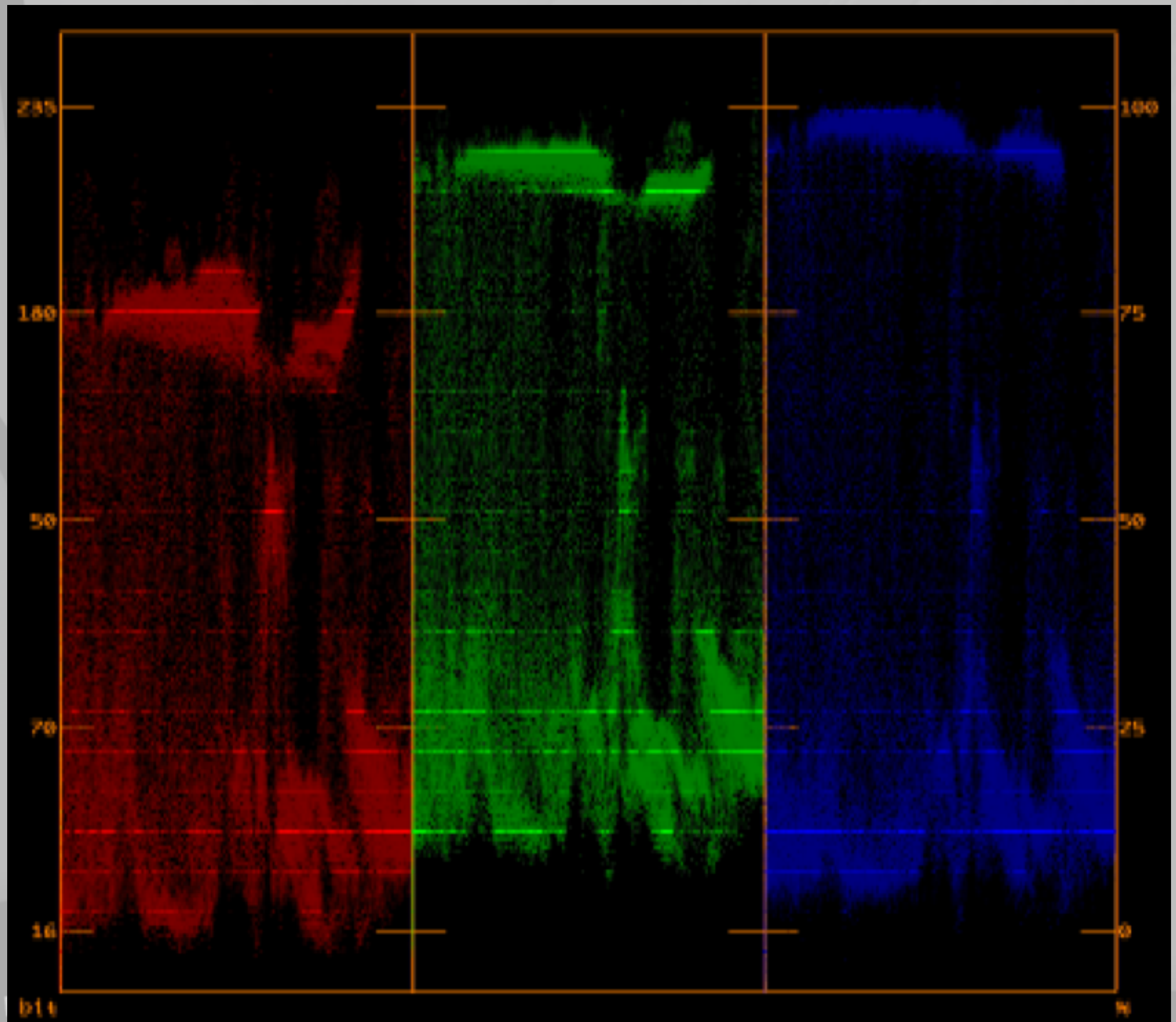


# Parade Scope – The scope you're not using



# Parade Scope

- Like the waveform – but for each channel – R, G, B
- as you approach white/black the 3 channels should be similar







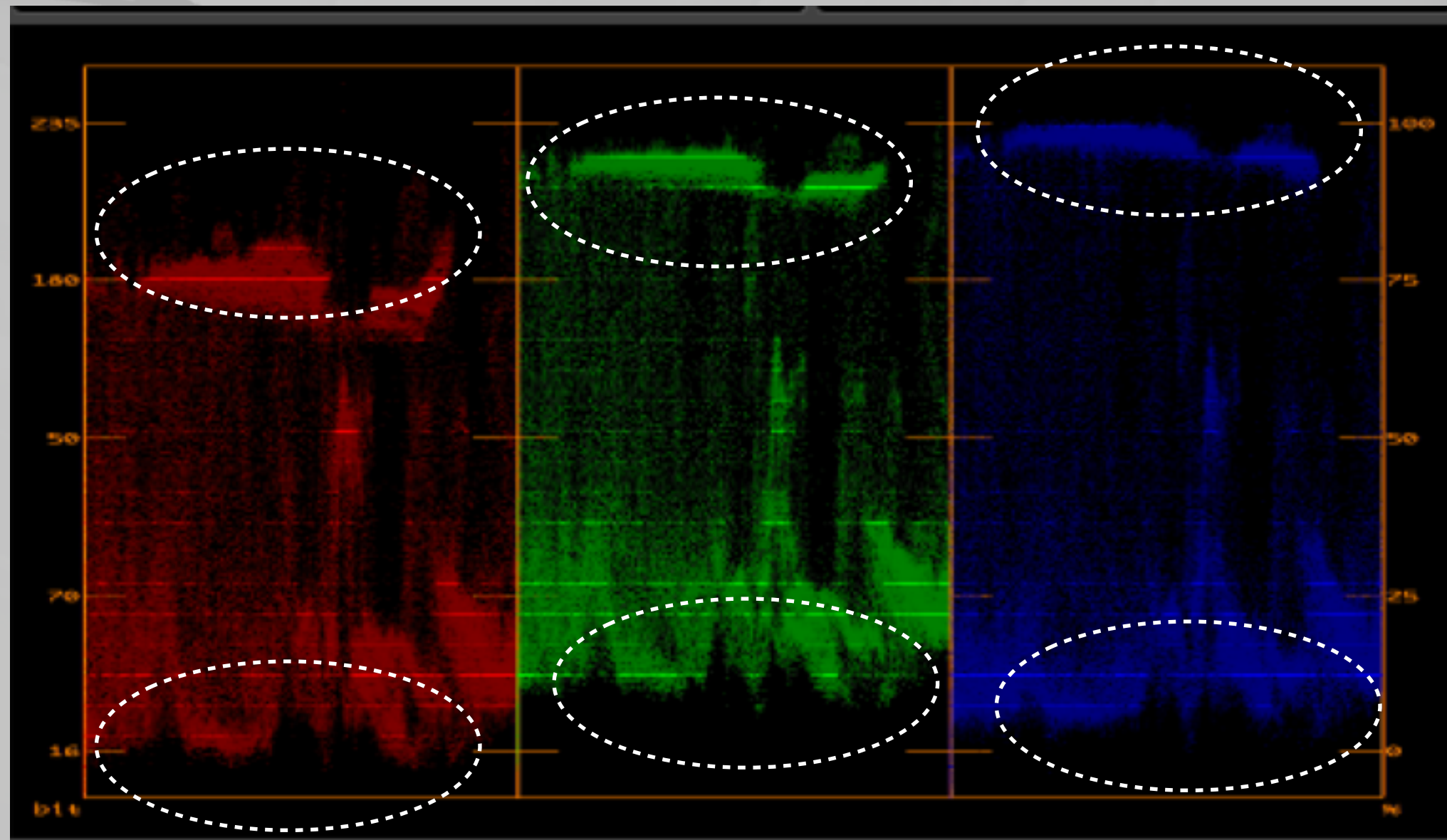
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Fl



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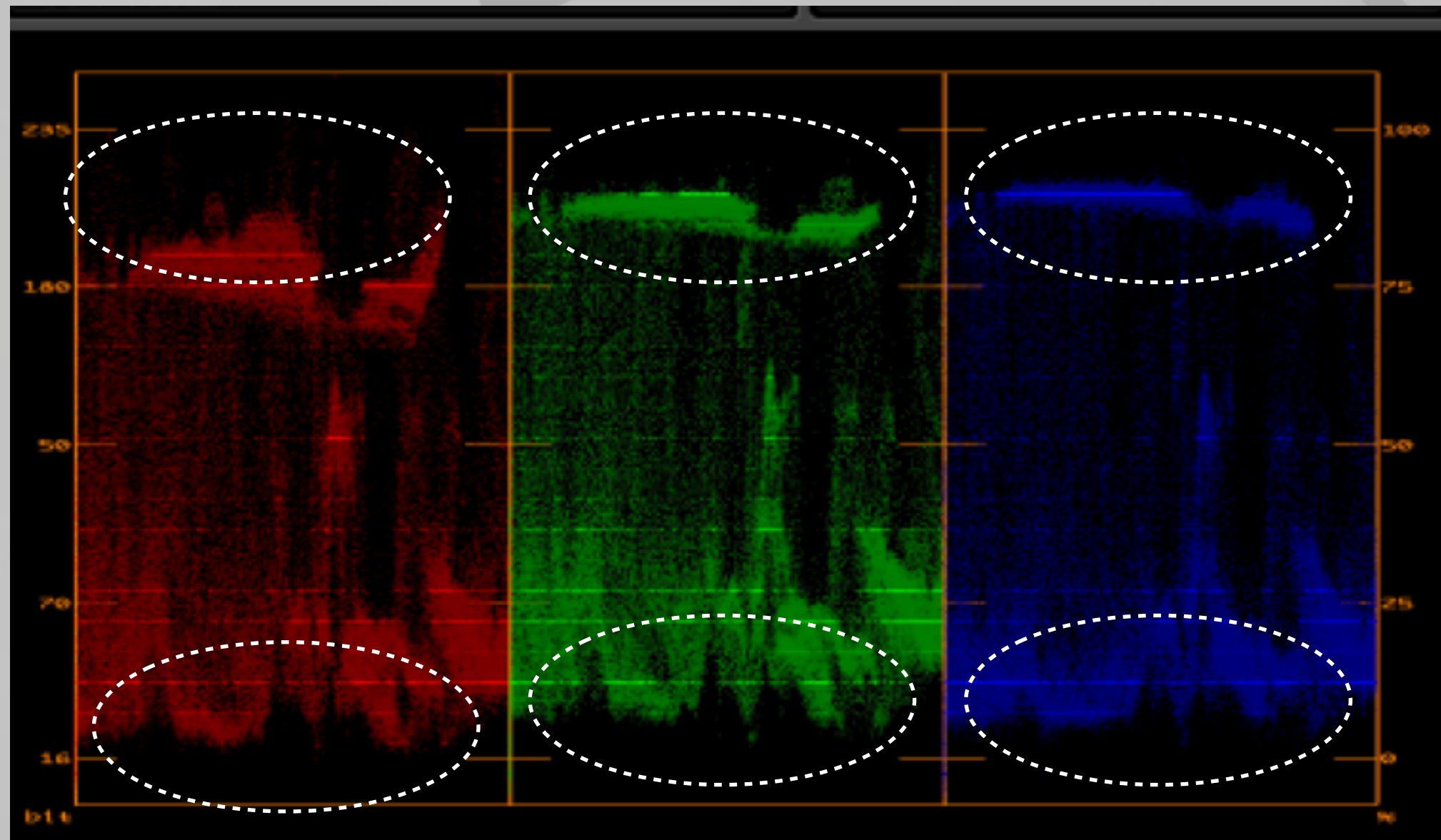
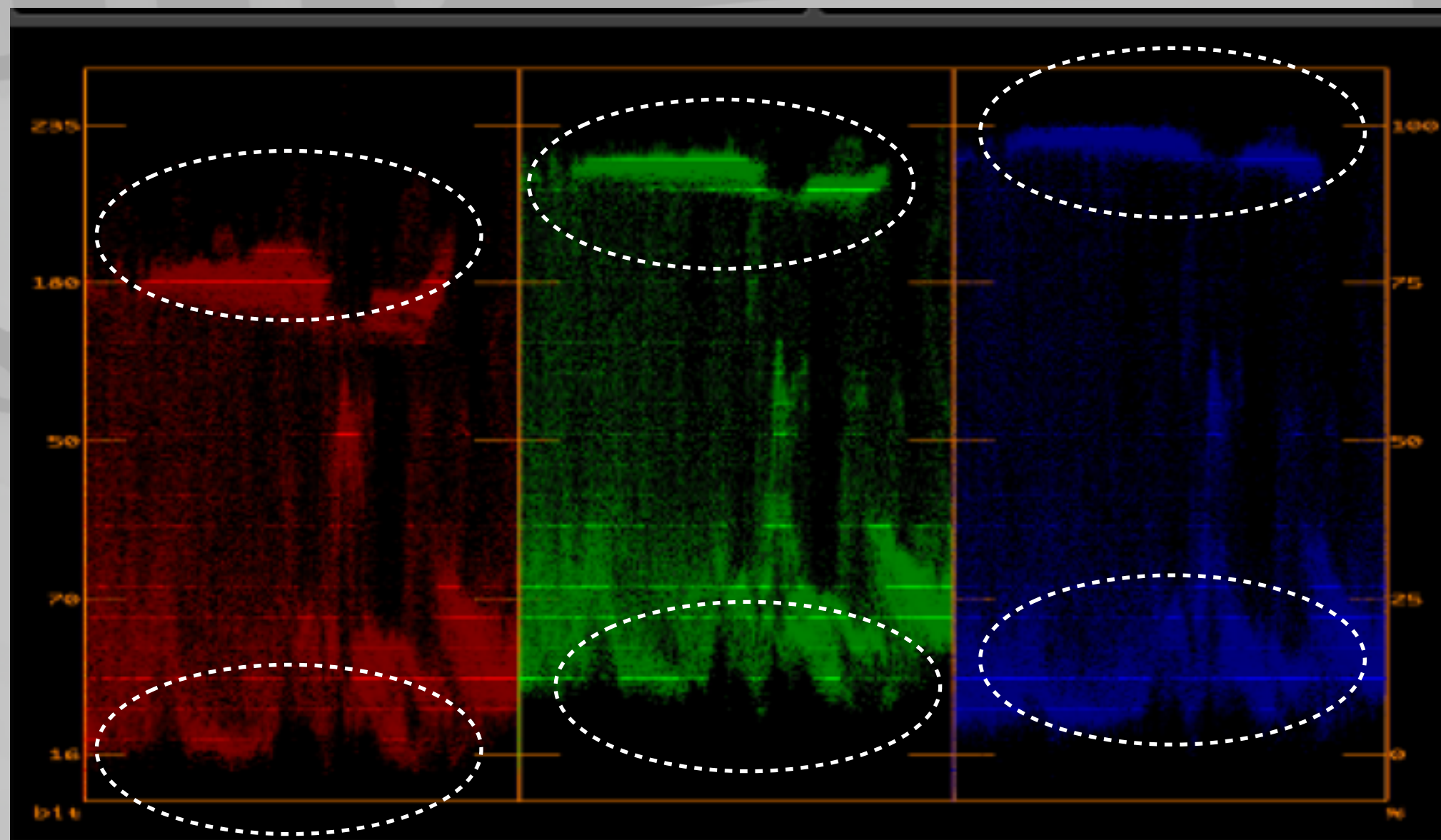
c-400

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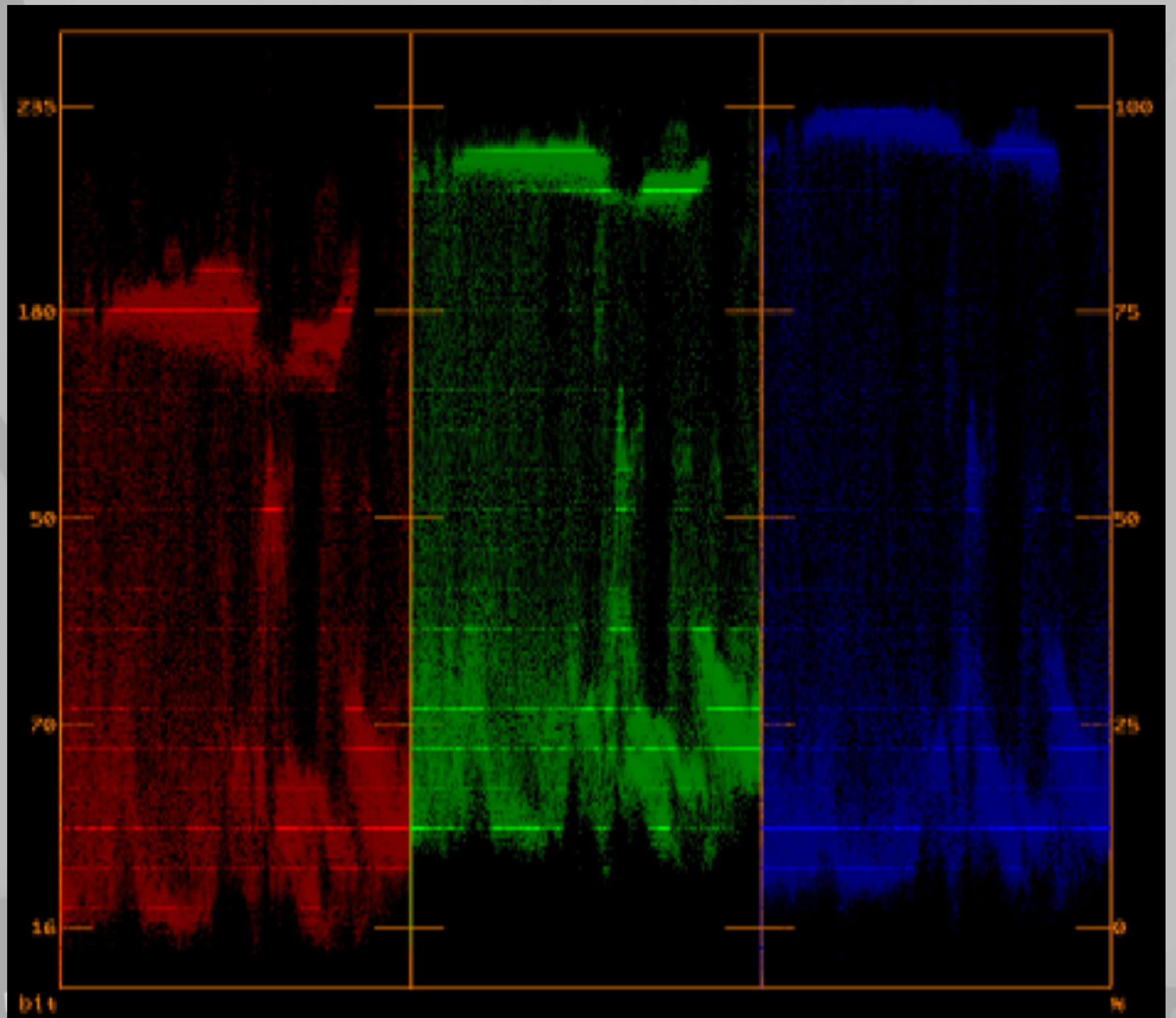
FI





# Parade Scope

- A neutral (grey/white) items should be the same on all
- Fleshtones “descend”







# HSL Controls

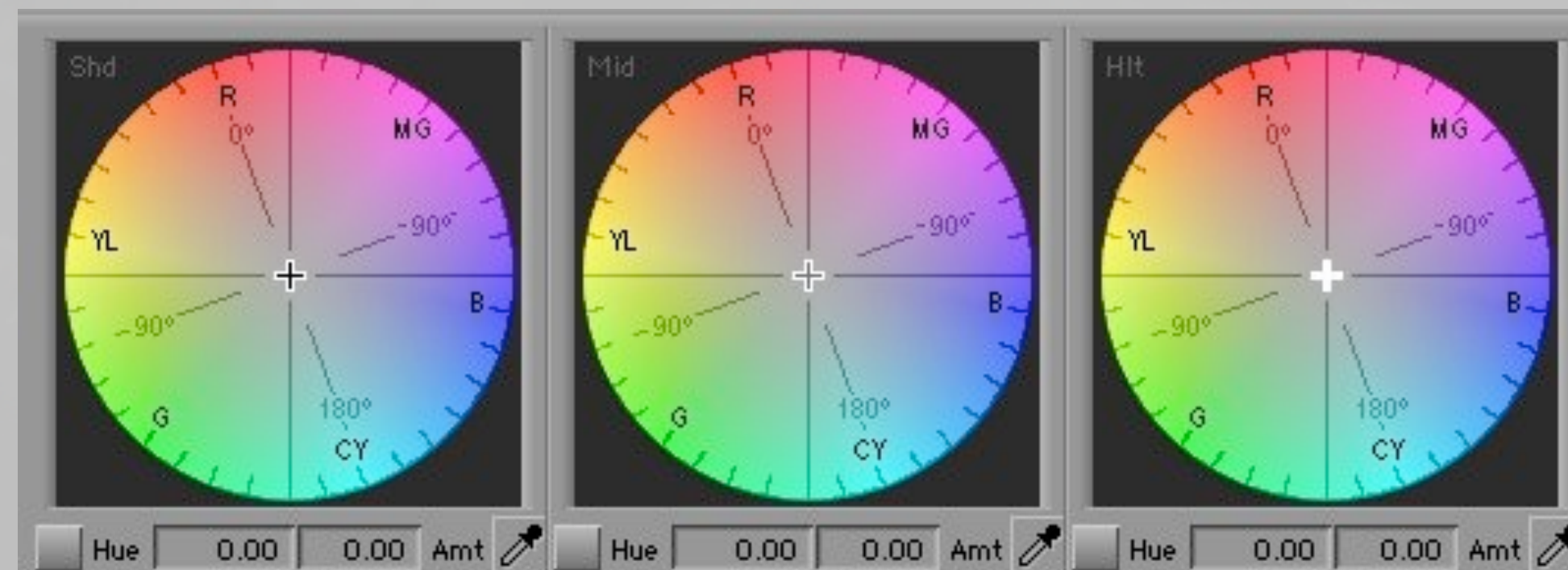




# 3 Ranges Shadows, Midtones, Highlights

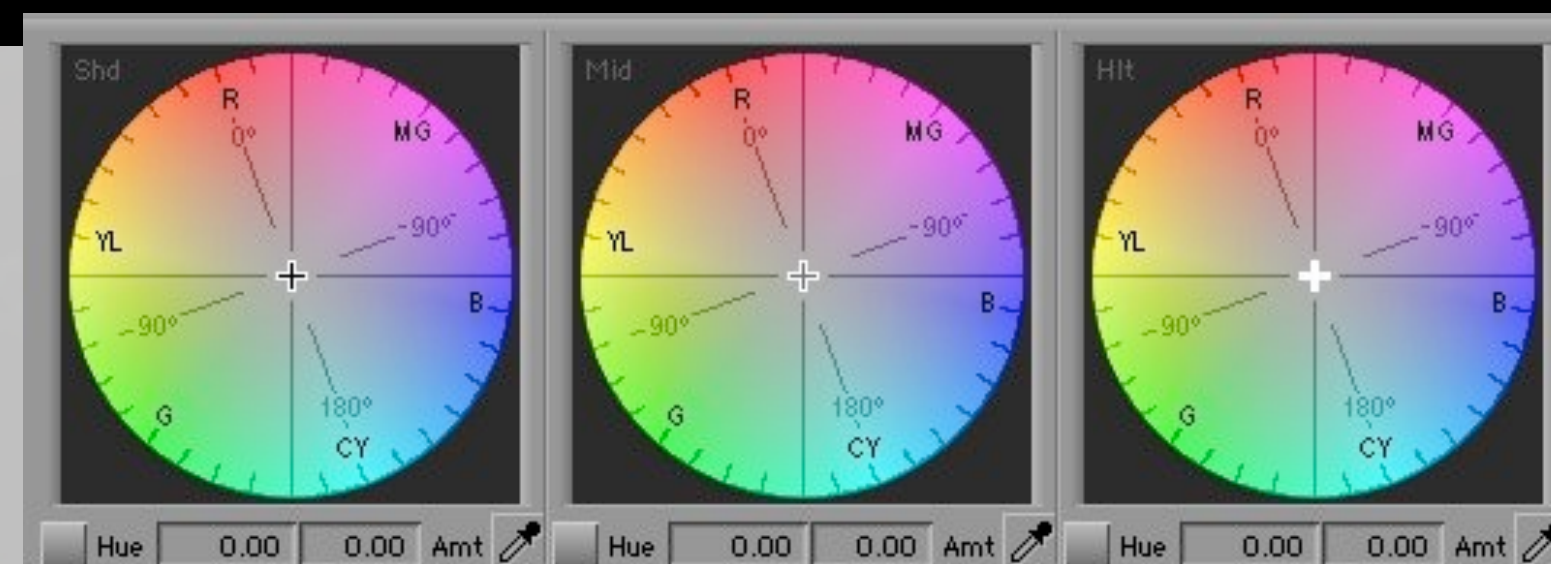
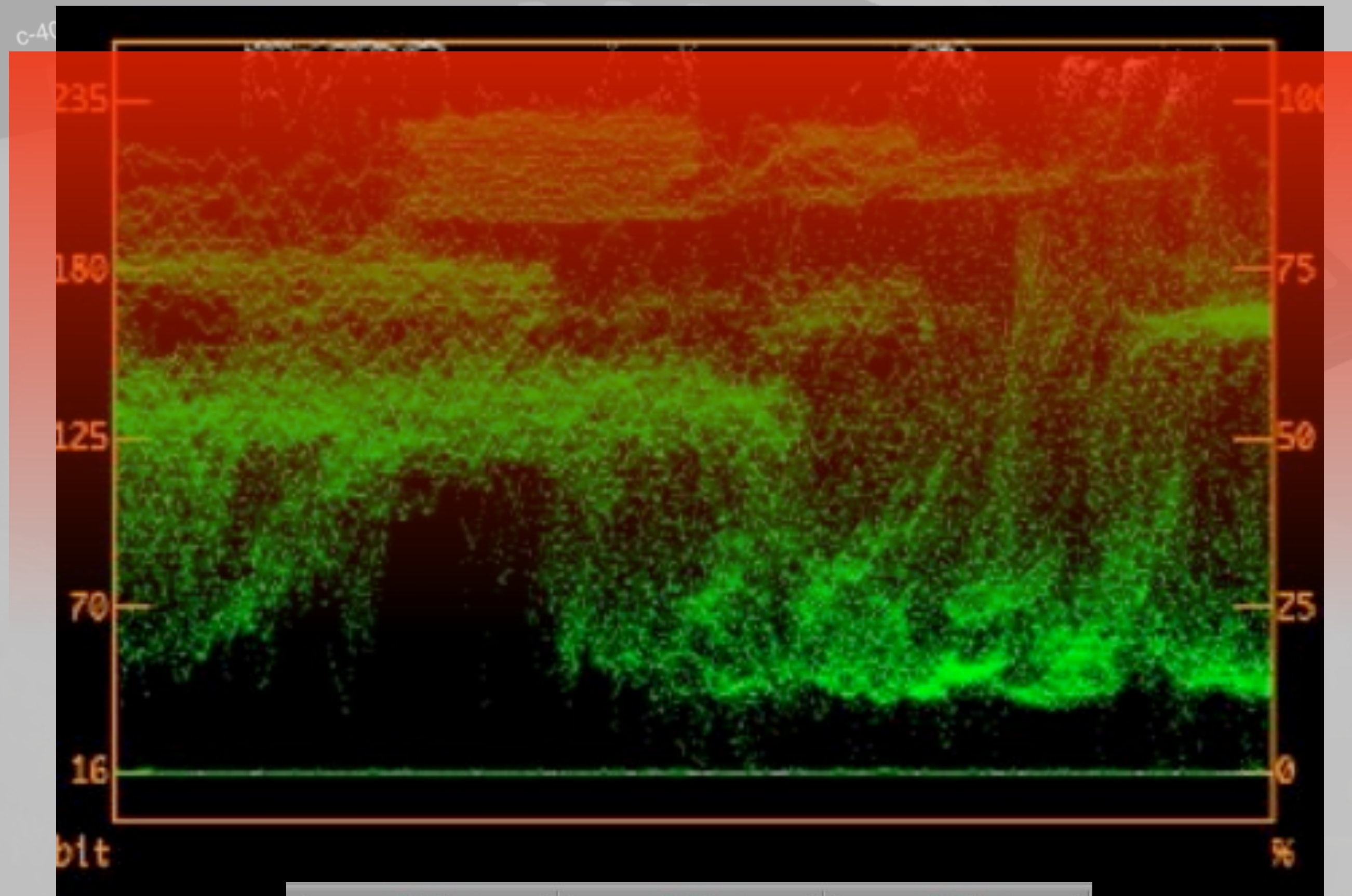


# Shadows, Midtones, Highlights



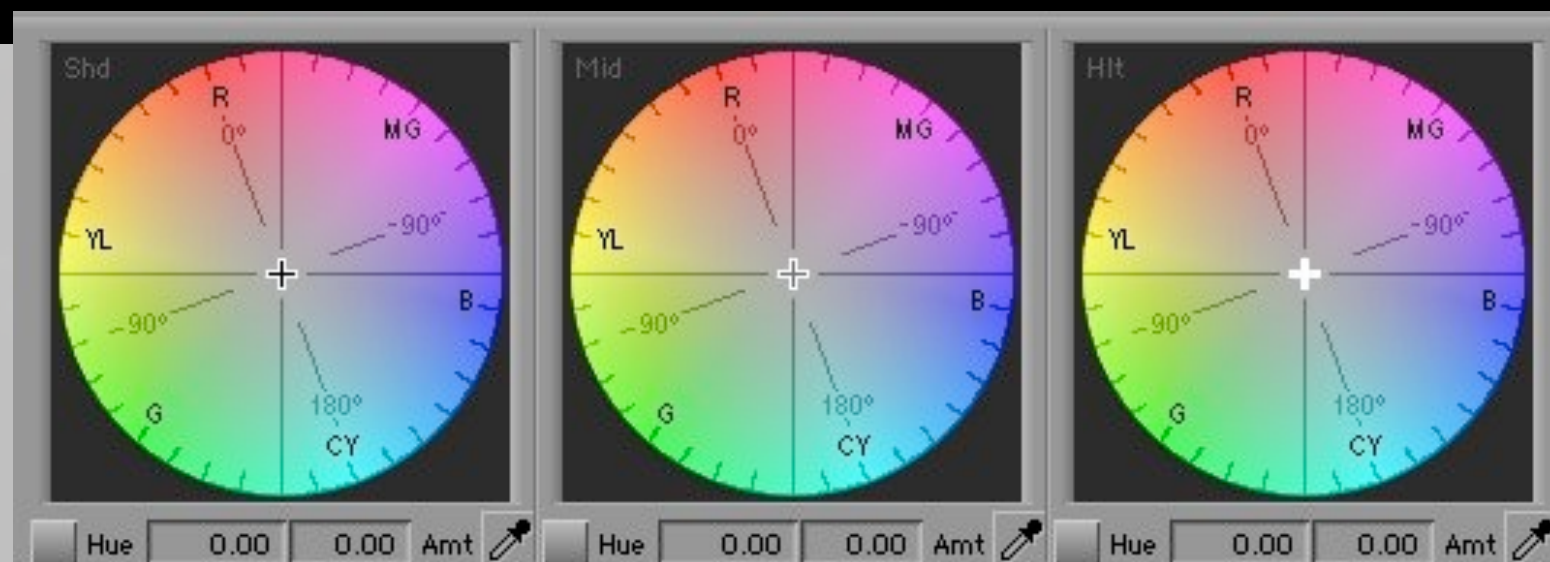
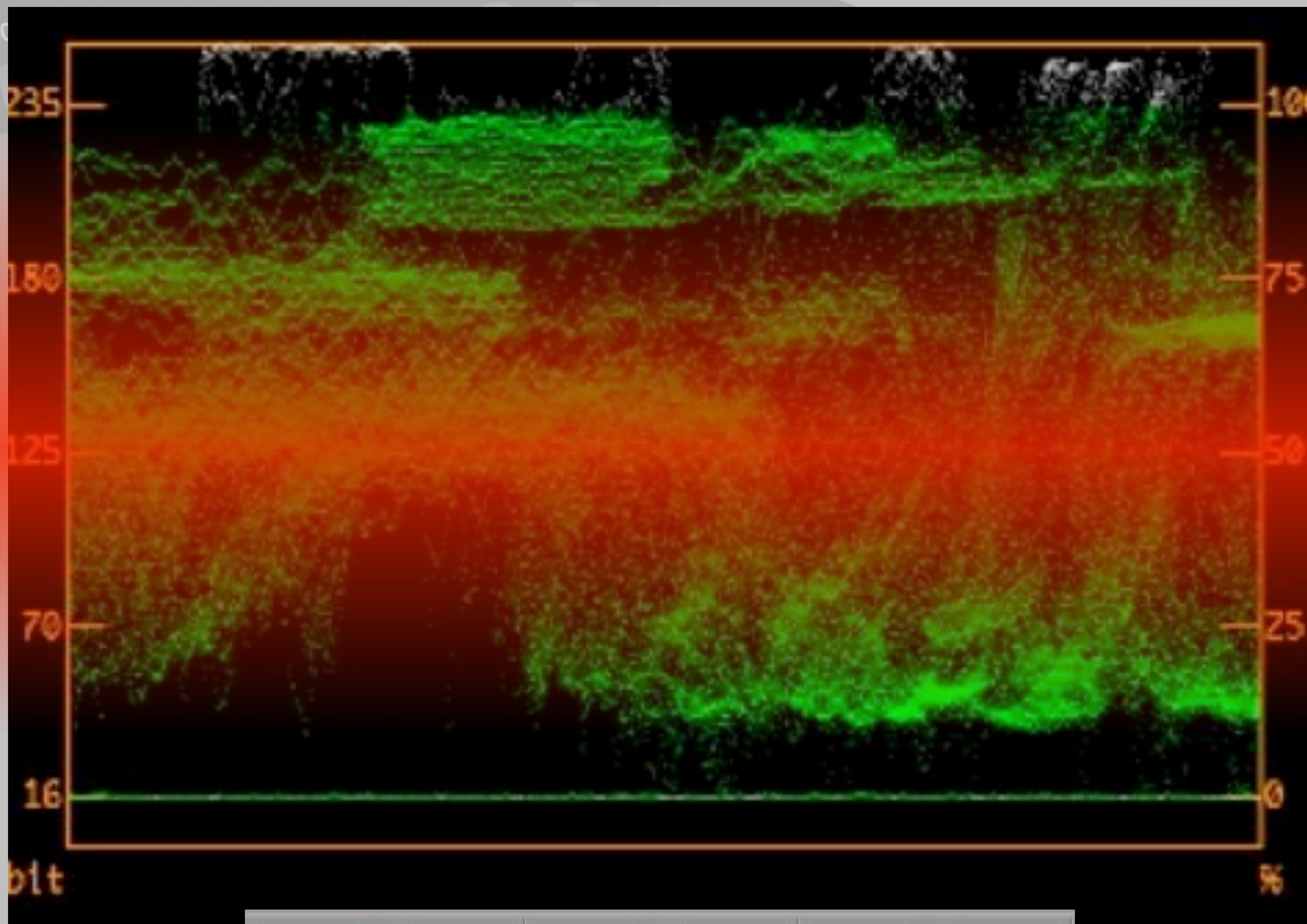


# Highlights



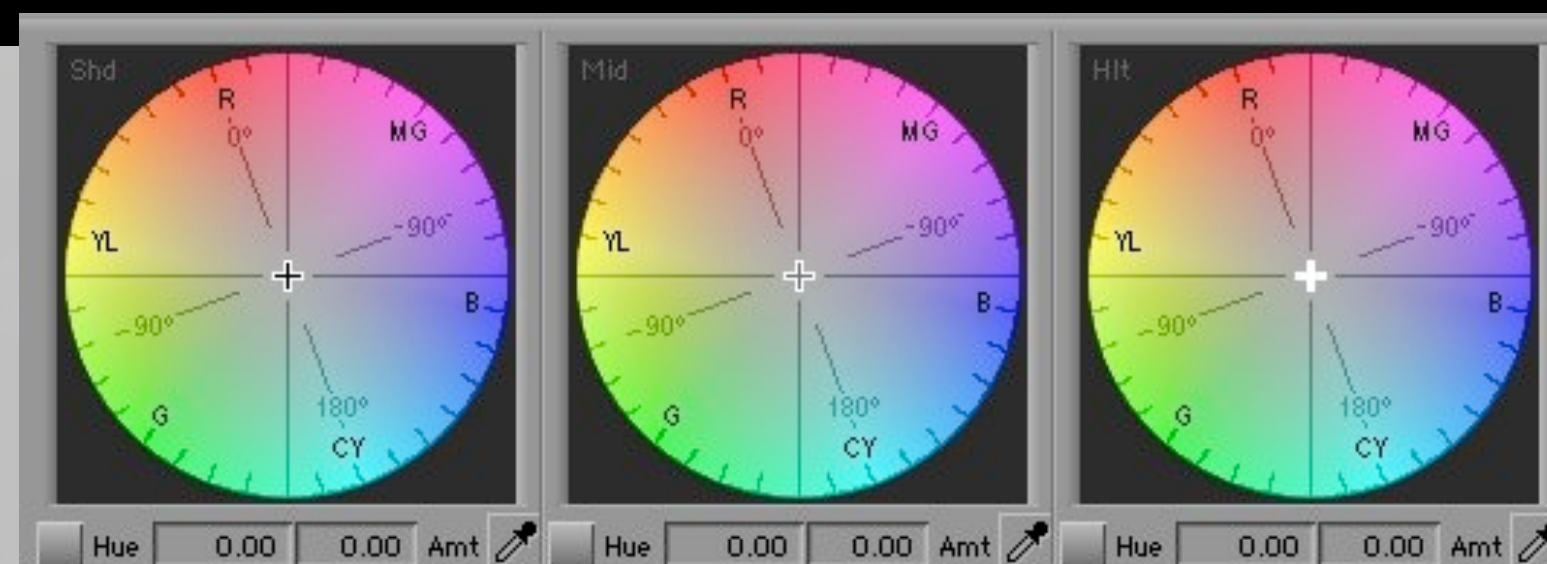
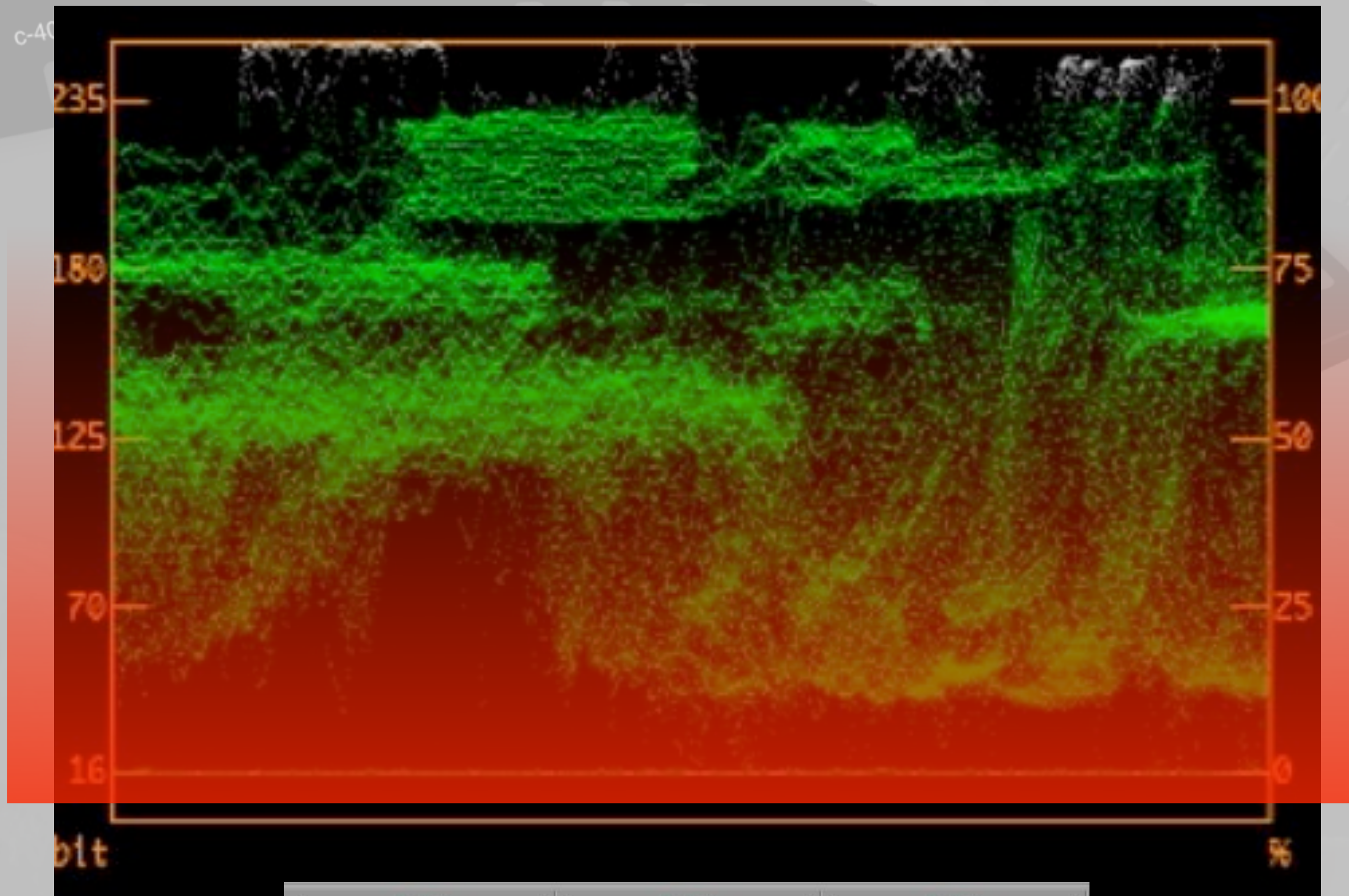


# Midtones





# Shadows







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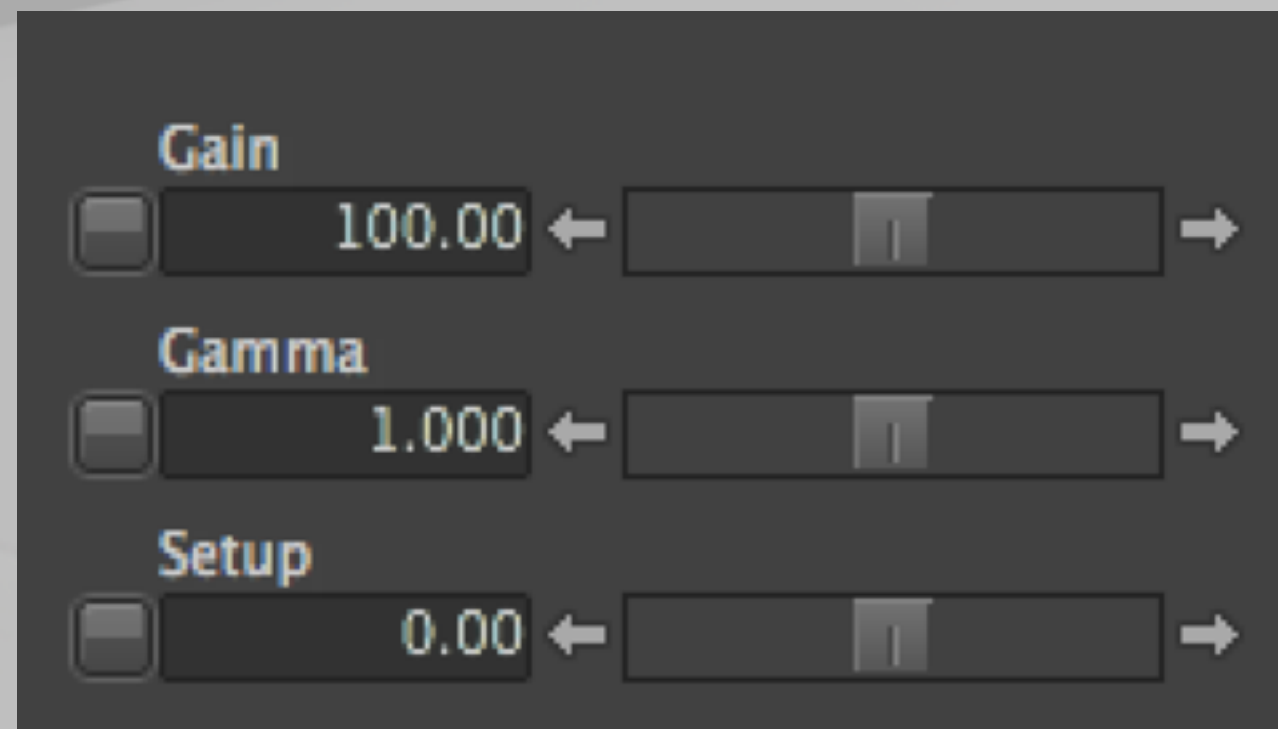
# Order of use

- Luma First
- Then Chroma

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# Luma Controls







# Luma Order

- WAVEFORM
- Shadow
- Highlight
- “Gamma”/Midtones to taste/mood
- Adjust Shadow/Highlight as needed



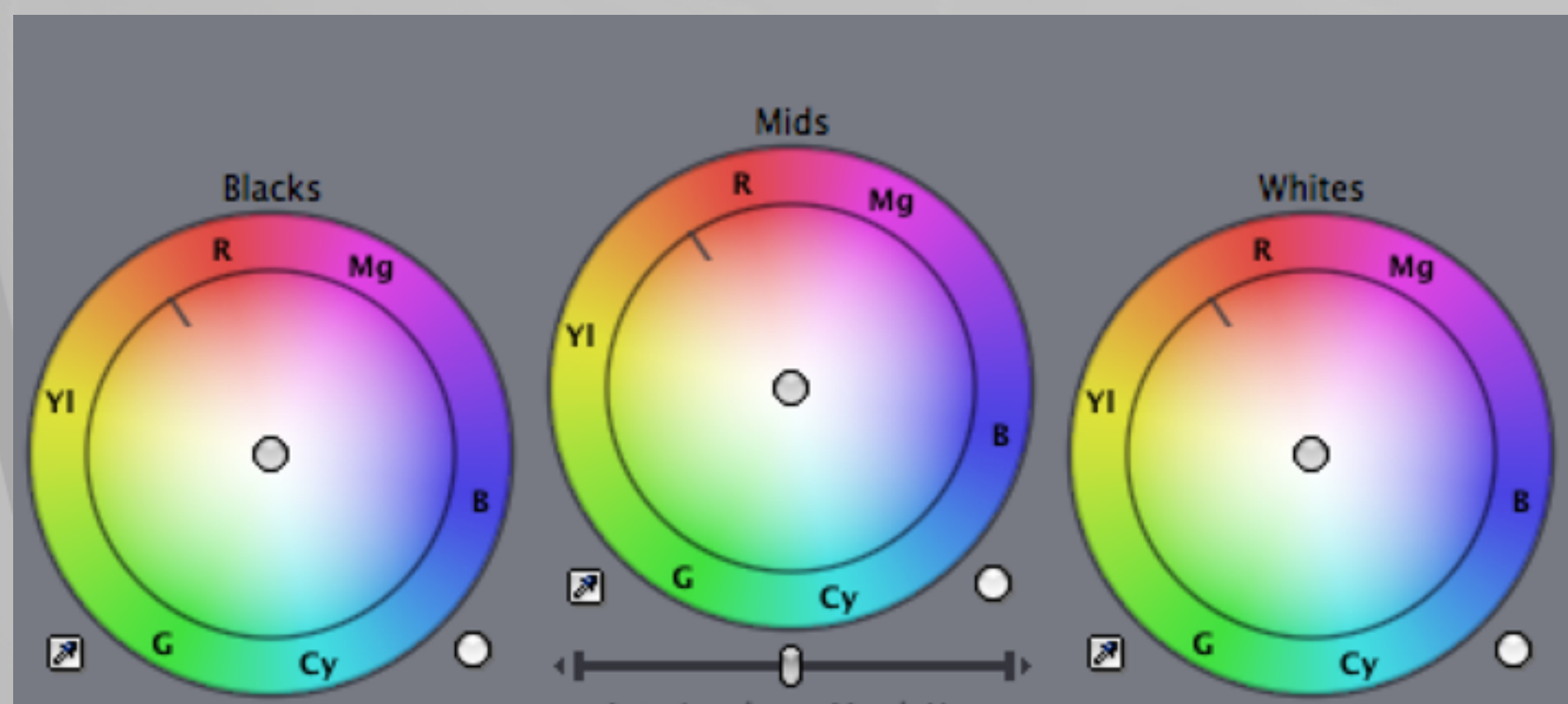
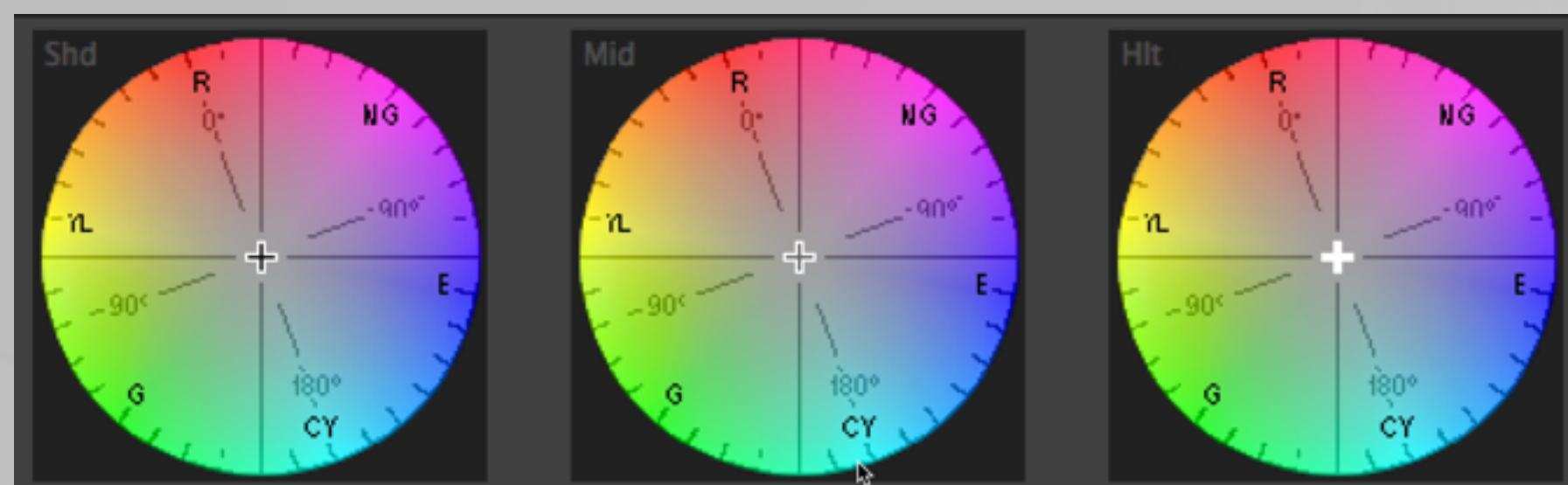


# Luma Auto Corrects

- Use their own 'math'
- Set Shadows/Highlights
- You still have to set Gamma



# Chroma Controls





# Chroma Order

- REVERSE of Luma
- MIDTONES first – Vectorscope
- Highlights/Shadows – Parade





# Chroma Autocorrects

- “Neutralizers” – pick something that should be NEUTRAL and it moves the Color Balance wheels opposite of any measurable color
- Midtones then Highlights then Shadows





# Order Review – Auto

- Contrast (Shadow/Highlights)
- Adjust Gamma/Midtones
- Neutralizers
  - Midtones then Highlights then Shadows
- STILL READ YOUR SCOPES!



# Order review – manual

- Luma

- Shadows then Highlight

- Adjust Gamma/midtones to taste; readjust shadows/highlights as needed

- WAVEFORM

- Chroma

- Midtones – Vectorscope

- Highlights/Shadows – Parade





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# Matching

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# Adobe Premiere Pro

- Hardest
- Watch fleshtone highlights (~70%)
- Try to match dynamic range, if warranted
- Try to match fleshtone saturation



# FCP 7

- The match HUE is a REFERENCE not an ADJUSTMENT
- It changes one wheel (pref midtones) to MATCH the HUE.
- Luma isn't adjusted. Neither is Chroma



# Avid

- Go to curves.
- Change R+G+B on right to NaturalMatch
- Choose left eyedropper from shot. Choose right eyedropper to what you want it to match
- Press Natural Match





# Secondaries

- Ability to fix/adjust PART of a shot
- Key Based
- Shape Based





# Key based

- Set a color – only effect that color
- ...or the reverse of that color
- FCP7 – limit effect
- Premiere Pro – Secondary
- MC does not have (Symphony), use BCC correct selected (non RT) or BCC Color Correct w/ Pixelchooser on (requires understanding of pixelchooser)



# When in doubt, add broadcast limiter

- Avid: Safe Colors
- Adobe Premiere Pro: Broadcast Colors
- FCP 7: Broadcast Safe





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# Closing



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# Jeff I Greenberg.com

Master Trainer

Adobe

Apple

Avid



**Jeff @ JGreenbergConsulting.com**

needs logos

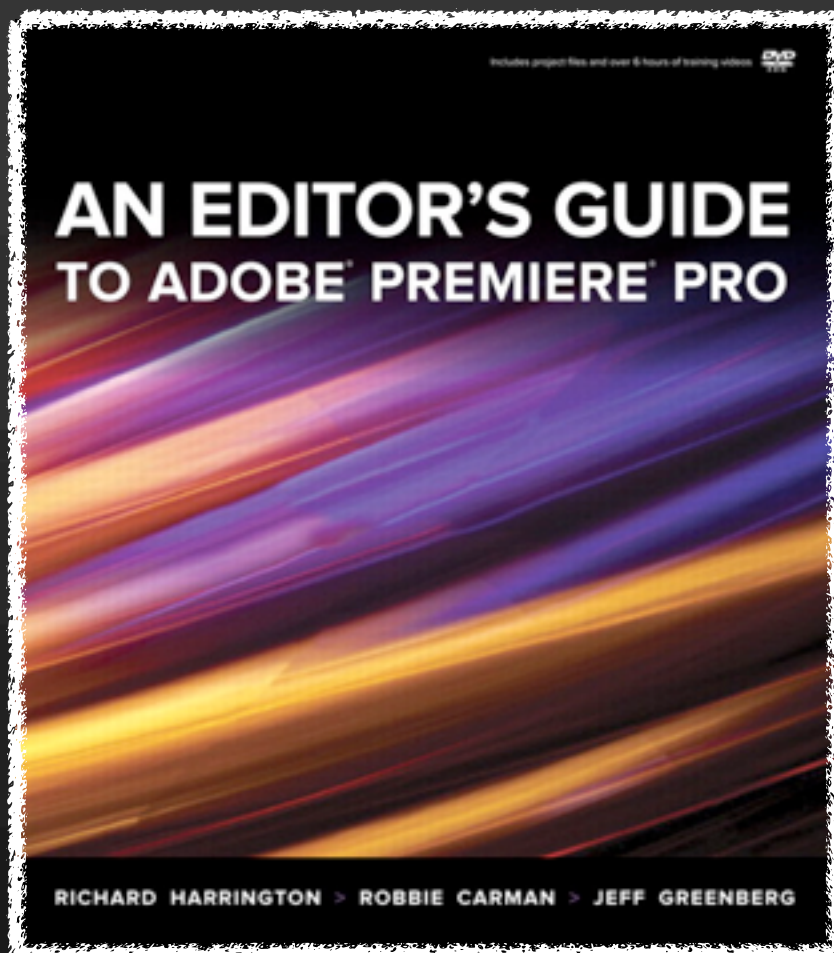
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