

<div>HISTOGRAM TRANSFORMS (Version 2) USER-MANUAL for Photoshop by RONC © 2019 03 Oct 2019 (E-MAIL)</div>	
<div>PHOTOSHOP SCRIPTS and PLUGINS by RONC</div>	
<div><div>HISTOGRAM TRANSFORMS</div><div><p>This Photoshop Script and Plugin allow the user to compute and display various types of histogram transforms of the input image.</p><p>The term HISTOGRAM is used in a couple of ways. It is used in mathematics and statistics to represent the distribution of some attribute of an item. It also refers to the method of displaying those attributes. Please search the Web for more on the HISTOGRAM.</p><p>Partitioning or binning of the histogram display is always a major stumbling block. The choice was made to use either the width or height in pixels as the number of partitions and the partition width fitting the data range. None of the published schemes for partitioning worked on all the tested datasets. No data is lost but zero level partitions are present and must be ignored by those viewing them.</p><p>In performing the Histogram, information is lost in an effort to compact the output display. The Photoshop javascript and plugin are designed to generate various types of HISTOGRAM usage on images. The Basic Histogram is equivalent to what Adobe and others offer in their image (photo) processing software. From the Basic, there are other types which display the distribution information in various forms and preserve more of the original image's information. Two new display methods, Isotropic Range and Cumulative Range, are included and preserve the positional information as well as the attribute measured.</p><p>The Basic Histogram is both qualitatively and qualitatively while the others are used mainly qualitatively. From the multi-modal shapes to the thumbnails of the new displays, quality of the input image is gleaned. Even though the displays are 2-D in nature, the algorithms to build the displays are: 1-D for Basic, X, Y, R, C; 2-D for 2-D XY; and 3-D for 3-D Bit Plane, 3-D Isotropic Range Histogram (RONC © 2019) and 3-D Cumulative Range Histogram (RONC © 2019).</p><div><div>WIKI Histogram</div><div>How to Read and Use Histograms</div><div>Of Histograms and Waveforms darktable</div><div>WIKI Clipping</div><div>Partitioning/Binning Histograms</div></div></div></div>	
<div><div><div><div>HOME PROCESS DIALOG/RECAP</div><div><div>IMAGE Examples:</div><div><div>SYNTHETIC 1 page 1 (1-D) page 2 (3-D) SYNTHETIC 2 SYNTHETIC IMAGES</div><div>LENA HISTOGRAM page 1 (1-D and 2-D) page 2 (3-D)</div><div>TRI-MODAL HISTOGRAM page 1 (1-D) page 2 (3-D)</div><div>Information:</div><div>INSTALLATION/REMOVAL/EXECUTION(Use)/DOWNLOAD GLOSSARY</div><div>COPYRIGHT CONTRIBUTORS/COMMENTS/ABOUT</div></div></div></div></div></div>	

HISTOGRAM TRANSFORMS

This Photoshop Script and Plugin allow the user to compute various types of histogram transforms of the input image.

[HOME](#) | [PROCESS DIALOG/RECAP](#)

IMAGE Examples:

[SYNTHETIC 1 page 1 \(1-D\)](#) [page 2 \(3-D\)](#) | [SYNTHETIC 2](#) | [SYNTHETIC IMAGES](#)

[LENA HISTOGRAM page 1 \(1-D and 2-D\)](#) [page 2 \(3-D\)](#)

[TRI-MODAL HISTOGRAM page 1 \(1-D\)](#) [page 2 \(3-D\)](#)

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OPENING DIALOG:

PROCESS -- HistogramTransforms 2.81 - 04Oct2019 by RONC

HISTOGRAM TRANSFORM: Basic - (Opt1)

(Opt1): RGB

(Opt2) X: Red

Y: Red

HISTOGRAM PARTITIONS: (Opt1) and (Opt2): 4-[width/height]
(Opt3): 2-[4]-16 (Opt4): 2-[16]-height

SCALE: 100 (Opt1) Standout (1-[100]-500) Linear Log X

BACKGROUND/BORDER Graylevel: 64 (0 - [64] - 256)

Single Layer Multiple Layer

OK

Cancel

User Manual

(The ESC key cancels execution of the script while running in Photoshop.)

For more detail about parameters: Histogram Transform, Opt1, and Opt2 in the panels following this one.

- Histogram Partitions,
Opt1 and Opt2: 4-[image width or height]
Opt3: 2-[4]-16 Result will be an N x N array of thumbnail images.
Opt4: 2-[16]-height Step synthetic.
- Scale,
Standout (1-[100]-500)
Applies to Opt1 only.
Value equal to 100 is power of 1.0. Values less than 100, homogenize (flatten) the histogram. Values greater than 100, accentuate the differences of the histogram.
- Linear/Log,
Applies to Opt1 only.
Control the X axis display.
- Background/Border graylevel,
0 - [64] - 256
- Single/Multiple Layer.
This option allows the user to supply a multi-layered input file and apply any of the Histogram types to each layer in a single pass of the script and plugin. Very useful for analyzing a group of shots.

- OK - Start execution,
- Cancel - Cancel execution.
- User Manual - Open User Manual pdf file.

HISTOGRAM TRANSFORM TYPES:

PROCESS -- HistogramTransforms 2.81 - 04Oct2019 by RONC

HISTOGRAM TRANSFORM: Basic - (Opt1)

(Opt1): RGB

(Opt2)

HISTOGRAM PARTITIONS: (Opt1) and (Opt2): 4-[width/height]
(Opt3): 2-[4]-16 (Opt4): 2-[16]-height

SCALE: 100 (Opt1) Standout (1-[100]-500) Linear Log X

BACKGROUND/BORDER Graylevel: 64 (0 - [64] - 256)

Single Layer Multiple Layer

OK

Cancel

User Manual

(The ESC key cancels execution of the script while running in Photoshop.)

Parameters for Opt1. These are the Histogram transform displays for the user to choose.

- 1-D Basic,
- 1-D X (along image rows),
- 1-D Y (along image columns),
- 1-D R (along image radii), *
- 1-D C (along image circumferences), *
- 2-D XY,
- 3-D Bit Plane, (Not available for 32 bit)
- 3-D Bit Plane COMP, (Not available for 32 bit)
- 3-D Iso Range,
- 3-D Iso Range COMP,
- 3-D Cumul Range,
- 3-D Cumul Range COMP,
- Synthetic GRAD,
- Synthetic STEP,
- Synthetic RADII, *
- Synthetic CIRCUM. *

* Operation is applied to a circle centered at the middle of the image and having a radius of 1/2 of the shortest side of the image.

OPT1:

PROCESS -- HistogramTransforms 2.81 - 04Oct2019 by RONC

HISTOGRAM TRANSFORM: Basic - (Opt1)

(Opt1): RGB

(Opt2) X: Red

Y: Red

HISTOGRAM PARTITIONS: (Opt1) and (Opt2): 4-[width/height]
(Opt3): 2-[4]-16 (Opt4): 2-[16]-height

SCALE: 100 (Opt1) Standout (1-[100]-500) Linear Log X

BACKGROUND/BORDER Graylevel: 64 (0 - [64] - 256)

Single Layer Multiple Layer

OK

Cancel

User Manual

(The ESC key cancels execution of the script while running in Photoshop.)

Parameters available for Opt1. Input RGB will be translated to user choice.

- RGB,
- AVG (Desaturated),
- HSL,
- Luminance.

OPT2:

PROCESS -- HistogramTransforms 2.81 - 04Oct2019 by RONC

HISTOGRAM TRANSFORM: Basic - (Opt1)

(Opt1): RGB

(Opt2) X: Red

Y: Red

HISTOGRAM PARTITIONS: (Opt1) and (Opt2): 4-[width/height]
(Opt3): 2-[4]-16 (Opt4): 2-[16]-height

SCALE: 100 (Opt1) Standout (1-[100]-500) Linear Log X

BACKGROUND/BORDER Graylevel: 64 (0 - [64] - 256)

Single Layer Multiple Layer

OK

Cancel

User Manual

(The ESC key cancels execution of the script while running in Photoshop.)

Parameters for Opt2 axes. Must choose different attribute for X and Y axes.

- Red,
- Green,
- Blue,
- AVG (Desaturated),
- Hue,
- Saturation,
- Brightness,
- Luminance.

RECAP

RECAP -- HistogramTransforms 2.81 - 04Oct2019 by RONC

Plugin information:
His1DH HISTOGRAM Transforms
RONC 2.75 Oct 1 2019

3-D Iso_Range_Comp

Single layer

Bit/Depth: 16 Partitions: 4

Standout: 100 Log value: No Background: 64

Range (min/max/inc): 0 [0] / 32768 [256] / 8192 [64]

Clip percent (lo/hi): 0.2 % / 0.2 %

Colors[Px]: 786432 [262144]

Mean: 15870 [124] StdDev: 8573 [67]

Partitions: 4 X 4 Increment: 2050

Start Date/Time 2019.10.04 / 19:28:24.656

Stop Date/Time 2019.10.04 / 19:29:29.369

(Process - SUCCEEDED.)

OK

Copy to Clipboard

- OK - Complete execution,
- Copy to Clipboard - Copy Recap fields to clipboard for later use by user.

CLIPBOARD COPY pasted into user manual:

Plugin information:
His1DH HISTOGRAM Transforms
RONC 2.75 Oct 1 2019

3-D Iso_Range_Comp

Single layer

Bit/Depth: 16 Partitions: 4

Standout: 100 Log value: No Background: 64

Range (min/max/inc): 0 [0] / 32768 [256] / 8192 [64]

Clip percent (lo/hi): 0.2 % / 0.2 %

Colors[Px]: 786432 [262144]

Mean: 15870 [124] StdDev: 8573 [67]

Partitions: 4 X 4 Increment: 2050

Start Date/Time 2019.10.04 / 19:28:24.656

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HISTOGRAM TRANSFORMS INPUT/OUTPUT IMAGES
for Photoshop by RONC © 2019

PHOTOSHOP SCRIPTS and PLUGINS by RONC

HISTOGRAM TRANSFORMS

This Photoshop Script and Plugin allow the user to compute various types of histogram transforms of the input image.

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IMAGE Examples:

[SYNTHETIC 1 page 1 \(1-D\)](#) [page 2 \(3-D\)](#) | [SYNTHETIC 2](#) | [SYNTHETIC IMAGES](#)

[LENA HISTOGRAM page 1 \(1-D and 2-D\)](#) [page 2 \(3-D\)](#)

[TRI-MODAL HISTOGRAM page 1 \(1-D\)](#) [page 2 \(3-D\)](#)

Information:

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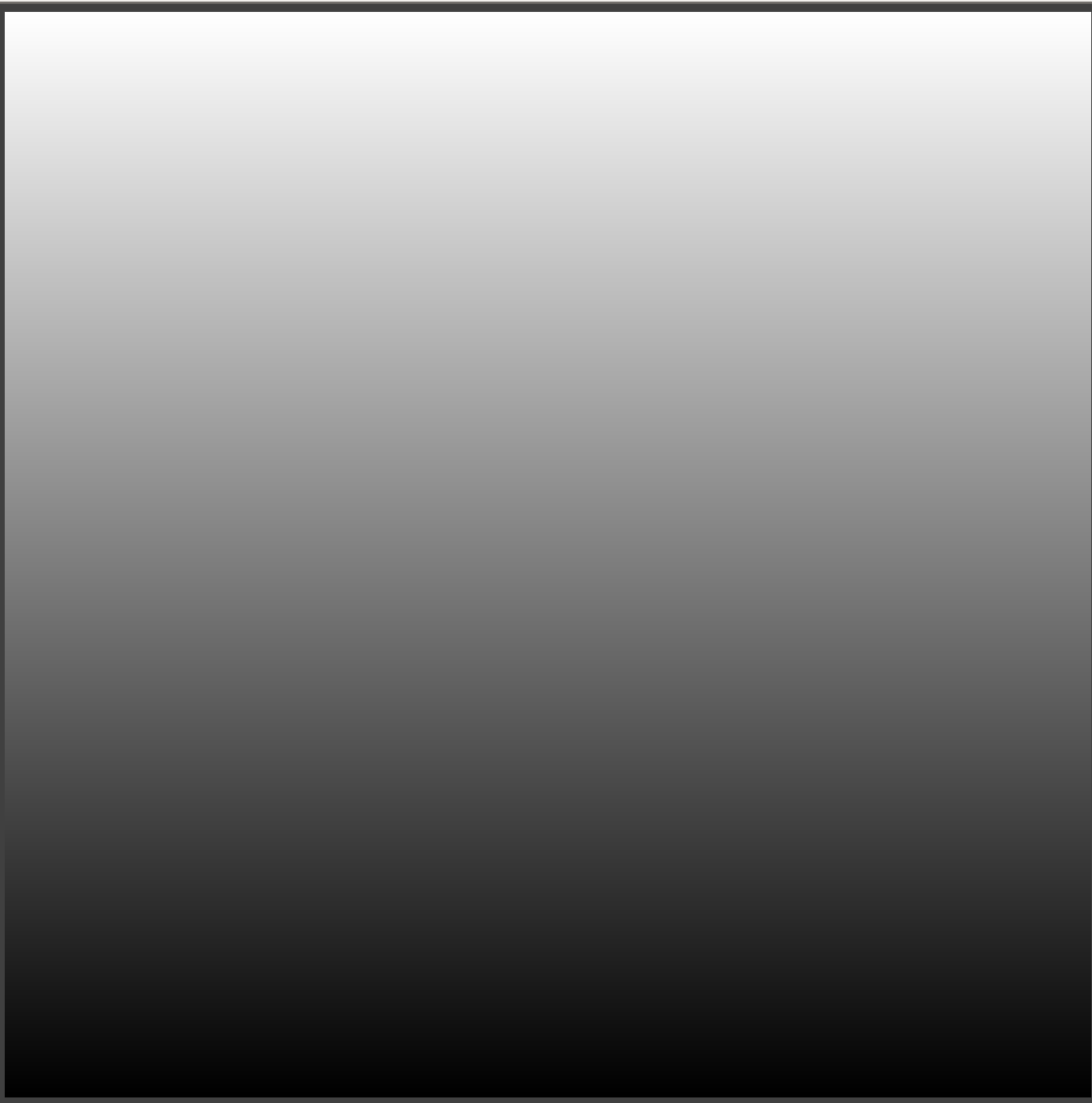
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INPUT IMAGE

Input can be 8, 16, or 32 bits per color channel with the output being the same.

USER BEWARE!! When processing 32 bit per color images, keep in mind that Photoshop assumes the file is "linear" as 8 or 16 bit files converted to 32 have "Gamma" of 2.0 removed in the conversion. The images displayed in Photoshop still look the same but the numbers were changed.

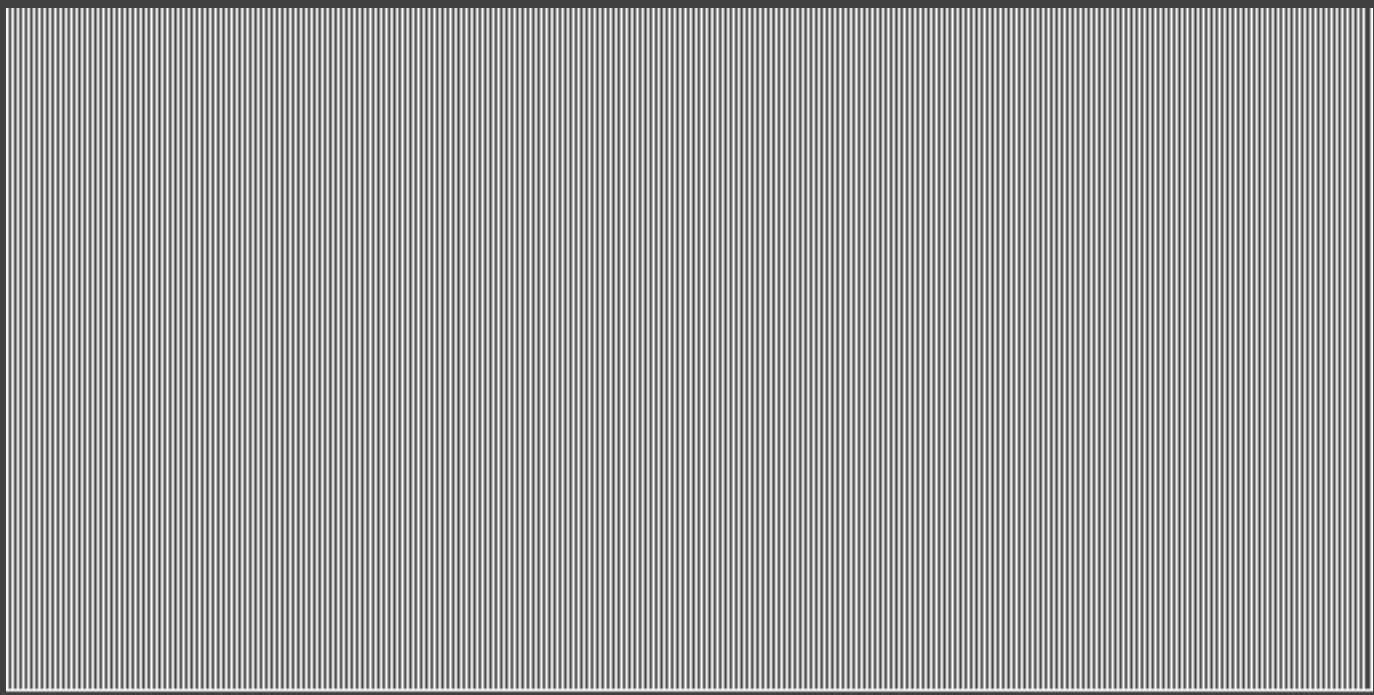
SYNTHETIC 8 BIT PER COLOR RGB:



SYNTHETIC 8 BIT PER COLOR RGB:
Created from an 8 bit RGB file. Dimensions are 512 X 512 px.

OUTPUT IMAGES

1-D BASIC HISTOGRAM. SAME AS PHOTOSHOP. WORKS ON 32 BIT PER COLOR IMAGES:



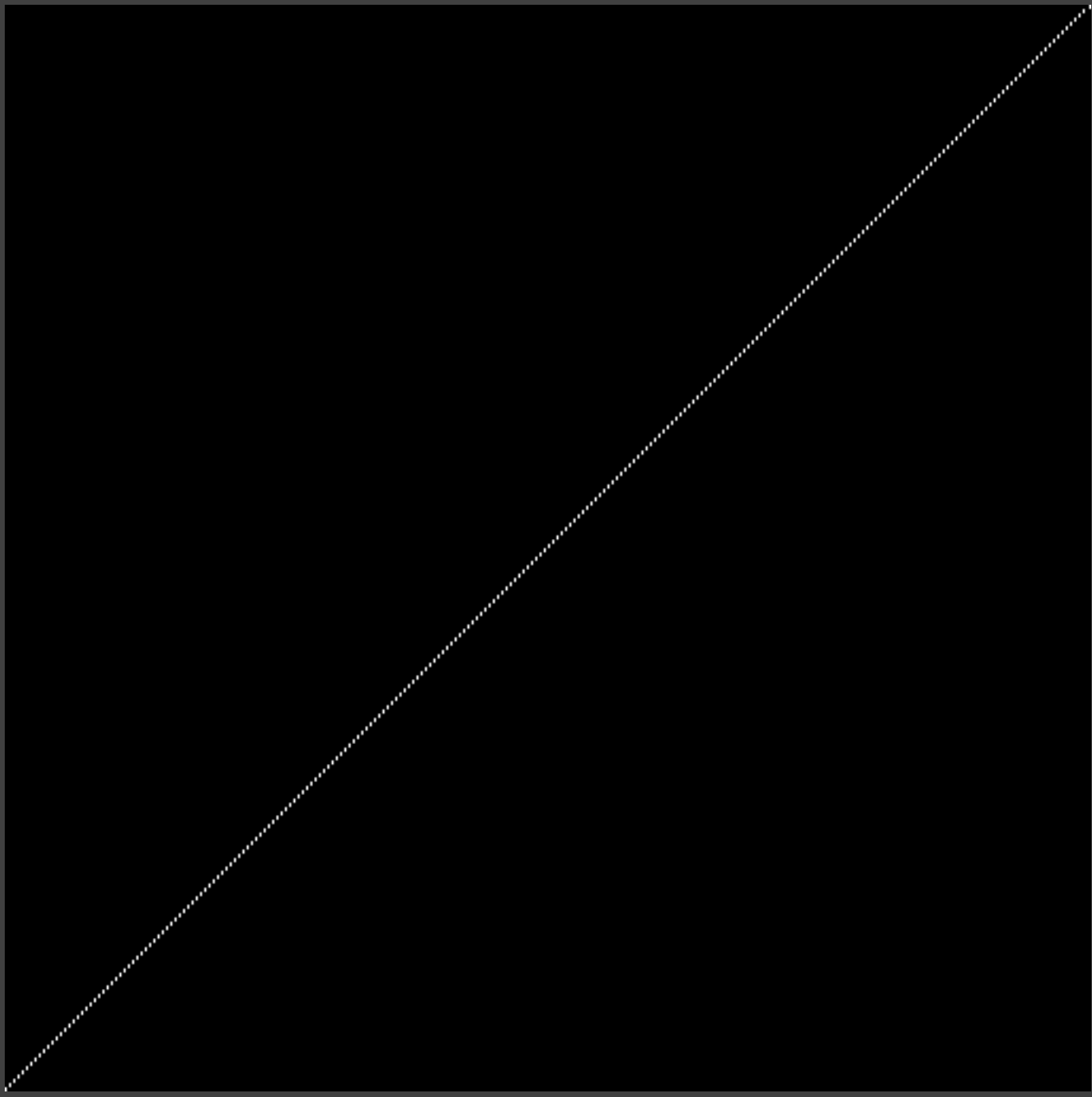
1-D BASIC HISTOGRAM. SAME AS PHOTOSHOP. WORKS ON 32 BIT PER
COLOR IMAGES:
[X: maximum partition on right.]
[Y: pixel count upward.]

[WIKI Histogram](#)

[How to Read and Use Histograms](#)

[Of Histograms and Waveforms | darktable](#)

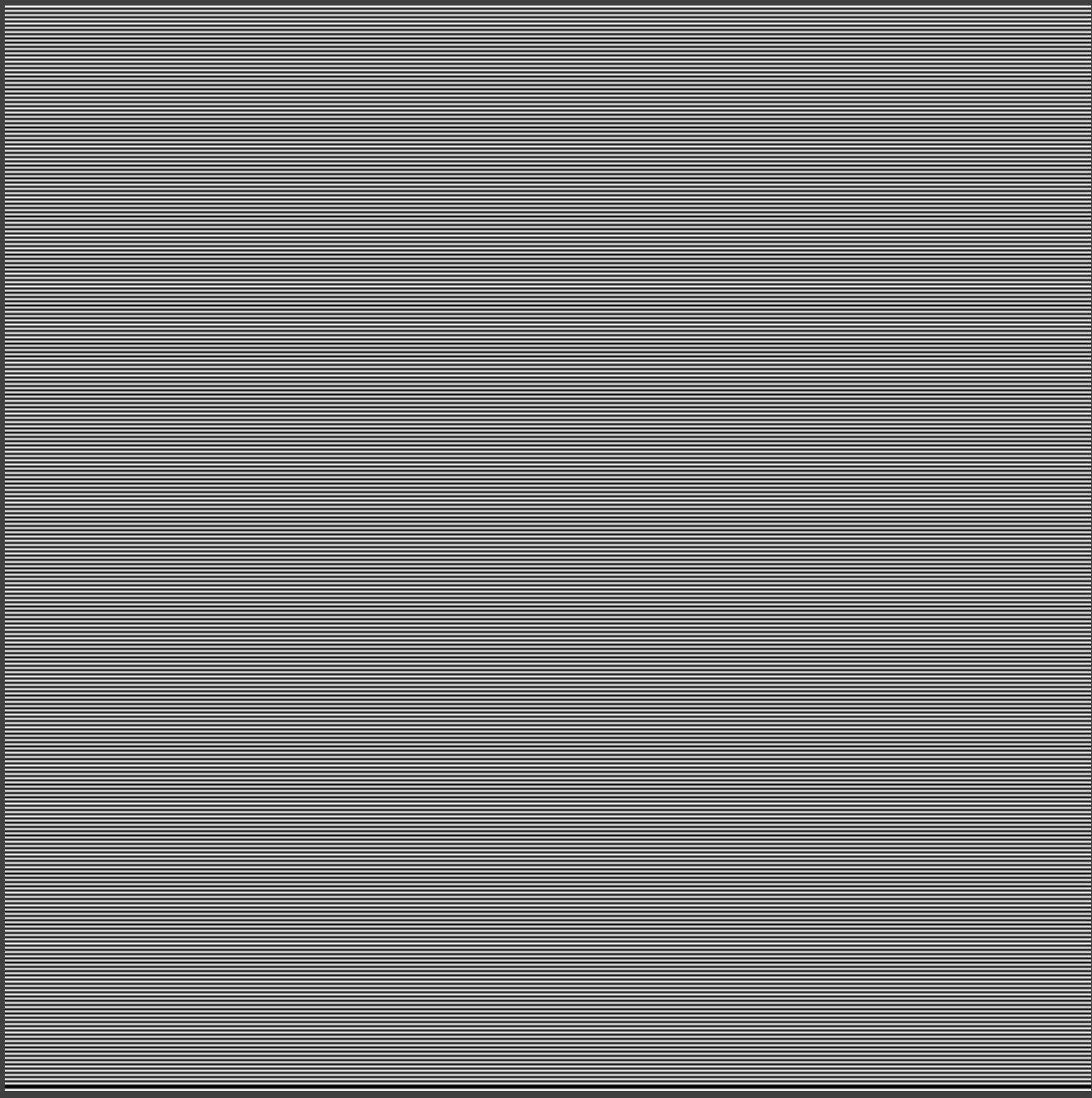
1-D TRANSFORM ALONG ROWS:



1-D TRANSFORM ALONG ROWS:
[X: maximum partition on right.]
[Y: row position]
[Color: count.]

For spatial scaling see Histogram Partitions parameter.

1-D TRANSFORM ALONG COLUMNS.



1-D TRANSFORM ALONG COLUMNS.
[X: column position]
[Y: maximum partition on top]
[Color: count.]

For spatial scaling see Histogram Partitions parameter.
This display is similar to what is called "Waveform" by those in the video trades.

[Of Histograms and Waveforms | darktable](#)

Forward to SYN1 HISTOGRAM page 2 (3-D).

HISTOGRAM TRANSFORMS INPUT/OUTPUT IMAGES
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PHOTOSHOP SCRIPTS and PLUGINS by RONC

HISTOGRAM TRANSFORMS
This Photoshop Script and Plugin allow the user to compute various types of histogram transforms of the input image.

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IMAGE Examples:
SYNTHETIC 1 page 1 (1-D) page 2 (3-D) | SYNTHETIC 2 | SYNTHETIC IMAGES

LENA HISTOGRAM page 1 (1-D and 2-D) page 2 (3-D)

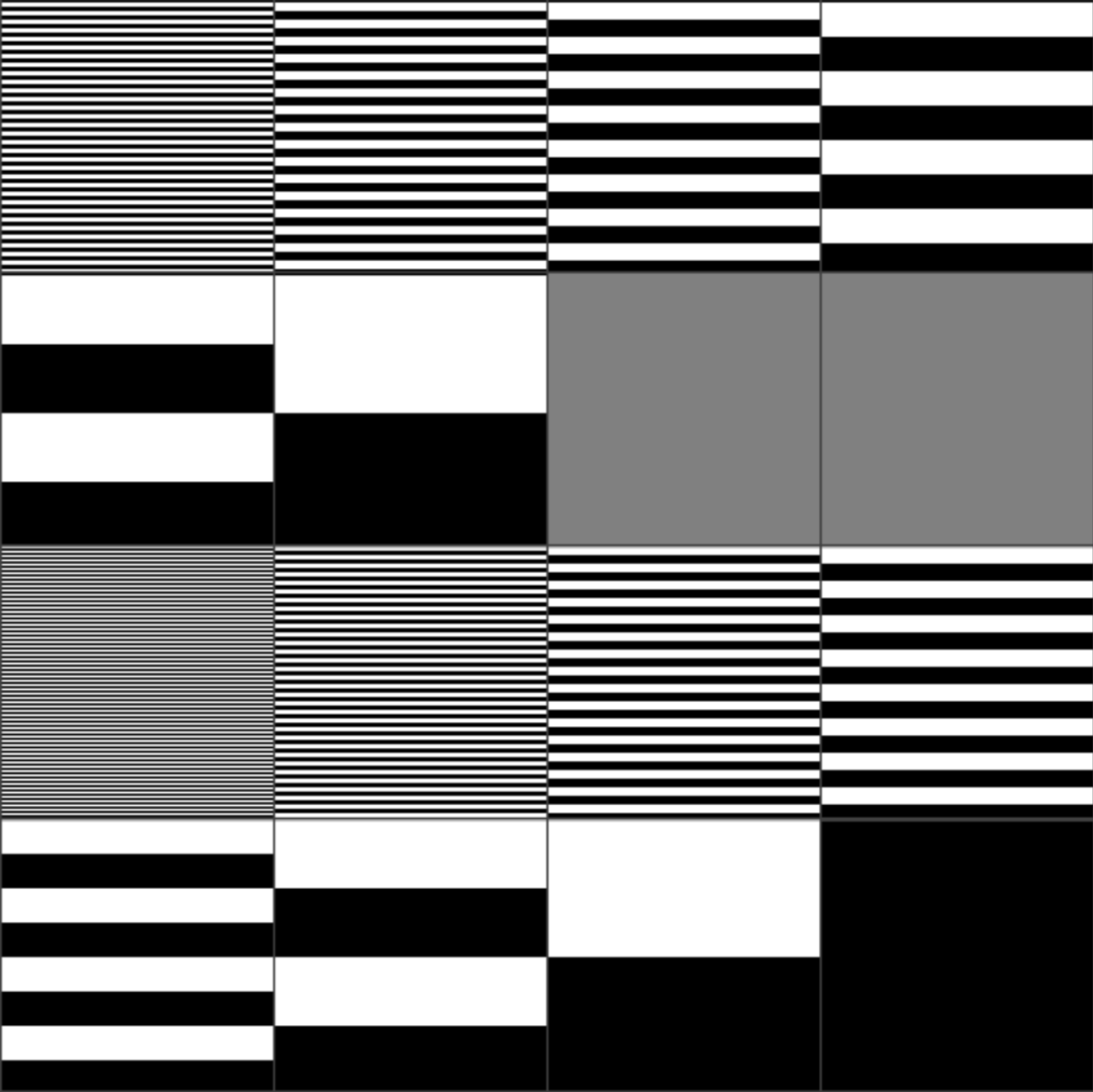
TRI-MODAL HISTOGRAM page 1 (1-D) page 2 (3-D)

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Back to SYN1 HISTOGRAM page 1 (1-D).

3-D BIT PLANE TRANSFORM (With COMPENSATION):



3-D BIT PLANE TRANSFORM (With COMPENSATION):

(Associated values for 8 bit format)

[1][2][4]

[8][16][32]

[64][128][]

or if you mentally unwrap the images

[1][2]... [32]... [128]

(Associated values for 16 bit format)

[1][2][4][8]

[16][32][64][128]

[256][512][1024][2048]

[4096][8192][16384][32768]

or if you mentally unwrap the images

[1][2]... [256]... [16384][32768]

(Associated values for 32 bit format) NOT AVAILABLE.

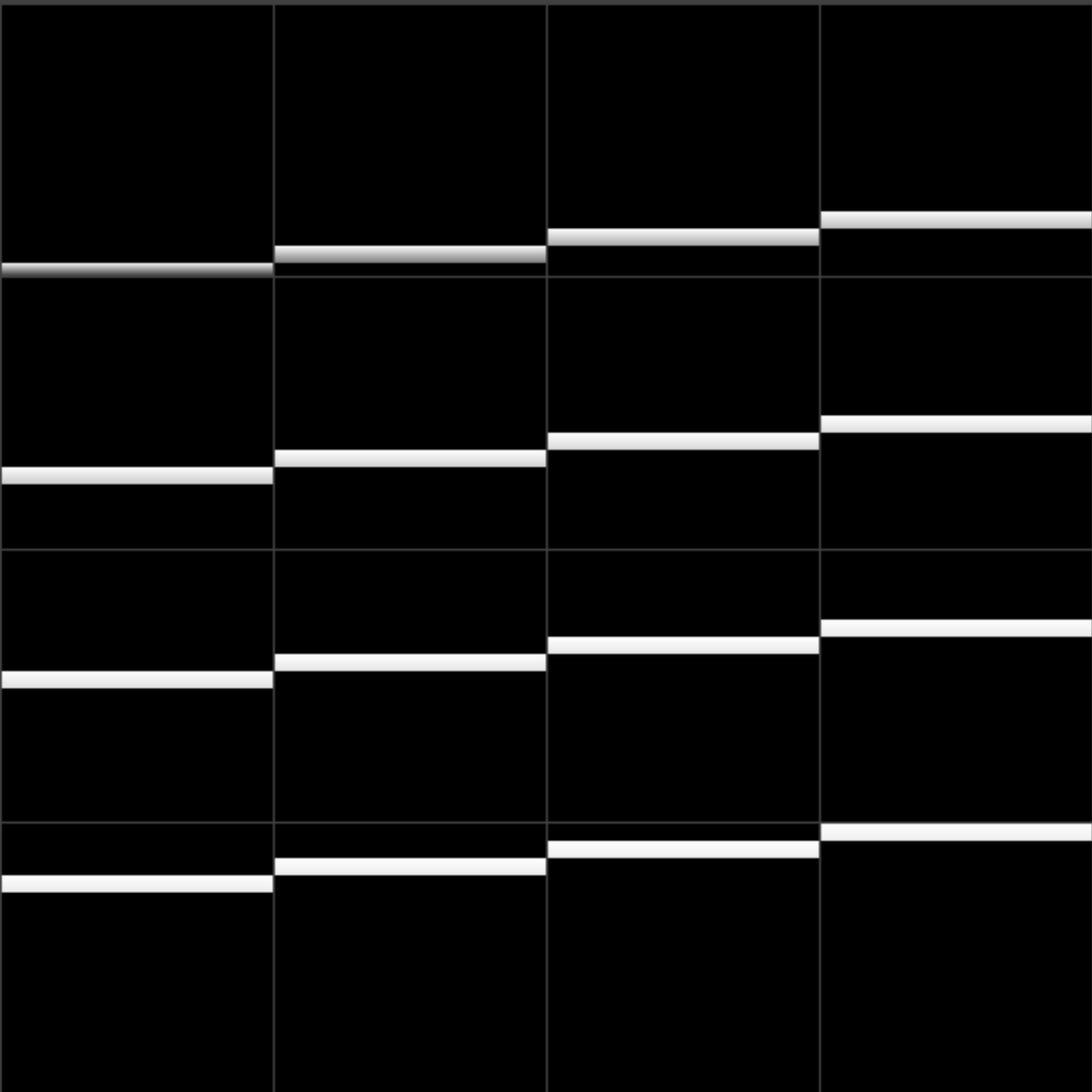
COMPENSATION designates that the information displayed is that of the input image scaled to the largest value for the format.

This file displays the information as it is from the input image.

[WIKI bit plane](#)

[Bit plane slicing explanation video](#)

3-D ISOTROPIC-RANGE TRANSFORM (With COMPENSATION):

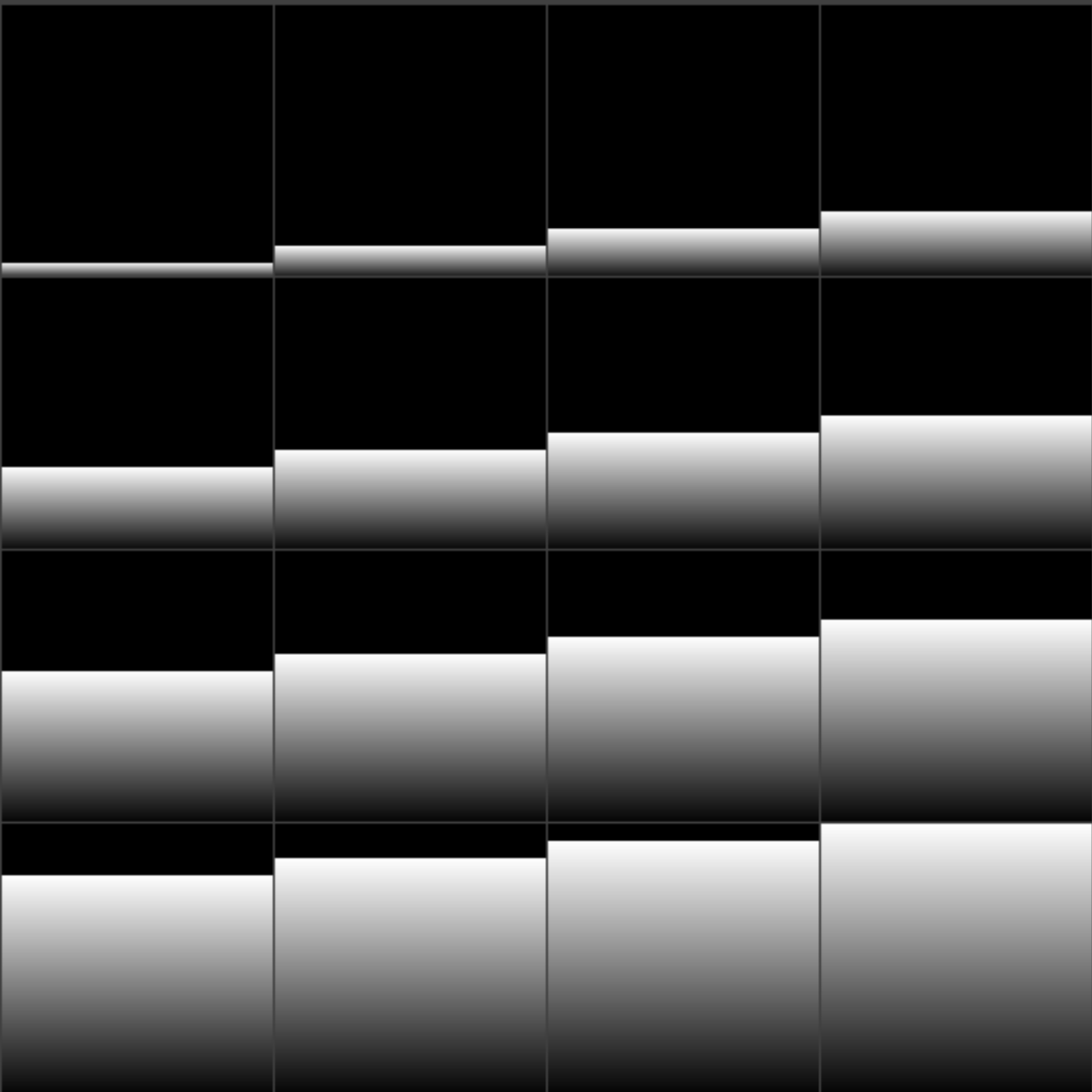


3-D ISOTROPIC-RANGE TRANSFORM (With COMPENSATION):

To understand the relationship between the 3-D Isotropic-Range transform and the Basic Histogram, see the diagram below the image. The diagram shows the Basic Histogram divided into 16 equal segments along the X axis. Each segment is numbered to relate to the 16 frames above. The first row is 1-4 followed by 5-8, 9-12, and 13-16. Each segment/frame contains information from the segment only.

COMPENSATION designates that the information displayed is that of the input image scaled to the largest value for the format.

3-D CUMULATIVE-RANGE TRANSFORM (With COMPENSATION):



3-D CUMULATIVE-RANGE TRANSFORM (With COMPENSATION):

To understand the relationship between the Cumulation-Range transform and the Basic Histogram, see the diagram below the image. The diagram shows the Basic Histogram divided into 16 equal segments along the X axis. Each segment is numbered to relate to the 16 frames above. The first row is 1-4 followed by 5-8, 9-12, and 13-16. Each segment/frame contains information from all previous segments/frames - frame 5 contains the information of 1 - 5 and frame 16 contains the information from all the segments/frames 1 - 16.

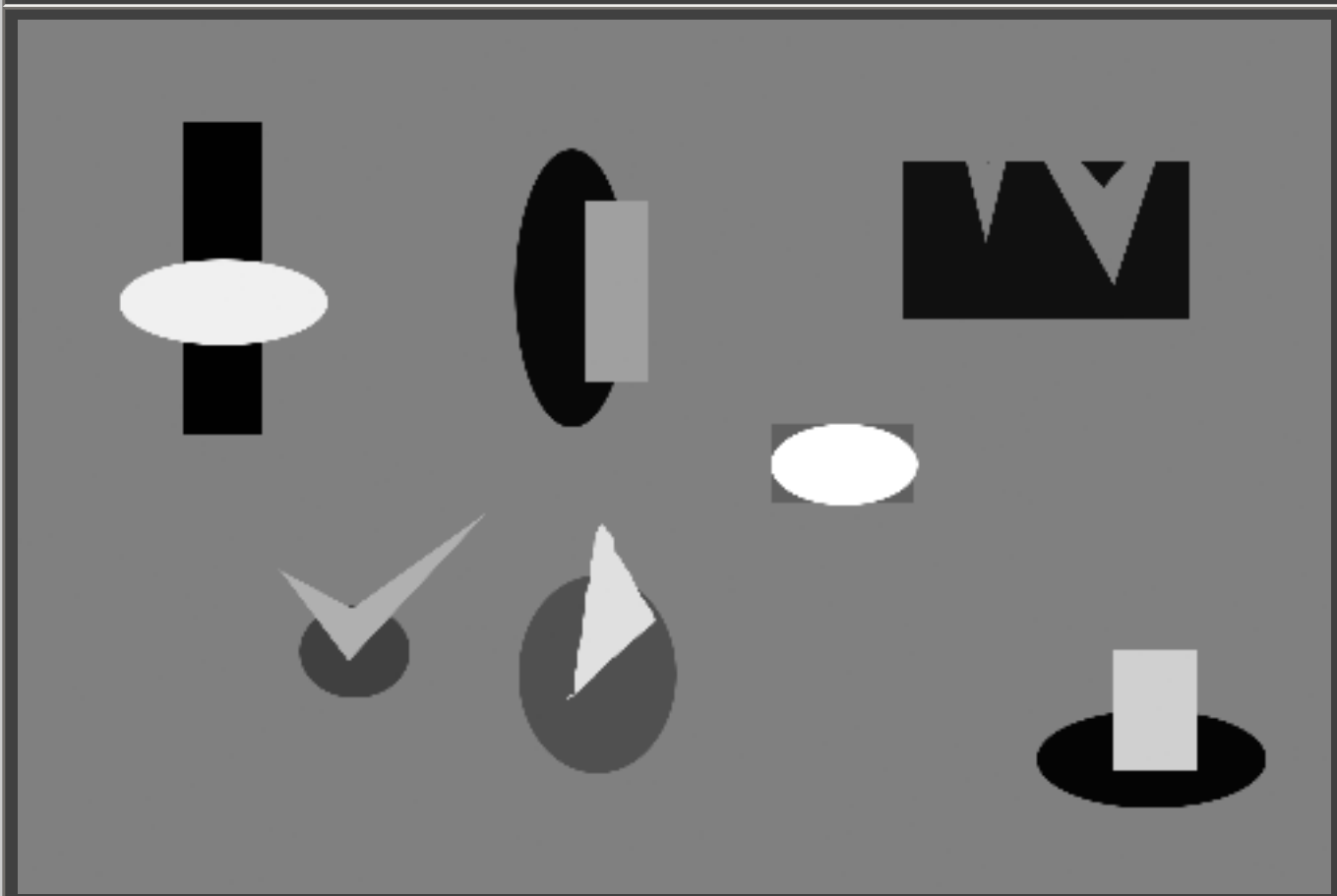
COMPENSATION designates that the information displayed is that of the input image scaled to the largest value for the format.

INPUT IMAGE

Input can be 8, 16, or 32 bits per color channel with the output being the same.

USER BEWARE!! When processing 32 bit per color images, keep in mind that Photoshop assumes the file is "linear" as 8 or 16 bit files converted to 32 have "Gamma" of 2.0 removed in the conversion. The images displayed in Photoshop still look the same but the numbers were changed.

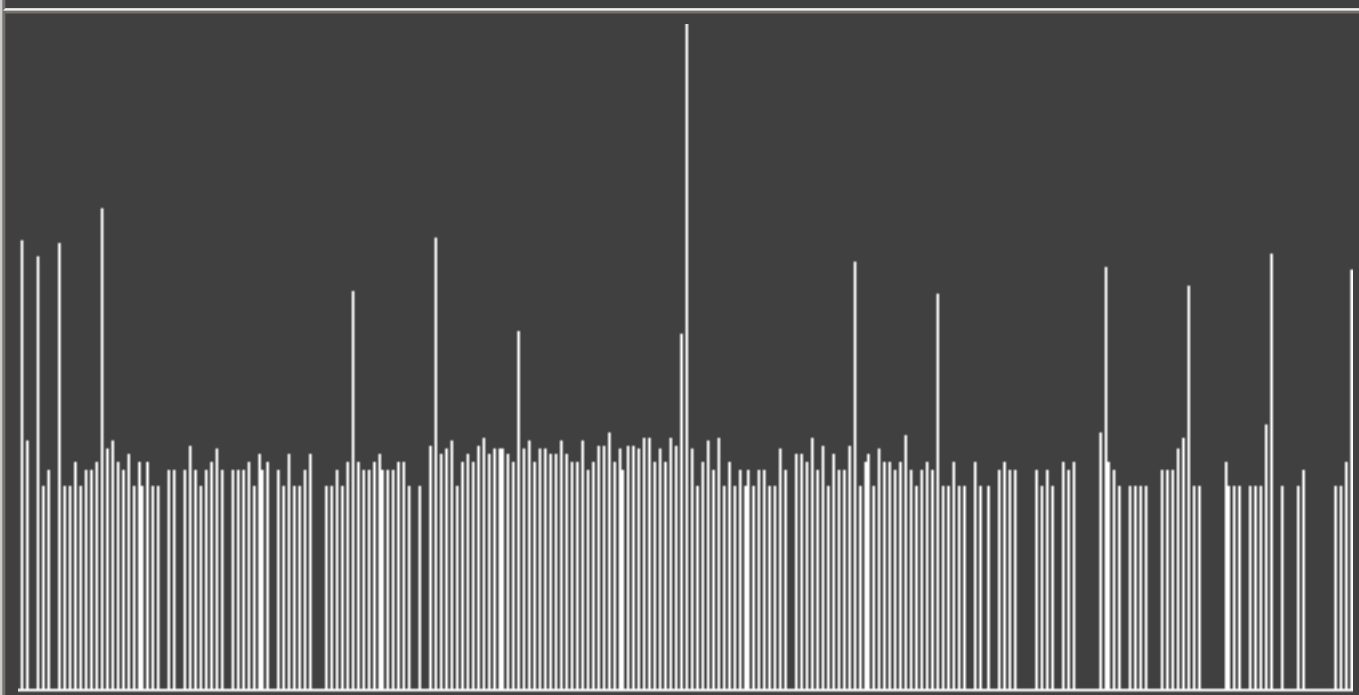
SYNTHETIC 8 BIT PER COLOR RGB:



SYNTHETIC 8 BIT PER COLOR RGB:
Created from an 8 bit RGB file. Dimensions are 500 X 333 px.

OUTPUT IMAGES

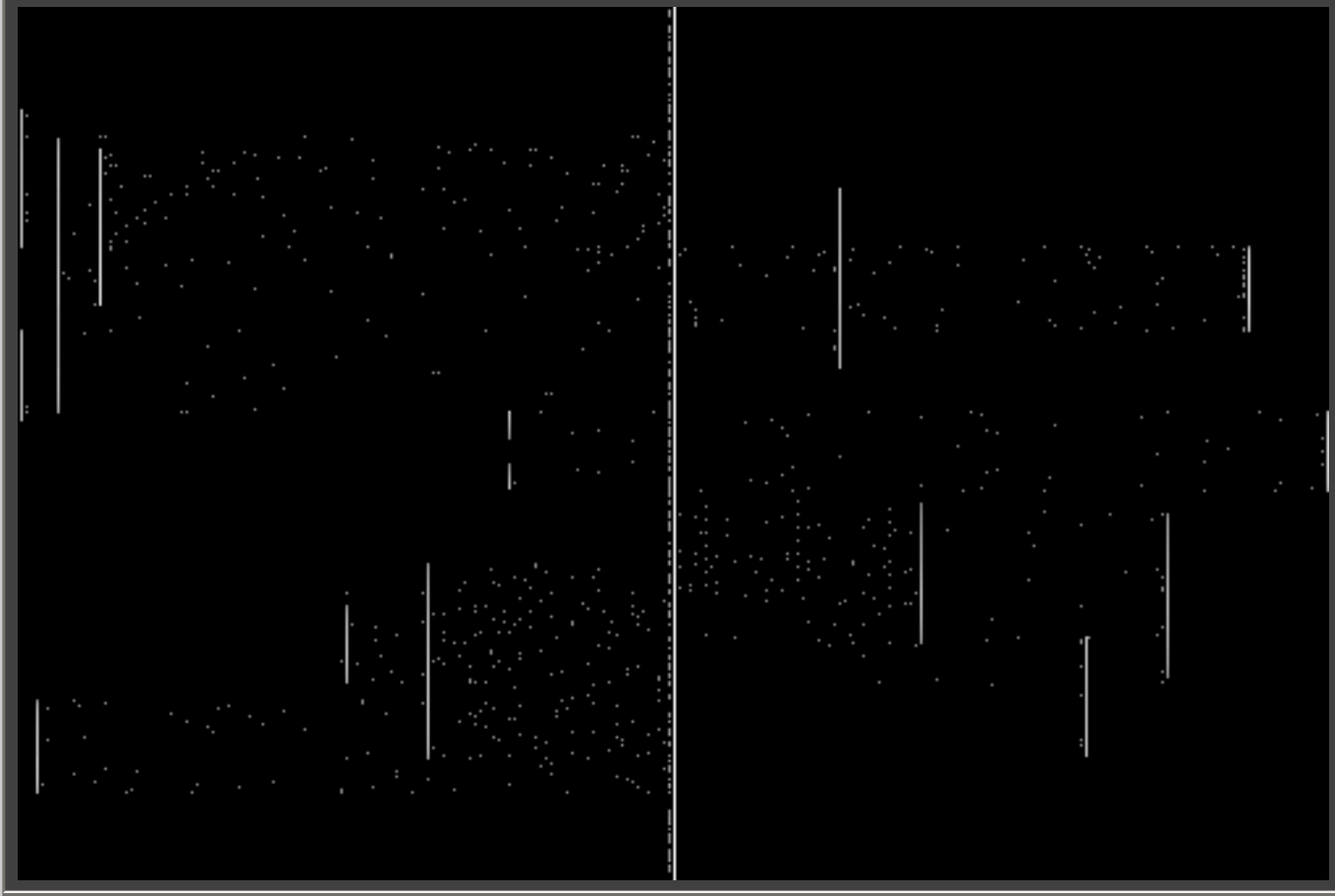
1-D BASIC HISTOGRAM. SAME AS PHOTOSHOP. WORKS ON 32 BIT PER COLOR IMAGES:



1-D BASIC HISTOGRAM. SAME AS PHOTOSHOP. WORKS ON 32 BIT PER COLOR IMAGES:
[X: maximum partition on right.]
[Y: pixel count upward.]

[WIKI Histogram](#)
[How to Read and Use Histograms](#)
[Of Histograms and Waveforms | darktable](#)

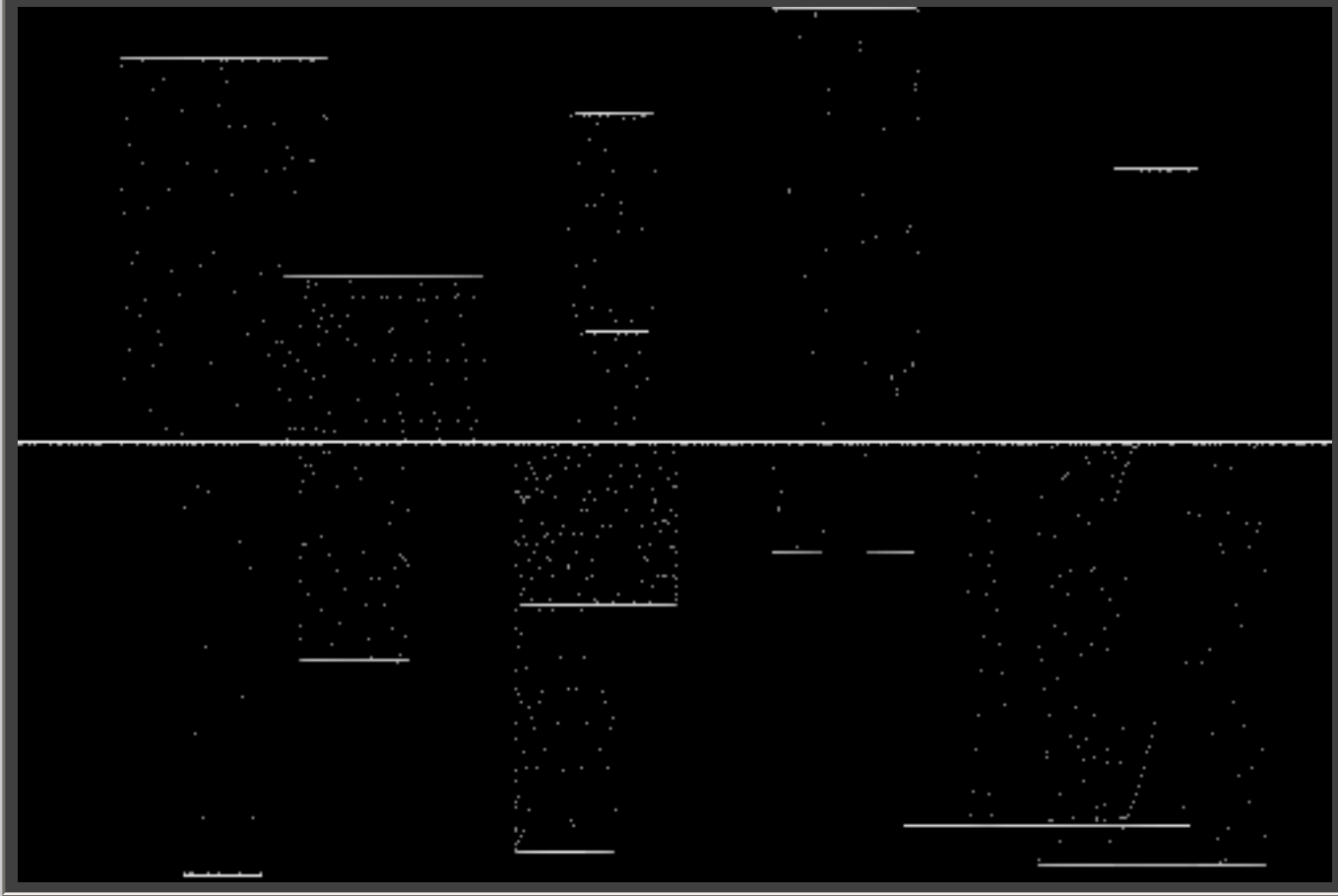
1-D TRANSFORM ALONG ROWS:



1-D TRANSFORM ALONG ROWS:
[X: maximum partition on right.]
[Y: row position]
[Color: count.]

For spatial scaling see Histogram Partitions parameter.

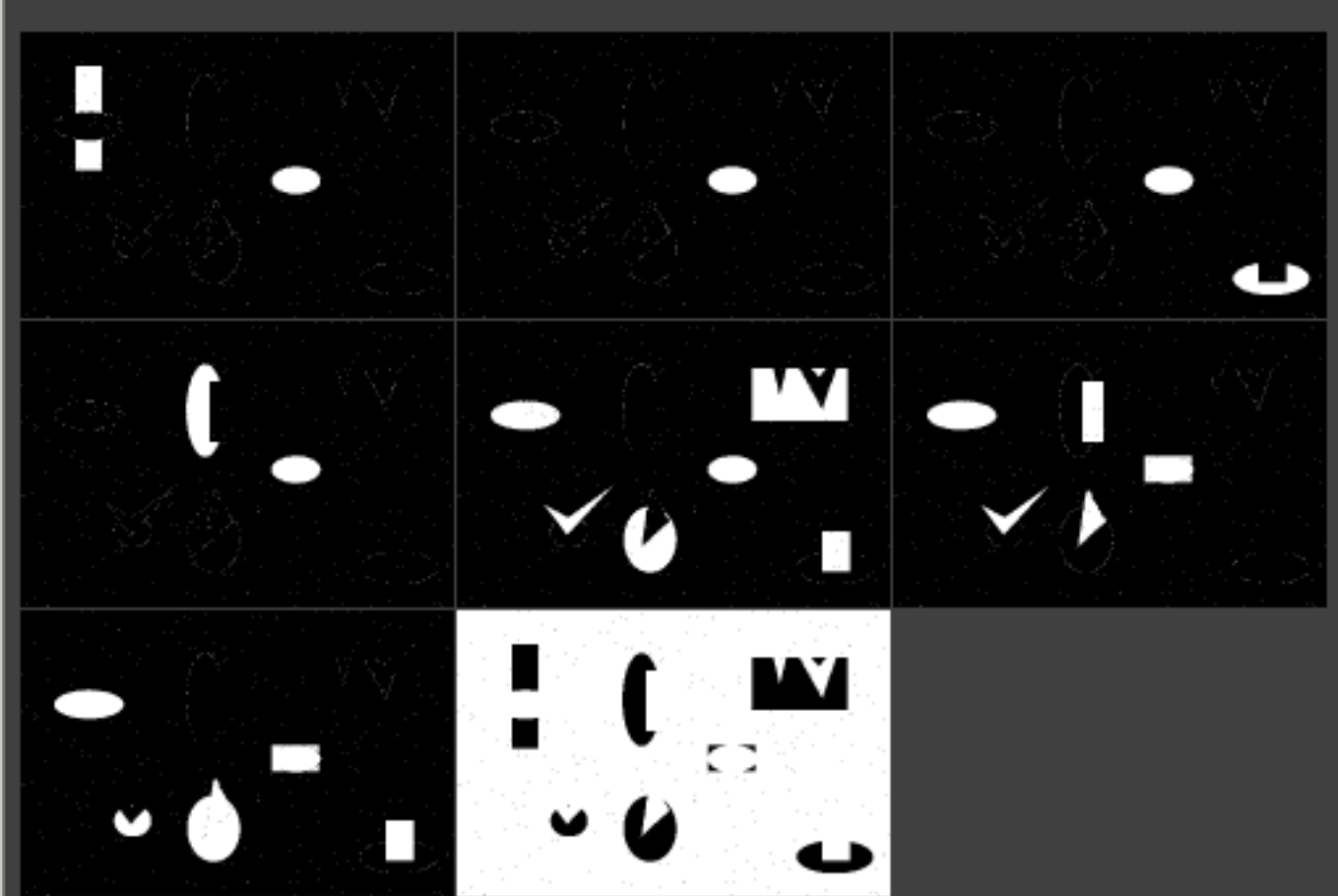
1-D TRANSFORM ALONG COLUMNS:



1-D TRANSFORM ALONG COLUMNS.
[X: column position]
[Y: maximum partition on top]
[Color: count.]

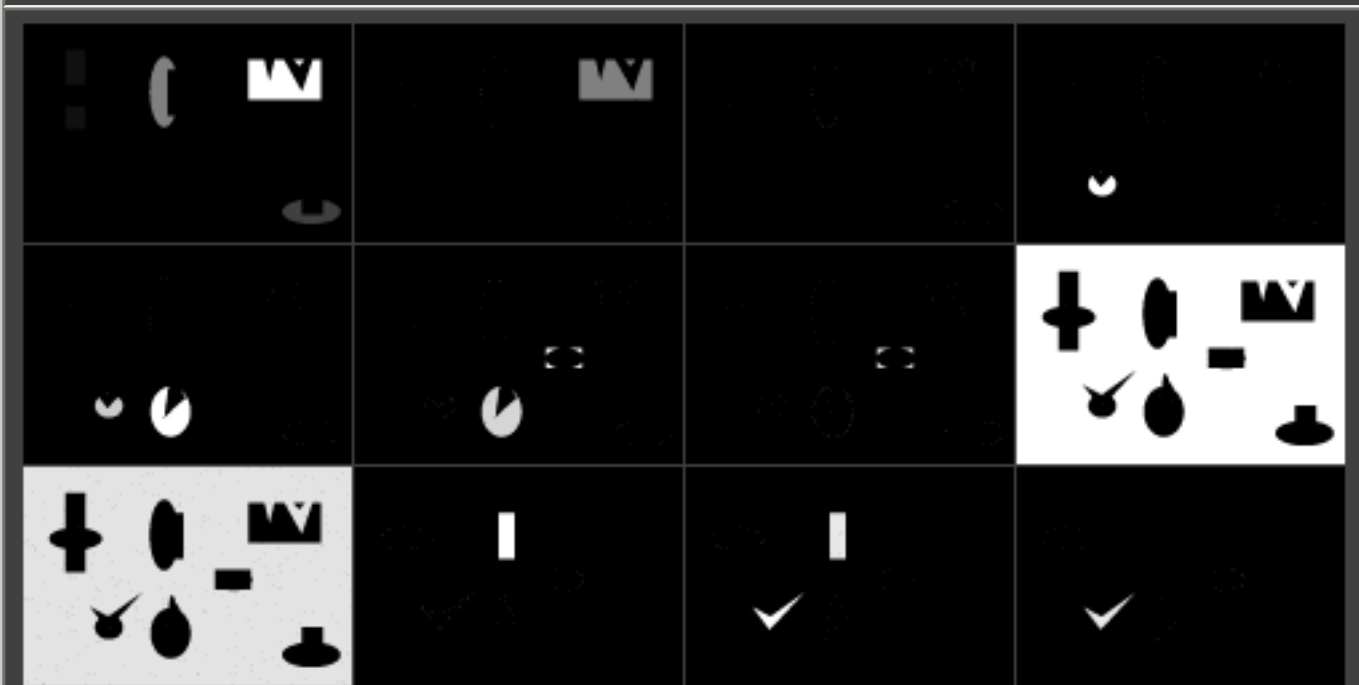
For spatial scaling see Histogram Partitions parameter.
This display is similar to what is called "Waveform" by those in the video trades.
[Of Histograms and Waveforms | darktable](#)

BIT PLANE TRANSFORM (With COMPENSATION):



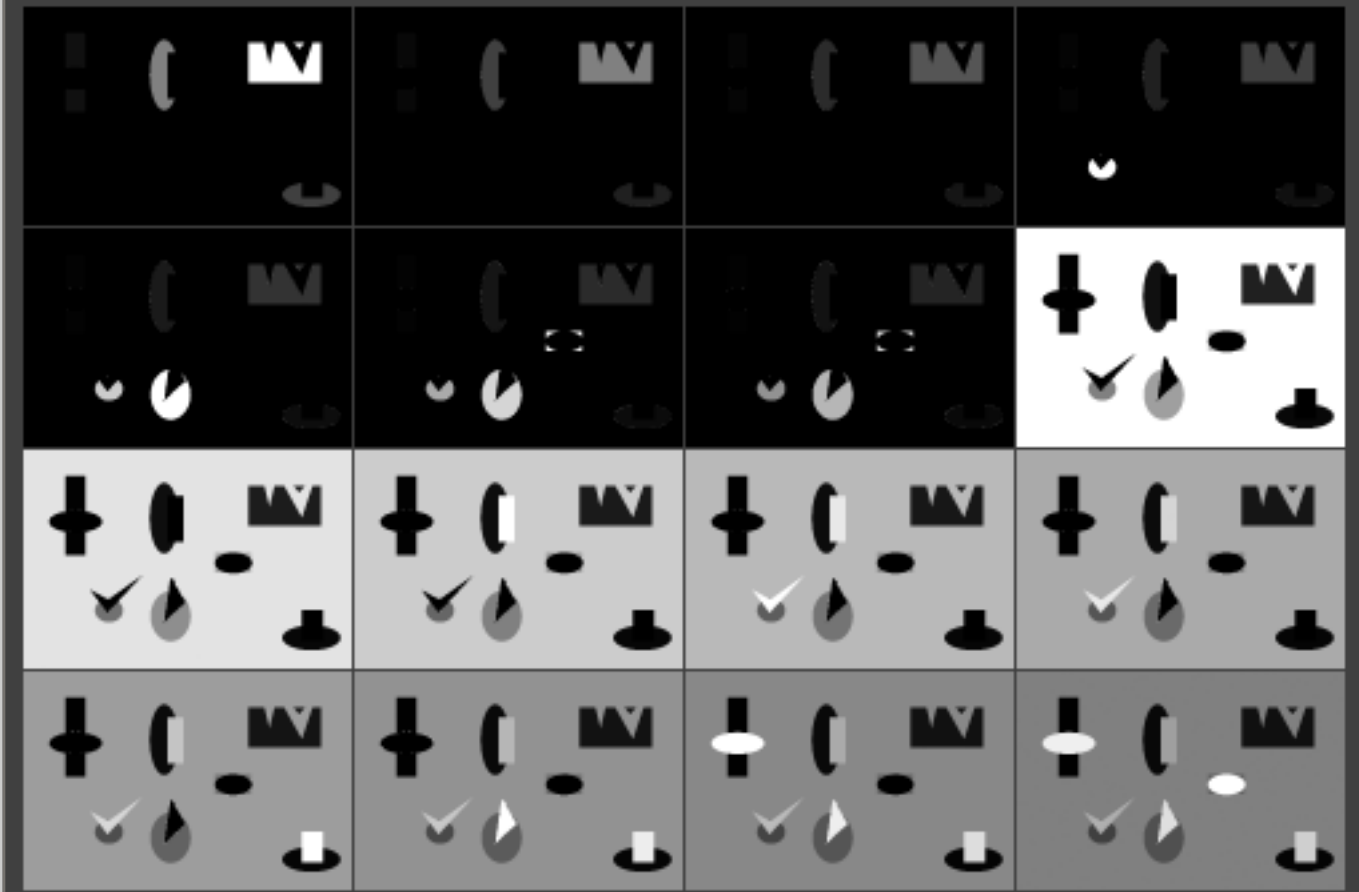
BIT PLANE TRANSFORM (With COMPENSATION):
(Associated values for 8 bit format)
[1][2][4]
[8][16][32]
[64][128][]
or if you mentally unwrap the images
[1][2]...[32]...[128]
(Associated values for 16 bit format)
[1][2][4][8]
[16][32][64][128]
[256][512][1024][2048]
[4096][8192][16384][32768]
or if you mentally unwrap the images
[1][2]...[256]...[16384][32768]
(Associated values for 32 bit format) NOT AVAILABLE.
COMPENSATION designates that the information displayed is that of the input image scaled to the largest value for the format.
This file displays the information as it is from the input image.
[WIKI bit plane](#)
[Bit plane slicing explanation video](#)

3-D ISOTROPIC-RANGE TRANSFORM (With COMPENSATION):

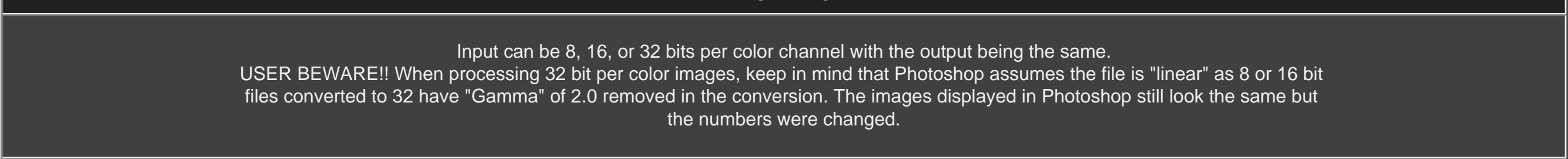


3-D ISOTROPIC-RANGE TRANSFORM (With COMPENSATION):
To understand the relationship between the 3-D Isotropic-Range transform and the Basic Histogram, see the diagram below the image. The diagram shows the Basic Histogram divided into 16 equal segments along the X axis. Each segment is numbered to relate to the 16 frames above. The first row is 1-4 followed by 5-8, 9-12, and 13-16. Each segment/frame contains information from the segment only.
COMPENSATION designates that the information displayed is that of the input image scaled to the largest value for the format.

3-D CUMULATIVE-RANGE TRANSFORM (With COMPENSATION):



3-D CUMULATIVE-RANGE TRANSFORM (With COMPENSATION):
To understand the relationship between the Cumulation-Range transform and the Basic Histogram, see the diagram below the image. The diagram shows the Basic Histogram divided into 16 equal segments along the X axis. Each segment is numbered to relate to the 16 frames above. The first row is 1-4 followed by 5-8, 9-12, and 13-16. Each segment/frame contains information from all previous segments/frames - frame 5 contains the information of 1 - 5 and frame 16 contains the information from all the segments/frames 1 - 16.
COMPENSATION designates that the information displayed is that of the input image scaled to the largest value for the format.

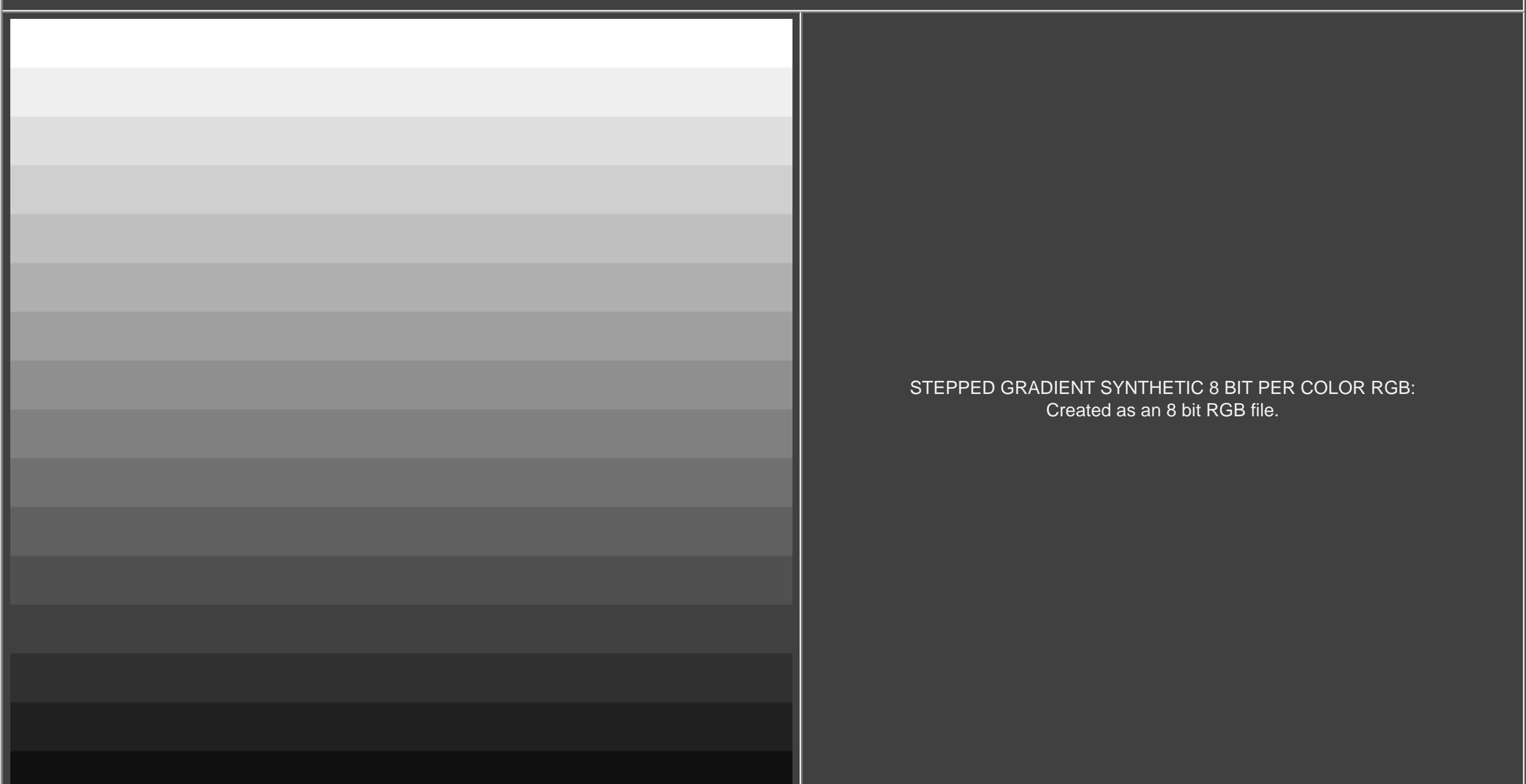


OUTPUT IMAGES

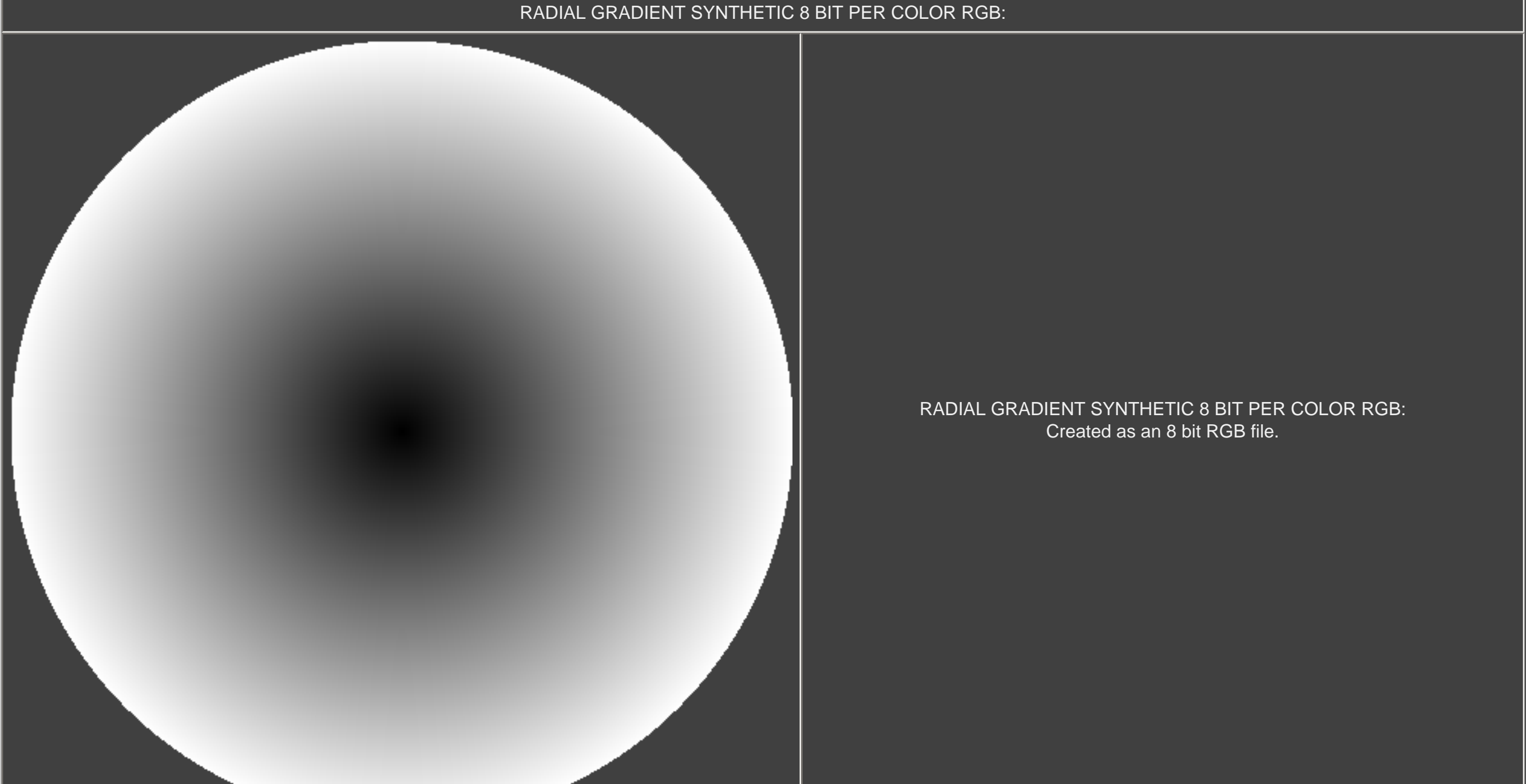
GRADIENT SYNTHETIC 8 BIT PER COLOR RGB:



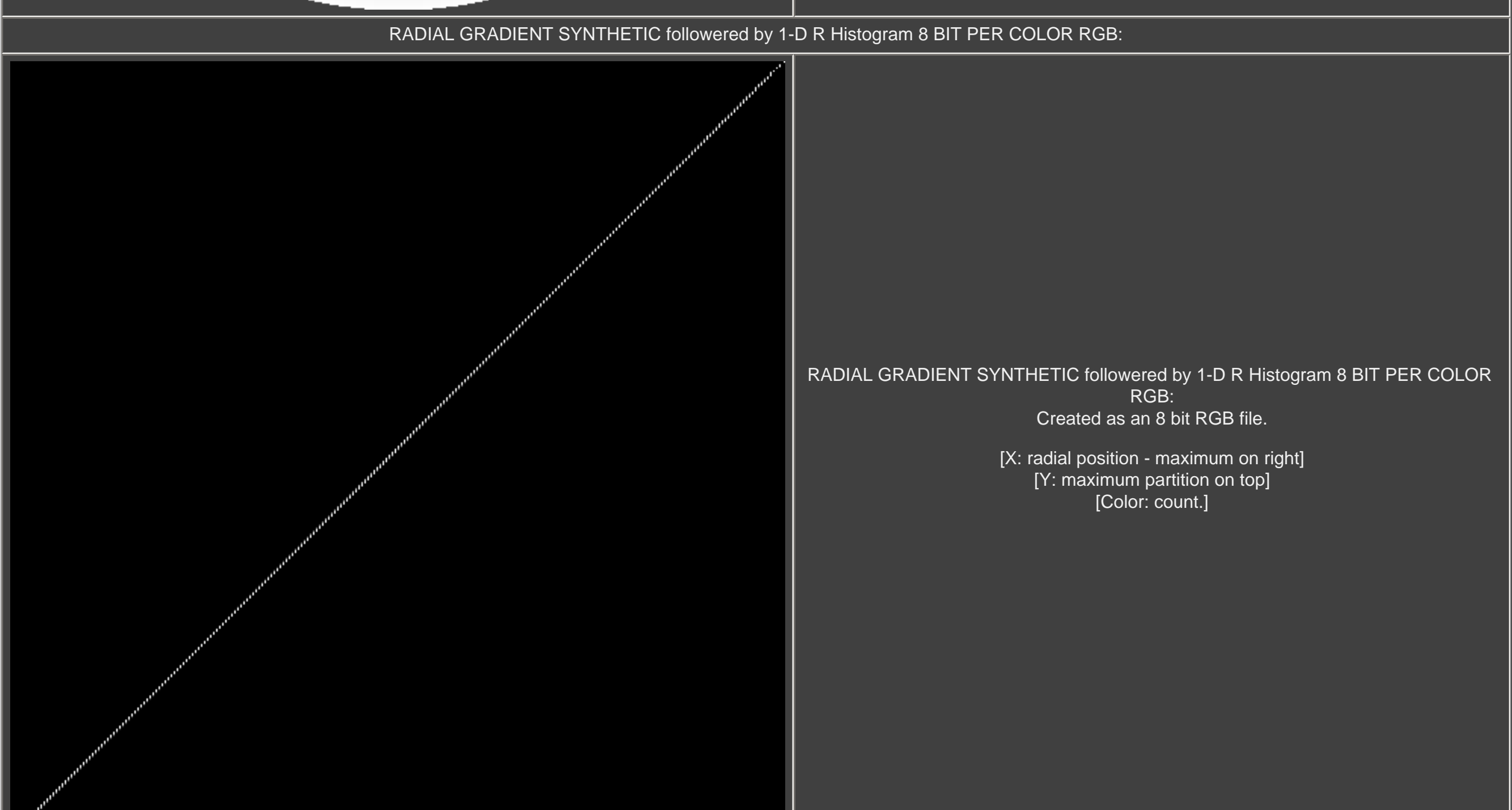
STEPPED GRADIENT SYNTHETIC 8 BIT PER COLOR RGB:



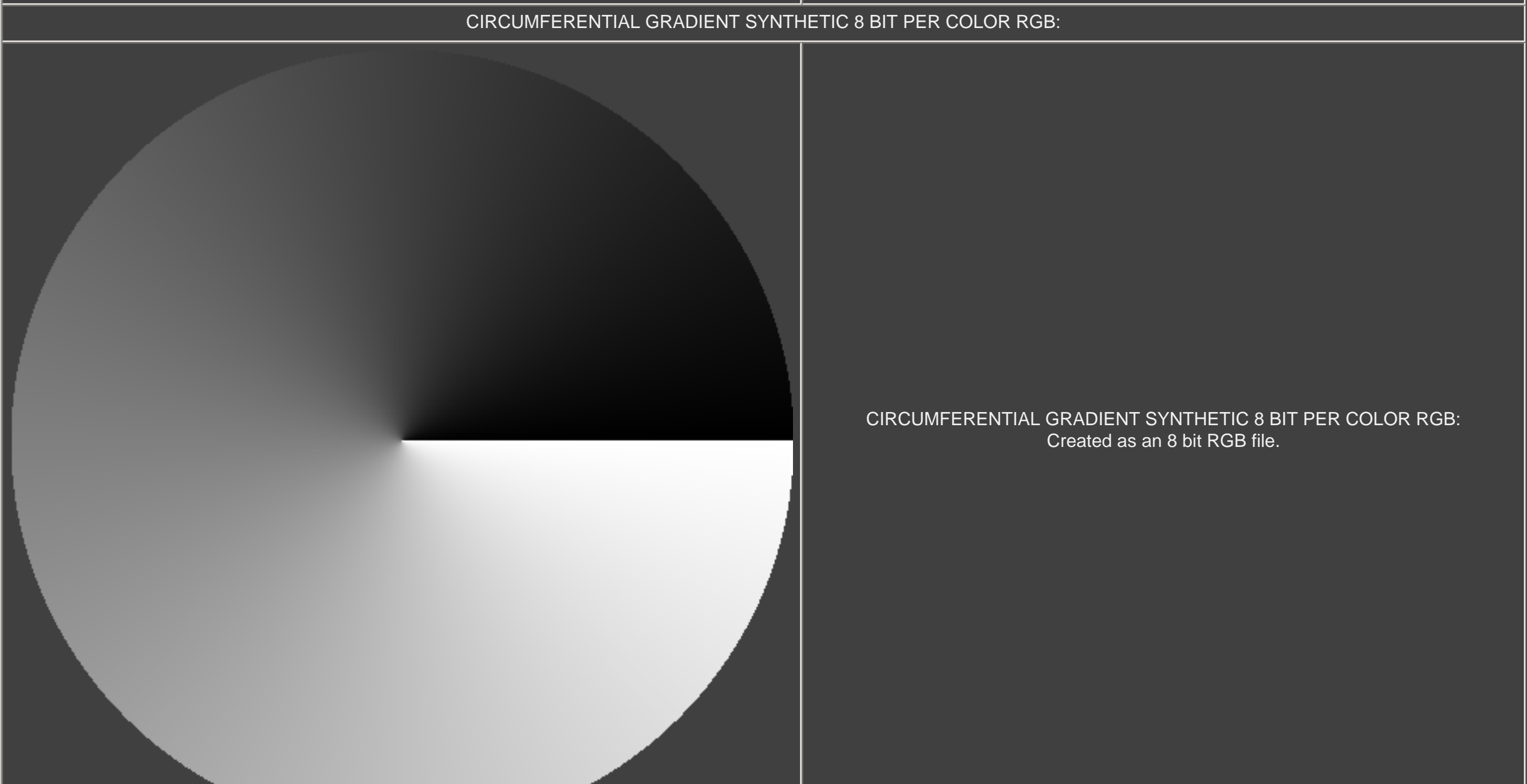
RADIAL GRADIENT SYNTHETIC 8 BIT PER COLOR RGB:



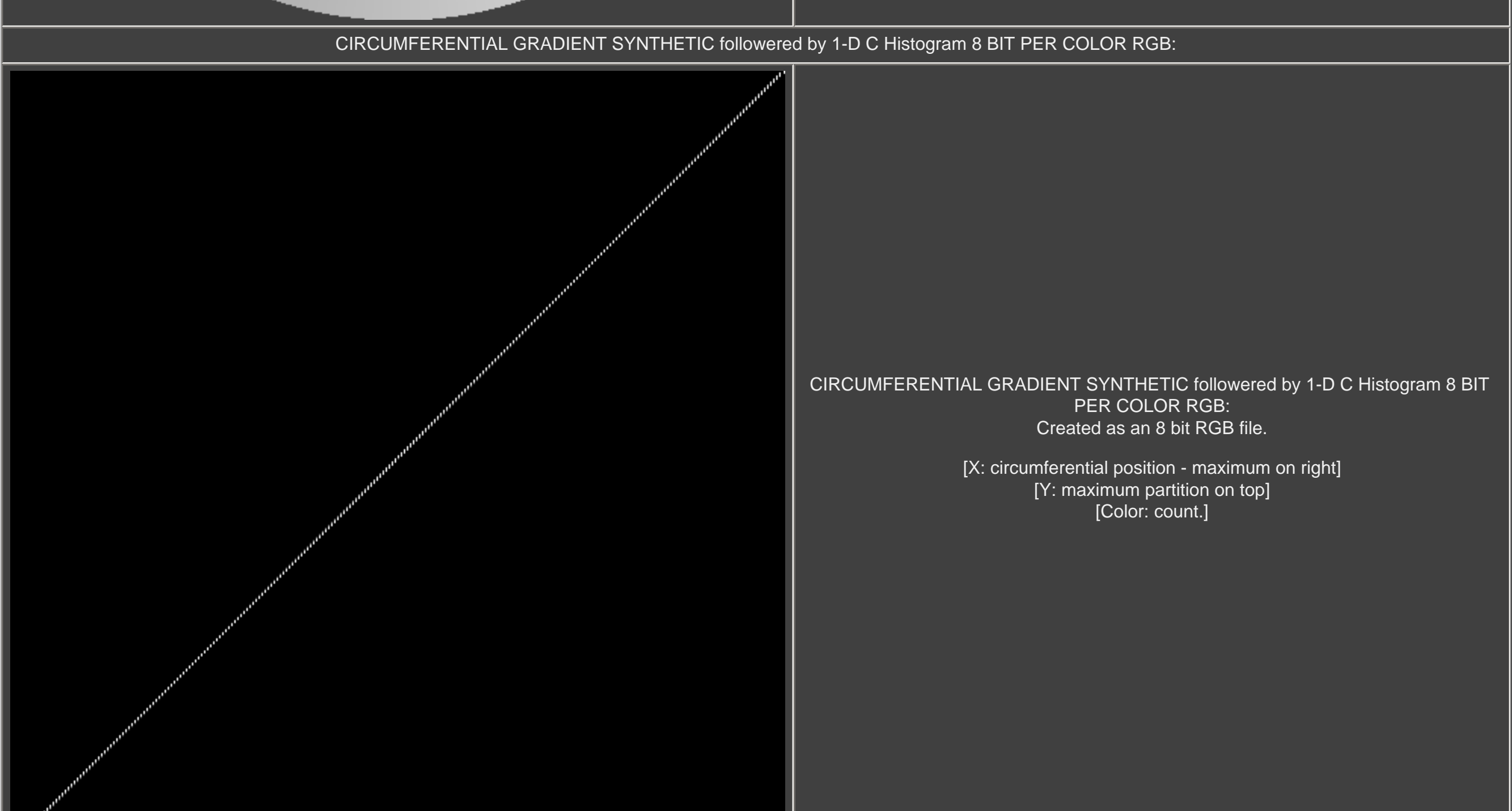
RADIAL GRADIENT SYNTHETIC followed by 1-D R Histogram 8 BIT PER COLOR RGB:


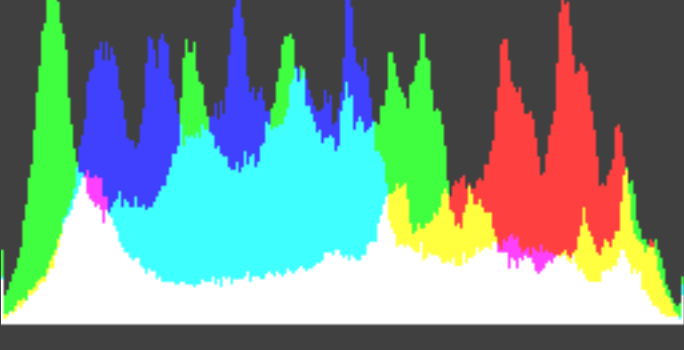
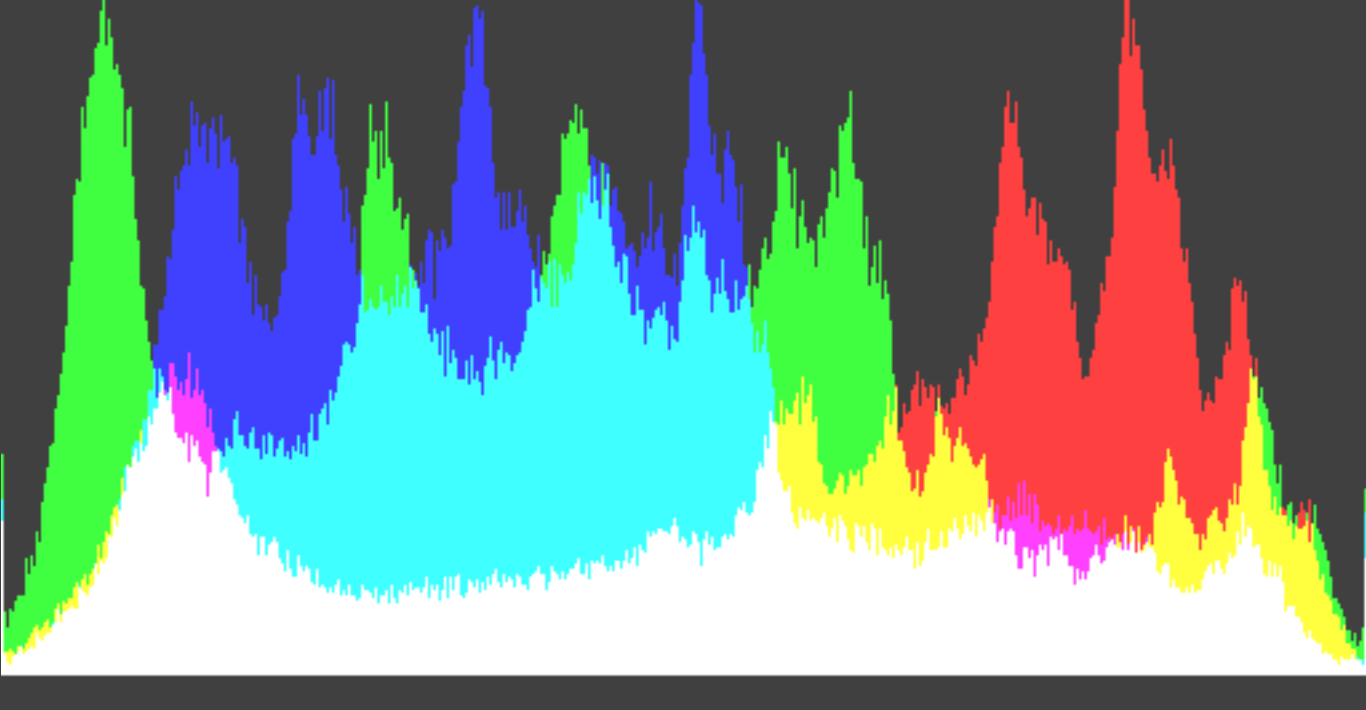
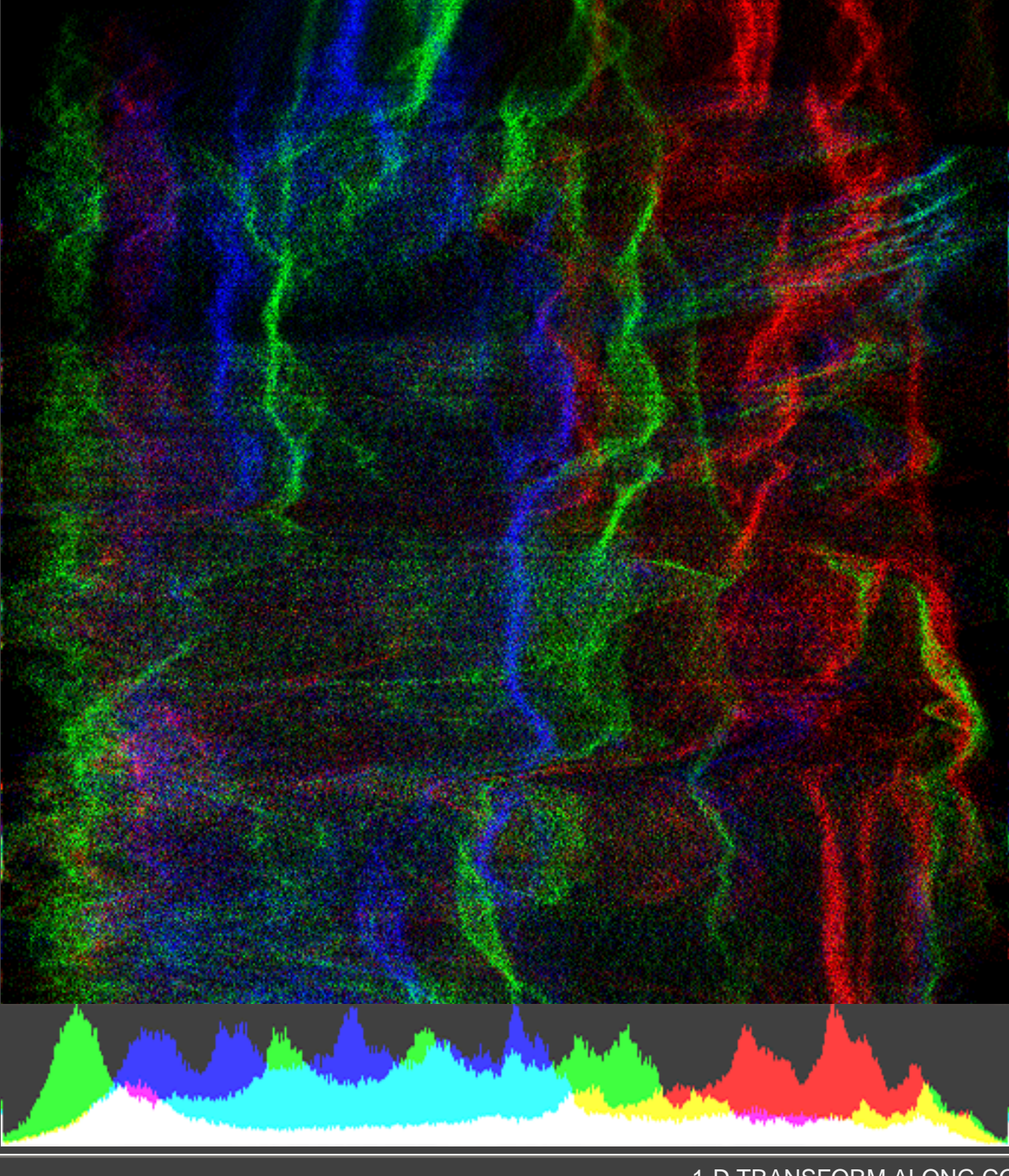
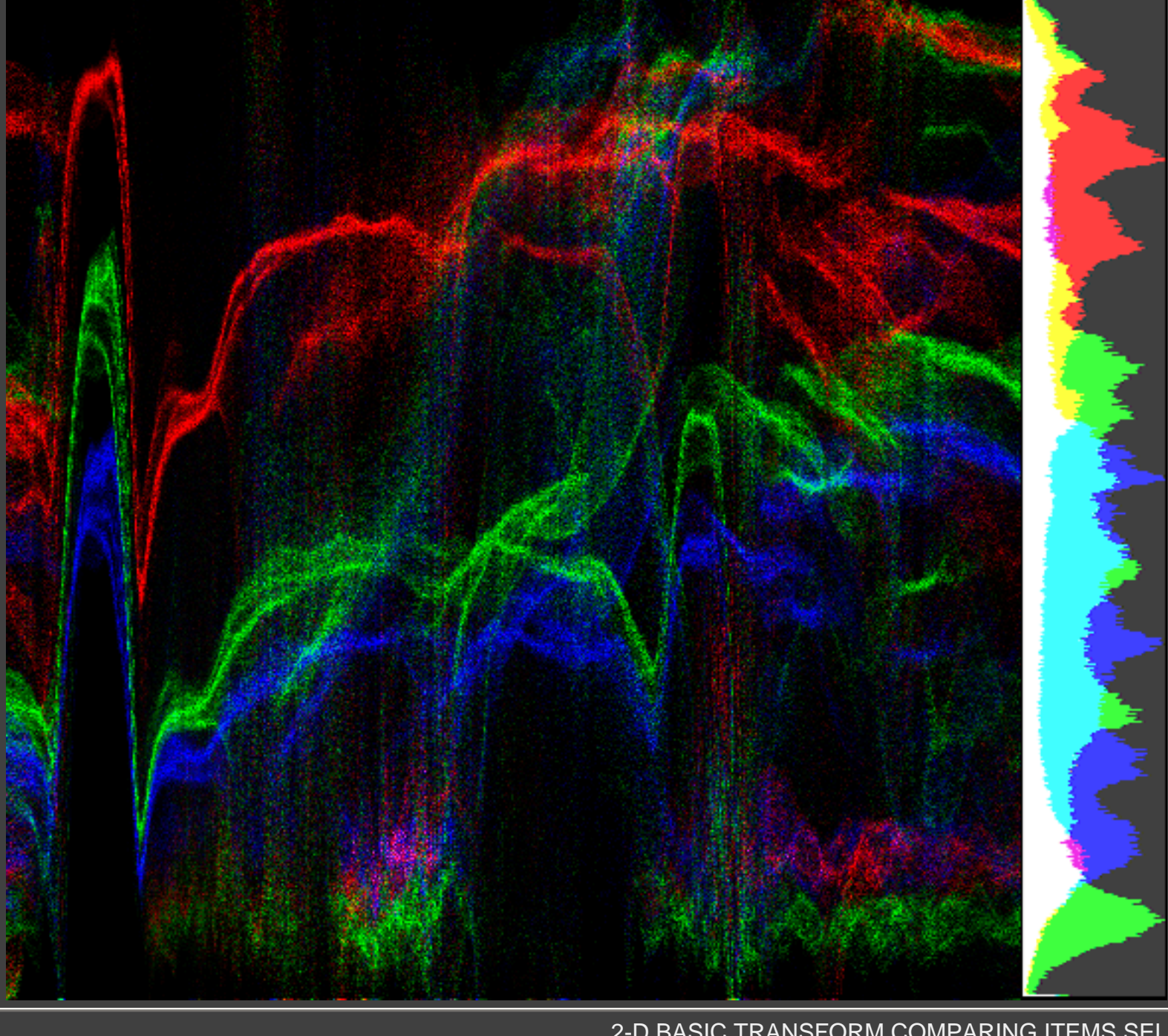
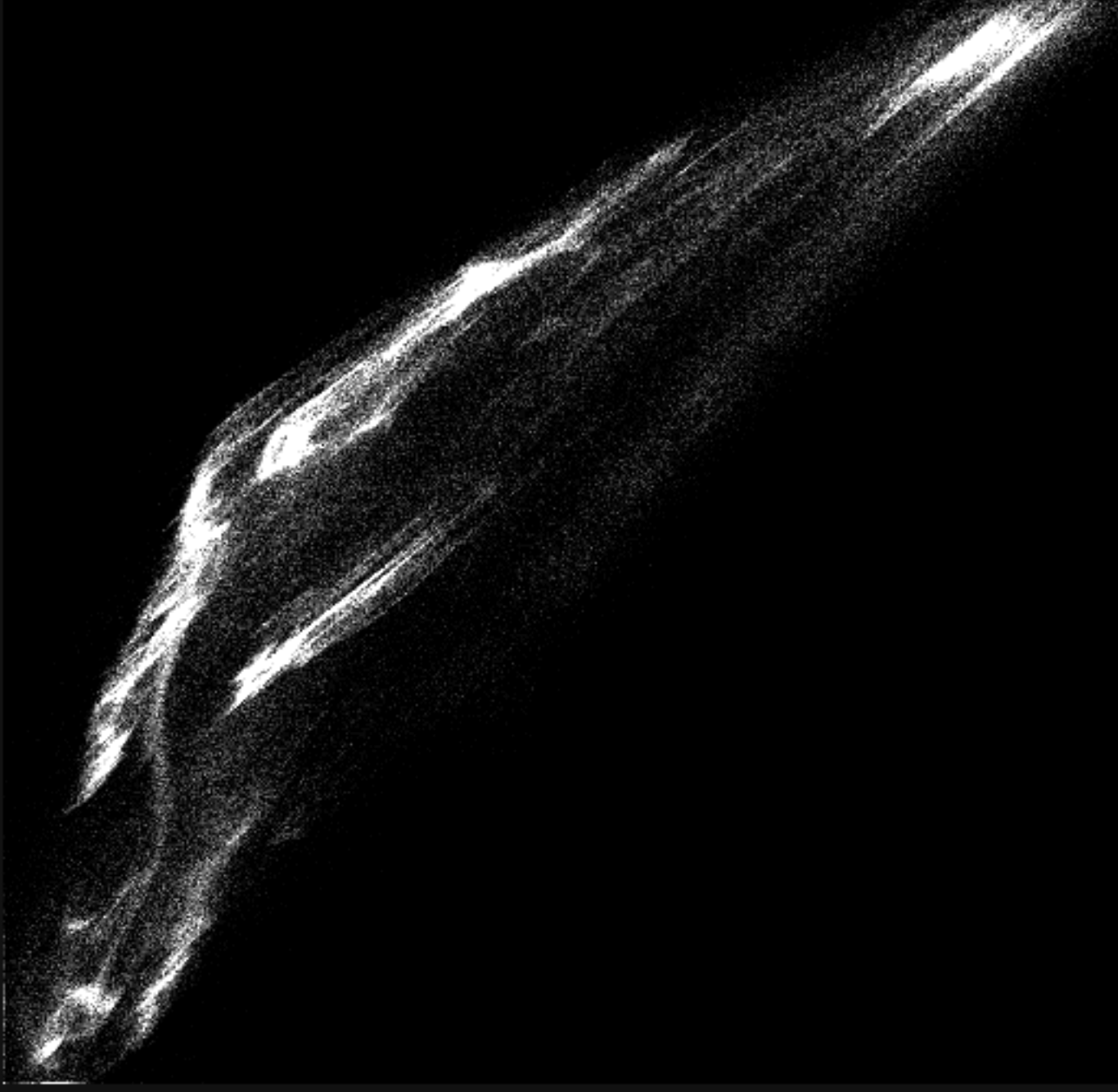


CIRCUMFERENTIAL GRADIENT SYNTHETIC 8 BIT PER COLOR RGB:



CIRCUMFERENTIAL GRADIENT SYNTHETIC followed by 1-D C Histogram 8 BIT PER COLOR RGB:



HISTOGRAM TRANSFORMS INPUT/OUTPUT IMAGES for Photoshop by RONC © 2019	
PHOTOSHOP SCRIPTS and PLUGINS	by RONC
HISTOGRAM TRANSFORMS This Photoshop Script and Plugin allow the user to compute various types of histogram transforms of the input image.	
HOME PROCESS DIALOG/RECAP	
IMAGE Examples: SYNTHETIC 1 page 1 (1-D) page 2 (3-D) SYNTHETIC 2 SYNTHETIC IMAGES	
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TRI-MODAL HISTOGRAM page 1 (1-D) page 2 (3-D)	
Information: INSTALLATION/REMOVAL/EXECUTION(Use)/DOWNLOAD GLOSSARY	
COPYRIGHT CONTRIBUTORS/COMMENTS/ABOUT	
INPUT IMAGE	
Input can be 8, 16, or 32 bits per color channel with the output being the same. USER BEWARE!! When processing 32 bit per color images, keep in mind that Photoshop assumes the file is "linear" as 8 or 16 bit files converted to 32 have "Gamma" of 2.0 removed in the conversion. The images displayed in Photoshop still look the same but the numbers were changed.	
LENA 16 BIT PER COLOR RGB:	
	<p>LENA 16 BIT PER COLOR RGB: Created from an 8 bit RGB file. Dimensions are 512 X 512 px. Color values were stretched from 8 bit to 16 bit and to force both low and high end clipping (blow-out).</p> <p>WIKI Lenna/Lena</p>
OUTPUT IMAGES	
1-D BASIC HISTOGRAM. SAME AS PHOTOSHOP. WORKS ON 32 BIT PER COLOR IMAGES:	
	<p>1-D BASIC HISTOGRAM. SAME AS PHOTOSHOP. WORKS ON 32 BIT PER COLOR IMAGES: [X: maximum partition on right.] [Y: pixel count upward.]</p> <p>WIKI Histogram</p> <p>How to Read and Use Histograms</p> <p>Of Histograms and Waveforms darktable</p>
1-D BASIC HISTOGRAM. SAME AS PHOTOSHOP BUT IS SPATIALLY SCALED TO MAXIMUM WIDTH OF IMAGE. WORKS ON 32 BIT PER COLOR IMAGES:	
	<p>1-D BASIC HISTOGRAM. SAME AS PHOTOSHOP BUT IS SPATIALLY SCALED TO MAXIMUM WIDTH OF IMAGE. WORKS ON 32 BIT PER COLOR IMAGES: [X: maximum partition on right.] [Y: pixel count upward.]</p> <p>For spatial scaling see Histogram Partitions parameter.</p>
1-D TRANSFORM ALONG ROWS:	
	<p>1-D TRANSFORM ALONG ROWS: [X: maximum partition on right.] [Y: row position] [Color: count.]</p> <p>Before reading this section, please look at the images to the left. The upper one is the 1-D Transform along ROWS and the lower one is the Basic Histogram from above but squeezed along the count axis. Notice the relationship between the two images. If the upper one were summed from top to bottom and normalized, the lower image would be the result.</p> <p>For spatial scaling see Histogram Partitions parameter.</p>
1-D TRANSFORM ALONG COLUMNS.	
	<p>1-D TRANSFORM ALONG COLUMNS. [X: column position] [Y: maximum partition on top] [Color: count.]</p> <p>Before reading this section, please look at the images to the left. The left one is the 1-D Transform along COLUMNS and the right one is the Basic Histogram from above but squeezed along the count axis and rotated.</p> <p>Notice the relationship between the two images. If the left one were summed from left to right and normalized, the right image would be the result.</p> <p>For spatial scaling see Histogram Partitions parameter. This display is similar to what is called "Waveform" by those in the video trades.</p> <p>Of Histograms and Waveforms darktable</p>
2-D BASIC TRANSFORM COMPARING ITEMS SELECTED IN OPT2:	
	<p>2-D BASIC TRANSFORM COMPARING ITEMS SELECTED IN OPT2: [X: max partition on right.] [Y: max partition on top.]</p> <p>For spatial scaling see Histogram Partitions parameter. This display shows the comparison of two attributes (OPT2) selected by the user.</p>
Forward to LENA 3-D HISTOGRAM page 2.	

3-D BIT PLANE TRANSFORM:

3-D BIT PLANE TRANSFORM:

(Associated values for 8 bit format)

[1][2][4]
[8][16][32]
[64][128][]

or if you mentally unwrap the images
[1][2]...[32]...[128]

(Associated values for 16 bit format)

[1][2][4][8]
[16][32][64][128]
[256][512][1024][2048]
[4096][8192][16384][32768]

or if you mentally unwrap the images
[1][2]...[256]...[16384][32768]

(Associated values for 32 bit format) NOT AVAILABLE.

This file displays the informations as it is from the input image.

[WIKI bit plane](#)

[Bit plane slicing explanation video](#)

3-D BIT PLANE TRANSFORM (With COMPENSATION):

3-D BIT PLANE TRANSFORM (With COMPENSATION):

(Associated values for 8 bit format)

[1][2][4]
[8][16][32]
[64][128][]

or if you mentally unwrap the images
[1][2]...[32]...[128]

(Associated values for 16 bit format)

[1][2][4][8]
[16][32][64][128]
[256][512][1024][2048]
[4096][8192][16384][32768]

or if you mentally unwrap the images
[1][2]...[256]...[16384][32768]

(Associated values for 32 bit format) NOT AVAILABLE.

COMPENSATION designates that the information displayed is that of the input image scaled to the largest value for the format.

3-D ISOTROPIC-RANGE TRANSFORM (With COMPENSATION):

3-D ISOTROPIC-RANGE TRANSFORM (With COMPENSATION):

To understand the relationship between the 3-D Isotropic-Range transform and the 1-D Basic Histogram, see the diagram below the image. The diagram shows the 1-D Basic Histogram divided into 16 equal segments along the X axis. Each segment is numbered to relate to the 16 frames above. The first row is 1-4 followed by 5-8, 9-12, and 13-16. Each segment/frame contains information from the segment only.

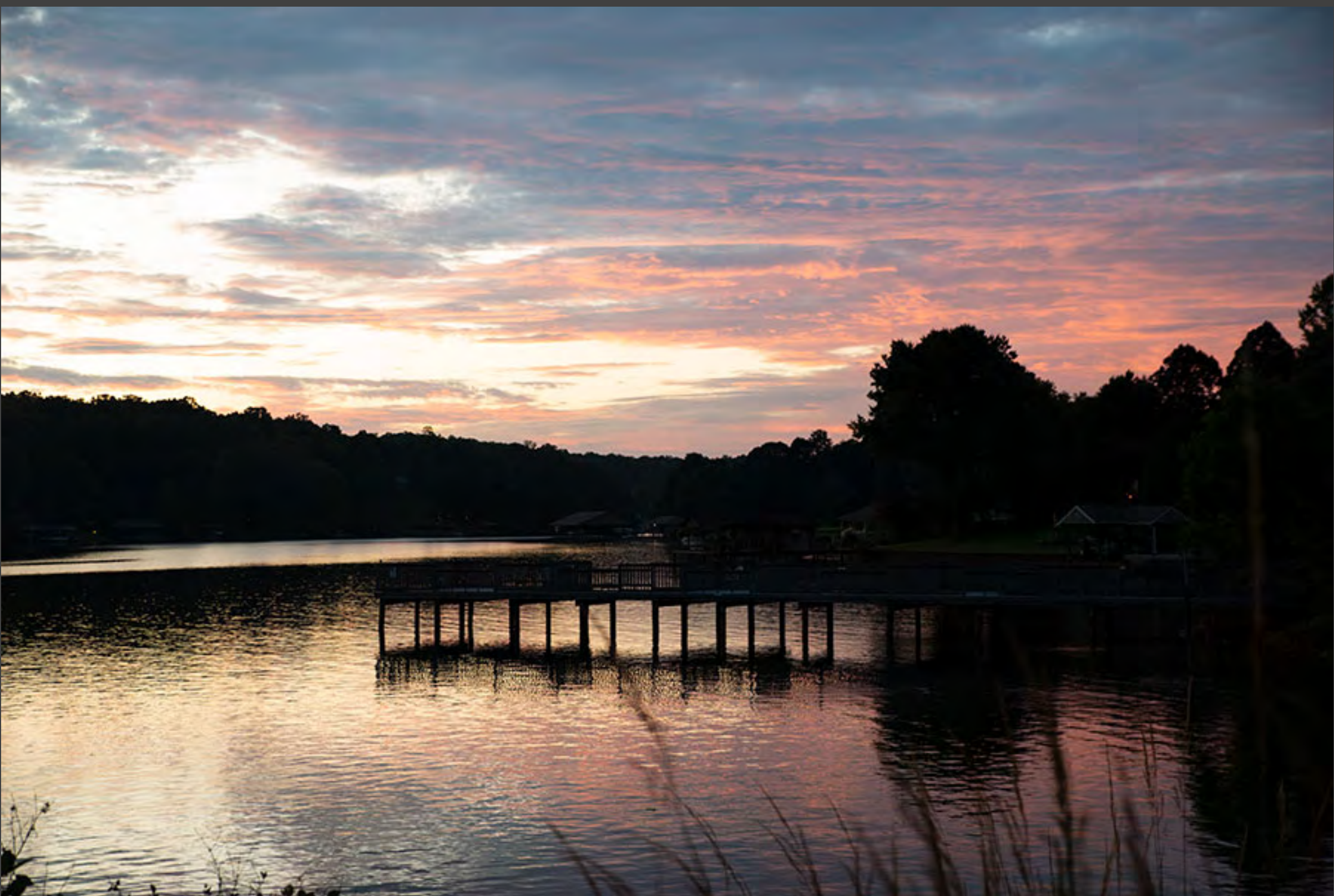
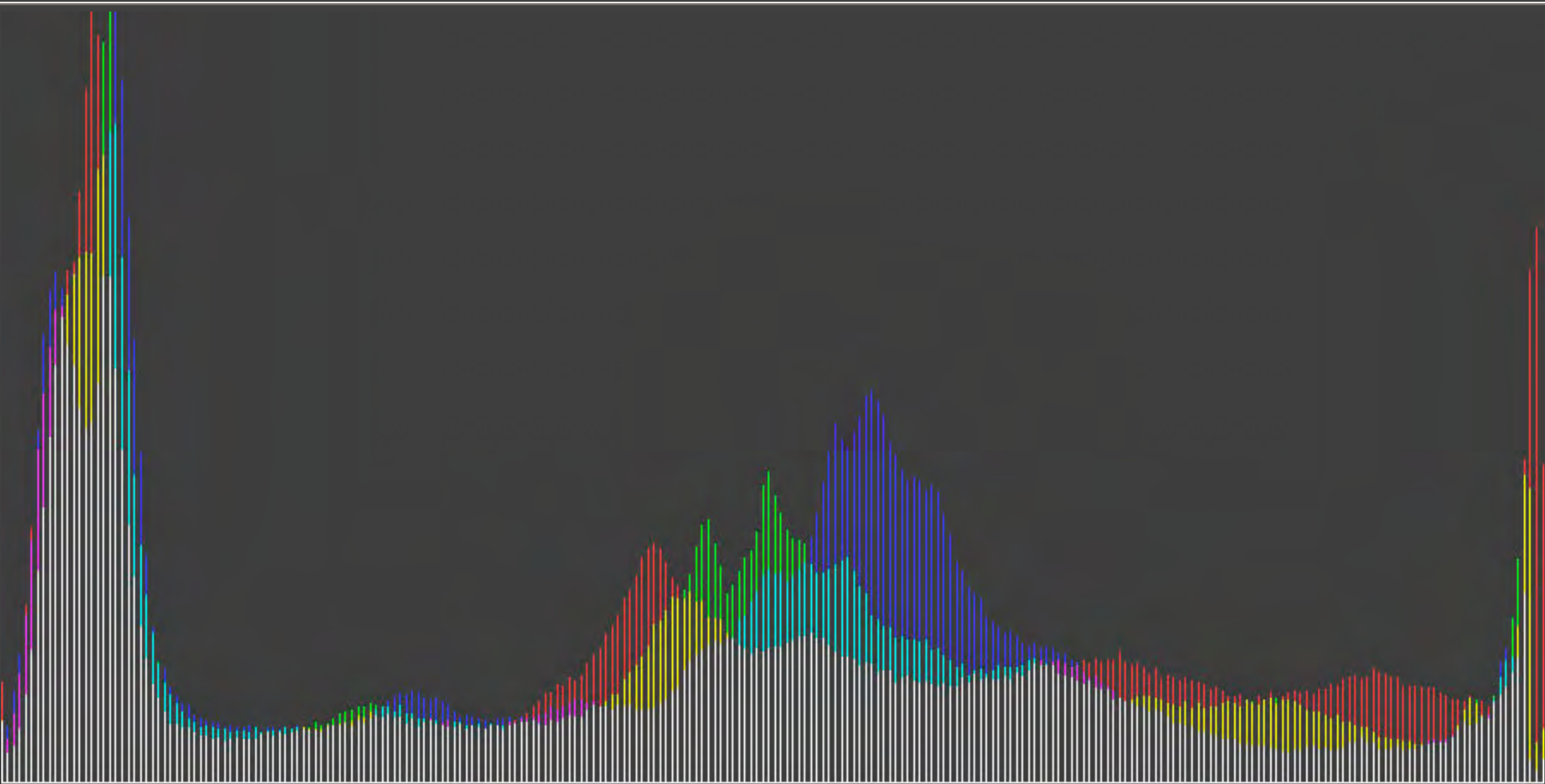
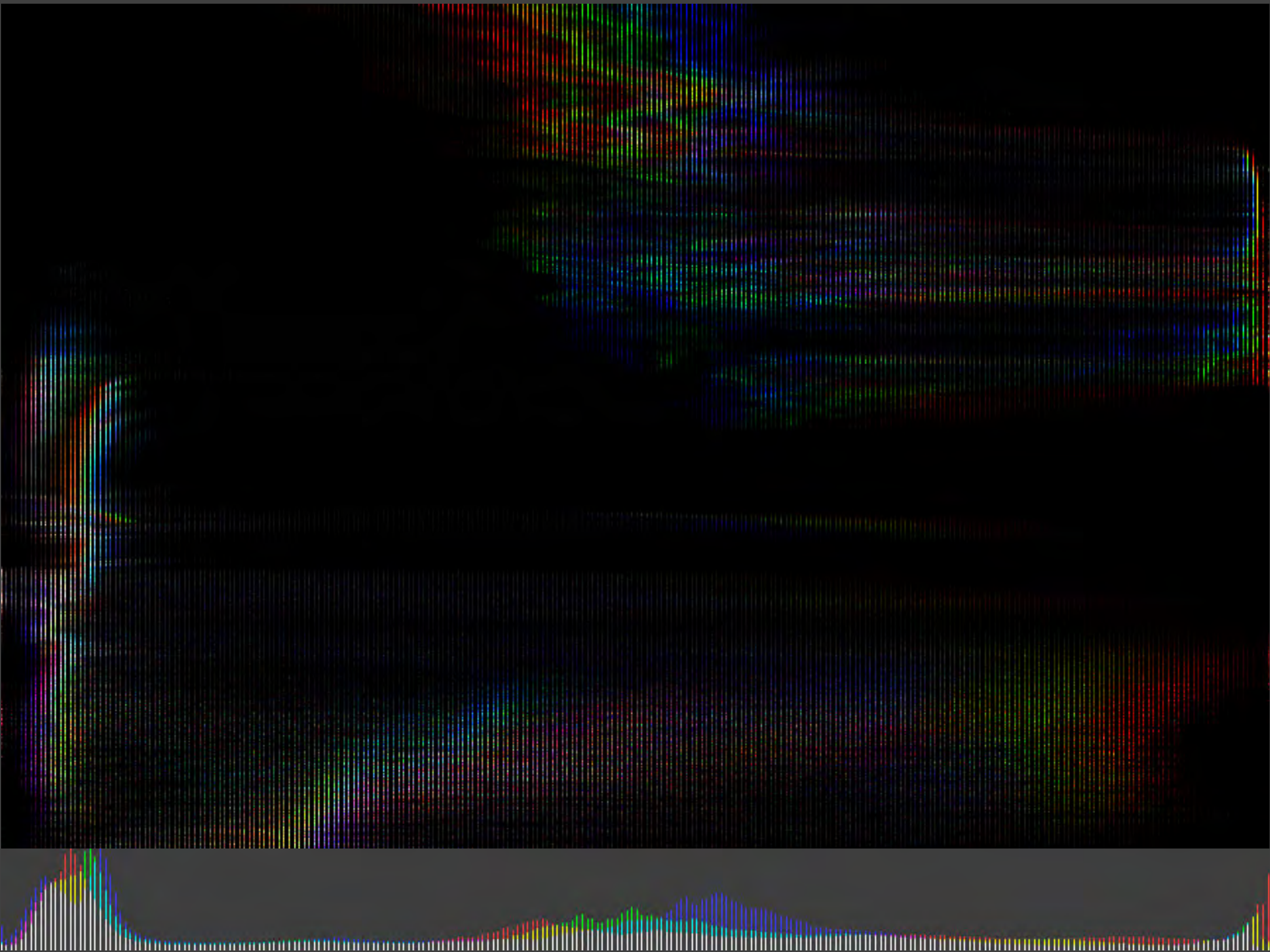
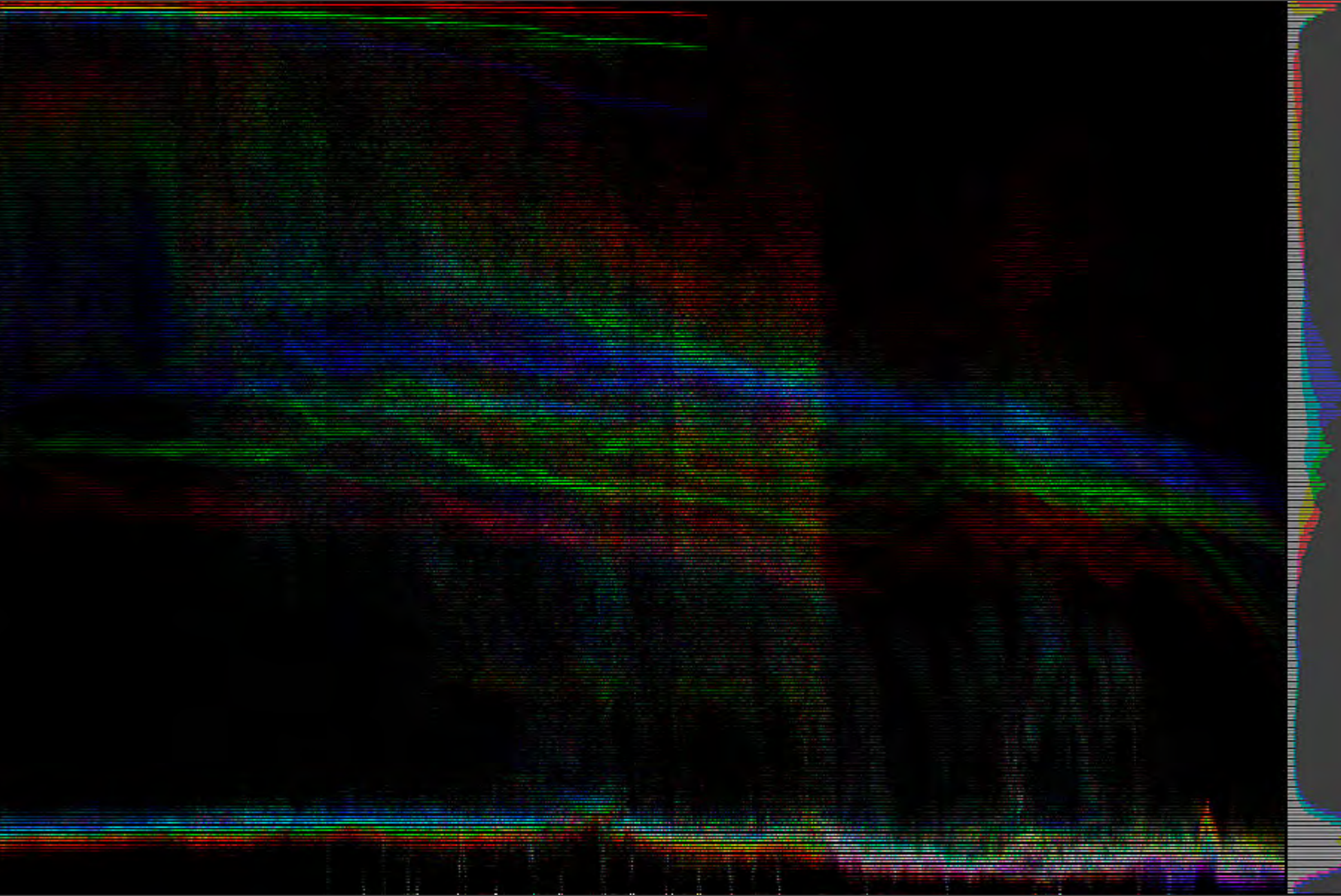
COMPENSATION designates that the information displayed is that of the input image scaled to the largest value for the format.

3-D CUMULATIVE-RANGE TRANSFORM (With COMPENSATION):

3-D CUMULATIVE-RANGE TRANSFORM (With COMPENSATION):

To understand the relationship between the 3-D Cumulation-Range transform and the 1-D Basic Histogram, see the diagram below the image. The diagram shows the 1-D Basic Histogram divided into 16 equal segments along the X axis. Each segment is numbered to relate to the 16 frames above. The first row is 1-4 followed by 5-8, 9-12, and 13-16. Each segment/frame contains information from all previous segments/ frames - frame 5 contains the information of 1 - 5 and frame 16 contains the information from all the segments/frames 1 - 16.

COMPENSATION designates that the information displayed is that of the input image scaled to the largest value for the format.

HISTOGRAM TRANSFORMS INPUT/OUTPUT IMAGES for Photoshop by RONC © 2019	
PHOTOSHOP SCRIPTS and PLUGINS by RONC	
HISTOGRAM TRANSFORMS This Photoshop Script and Plugin allow the user to compute various types of histogram transforms of the input image.	
HOME PROCESS DIALOG/RECAP	
IMAGE Examples: SYNTHETIC 1 page 1 (1-D) page 2 (3-D) SYNTHETIC 2 SYNTHETIC IMAGES	
LENA HISTOGRAM page 1 (1-D and 2-D) page 2 (3-D)	
TRI-MODAL HISTOGRAM page 1 (1-D) page 2 (3-D)	
Information: INSTALLATION/REMOVAL/EXECUTION(Use)/DOWNLOAD GLOSSARY	
COPYRIGHT CONTRIBUTORS/COMMENTS/ABOUT	
INPUT IMAGE	
Input can be 8, 16, or 32 bits per color channel with the output being the same. USER BEWARE!! When processing 32 bit per color images, keep in mind that Photoshop assumes the file is "linear" as 8 or 16 bit files converted to 32 have "Gamma" of 2.0 removed in the conversion. The images displayed in Photoshop still look the same but the numbers were changed.	
TRI MODAL HISTOGRAM - 16 BIT PER COLOR RGB:	
	<div>Tri Modal Histogram 16 BIT PER COLOR RGB: Created from a 16 bit DNG - RGB file, Dimensions are 900 X 600 px for this example but analysis is usually on full image.</div> <div>This scene when viewed by the photographer was probably an exhilarating experience by having so much contrast and variation in color. The photographer knows there is a very limited time window for a shot and that it will be dark so must set the camera quickly and get a shot. The photographer was surely disappointed when viewing what was recorded as both the high end and low end are clipped. The dynamic range of the camera (14 bits) was limited by at least one or two bits. This image was graciously shared by the photographer, Vincent Waldron, to demonstrate the various Histogram transforms. He is a photographer who shares his shots along with comments as to shooting conditions and decisions he had to make. He adds a great deal to others learning about photography.</div> <div>Processing from DNG to Photoshop internal RGB was done with ACR where ACR was limited to the basic color correction and Gamma. This was an attempt to give what the camera sensor output.</div>
IMAGE STATISTICS:	
Plugin information: Hi s1DH HISTOGRAM Transforms RONC 2.31 Sep 9 2019	
Cumul_Range_Comp Single layer Bit/Depth: 16 Partitions: 4 Standout: 100 Log value: No Background: 64 Range (min/max/inc): 0 [0] / 32768 [256] / 8192 [64] Clip percent (lo/hi): 0.2 % / 0.2 % Colors[Px]: 1622700 [540900] Mean: 13868 [108.4] StdDev: 9781 [76.5] Partitions: 4 X 4 Increment: 2050 Start Date/Time 2019.09.09 / 20:05:23.764 Stop Date/Time 2019.09.09 / 20:05:32.117	
OUTPUT IMAGES	
1-D BASIC HISTOGRAM. SAME AS PHOTOSHOP. WORKS ON 32 BIT PER COLOR IMAGES:	
	<div>1-D BASIC HISTOGRAM. SAME AS PHOTOSHOP. WORKS ON 32 BIT PER COLOR IMAGES: [X: maximum partition on right.] [Y: pixel count upward.]</div> <div>This is a Tri Modal Basic histogram showing three (tri) major bumps within the range of sample values. Clipping is shown at both ends and the lost information from clipping is not retrievable. The Basic histogram shows the relative count of analyzed values but does not show where they reside in the image.</div>
WIKI Histogram How to Read and Use Histograms Of Histograms and Waveforms darktable WIKI Clipping	
1-D TRANSFORM ALONG ROWS:	
	<div>1-D TRANSFORM ALONG ROWS: [X: maximum partition on right.] [Y: row position.] [Color: count.]</div> <div>This is a 1-D Transform along the Rows. This is a Basic Histogram computed and displayed over each of the 600 rows. The Tri-modal nature of the data is shown in this display. Starting at the bottom edge of the display we see the first bump of the tri-modal</div> <div>Before reading this section, please look at the images to the left. The upper one is the 1-D Transform along ROWS and the lower one is the Basic Histogram from above but squeezed along the count axis.</div> <div>Notice the relationship between the two images. If the upper one were summed from top to bottom and normalized, the lower image would be the result.</div>
For spatial scaling see Histogram Partitions parameter.	
1-D TRANSFORM ALONG COLUMNS.	
	<div>1-D TRANSFORM ALONG COLUMNS. [X: column position.] [Y: maximum partition on top.] [Color: count.]</div> <div>This is a 1-D Transform along the Columns. This is a Basic Histogram computed and displayed over each of the 900 columns.</div> <div>Before reading this section, please look at the images to the left. The left one is the 1-D Transform along COLUMNS and the right one is the Basic Histogram from above but squeezed along the count axis and rotated.</div> <div>Notice the relationship between the two images. If the left one were summed from left to right and normalized, the right image would be the result.</div>
For spatial scaling see Histogram Partitions parameter. This display is similar to what is called "Waveform" by those in the video trades.	
Of Histograms and Waveforms darktable	
Forward to TRI-MODAL HISTOGRAM page 2.	

HISTOGRAM TRANSFORMS INSTALLATION/REMOVAL/EXECUTION(Use)/DOWNLOAD for Photoshop by RONC © 2019	
PHOTOSHOP SCRIPTS and PLUGINS by RONC	
HISTOGRAM TRANSFORMS This Photoshop Script and Plugin allow the user to compute various types of histogram transforms of the input image.	
<div>HOME PROCESS DIALOG/RECAP</div> <div>IMAGE Examples: SYNTHETIC 1 page 1 (1-D) page 2 (3-D) SYNTHETIC 2 SYNTHETIC IMAGES</div> <div>LENA HISTOGRAM page 1 (1-D and 2-D) page 2 (3-D)</div> <div>TRI-MODAL HISTOGRAM page 1 (1-D) page 2 (3-D)</div> <div>Information: INSTALLATION/REMOVAL/EXECUTION(Use)/DOWNLOAD GLOSSARY</div> <div>COPYRIGHT CONTRIBUTORS/COMMENTS/ABOUT</div>	
INSTALLATION/REMOVAL/EXECUTION(Use)/DOWNLOAD	
<p>This script should work on Photoshop versions CS6 and CC onwards and for both Windows and MAC.</p> <p>The Plugin filename is His1DH.8bf or His1DH.PLUGIN.</p> <p>The Script filename is HistogramTransforms.jsxbin and will be loaded to a folder with mostly *.jsx files.</p> <p>The User manual filename is HISTOGRAM-TRANSFORMS-USER-MANUAL.pdf and should be placed in the same folder as the Script file.</p>	
<div>WINDOWS 10 foldername: PSCC 2019:</div> <div>Load the HistogramTransforms.jsxbin file into the scripts folder C:\Program Files\Adobe\Adobe Photoshop CC 2019\Presets\Scripts\ Load the His1DH.8bf file into the plugin folder C:\Program Files\Adobe\Adobe Photoshop CC 2019 \Plug-ins\</div>	<div>MAC OS X foldername: PSCC 2019:</div> <div>***(NOT AVAILABLE YET)*** Users/[USERNAME]/Library/Preferences/Adobe Photoshop CC 2019 Settings</div>
<p>After loading your desired image into Photoshop, proceed to File>Scripts and select the script: HistogramTransforms.jsxbin. The script will open a dialog as shown at top of this file. Once the user clicks on OK, the script will write a file to C:\Users\XXXX\AppData\Local\Temp\Histogram2P.cfg and open the plugin (His1DH.8bf). The plugin will perform the Transform and then writes a file to C:\Users\XXXX\AppData\Local\Temp\Histogram2S.cfg to communicate back with the script and a another file to C:\Users\XXXX\AppData\Local\Temp\Histogram2L.log for debugging if needed. The script will read the cfg file and display the Recap dialog. Use the Copy to clipboard option to save the statistics related to the input file. Clicking OK will close the dialog. The plugin is designed to work only with the script as a frontend. Trying to run the plugin from the filter menu is at your own risk. XXXX is the user's [USERNAME].</p>	
<div>DOWNLOAD This user manual.</div> <div>DOWNLOAD Zip file with Script and Plugin.</div>	

HISTOGRAM TRANSFORMS GLOSSARY for Photoshop by RONC © 2019	
PHOTOSHOP SCRIPTS and PLUGINS by RONC	
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GLOSSARY	
This is a GLOSSARY list for HISTOGRAM TRANSFORMS	
Compensation - Scale thumbnail image to be within a visible level. Cumulative-Range - Constant value defining a contour level and below of the attribute being displayed. Isotropic-Range - Constant value defining a contour level and the area near it.	

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PHOTOSHOP SCRIPTS and PLUGINS by RONC	
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COPYRIGHT	
<div>RON CHAMBERS COPYRIGHT 2019 HISTOGRAM TRANSFORMS LICENSE AND COPYRIGHT Ron Chambers, rechmbrs@gmail.com August 2019</div> <div>Release of HistogramTranforms.jsxbin. The jsxbin routines are JavaScripts scripts for Adobe Photoshop. Compilation and rules for coding were set by Adobe ExtendedScript.</div> <div>Release of His1DH.8bf. The 8bf routines are plugin files for Adobe Photoshop. Compilation and rules for coding were set by Adobe Photoshop SDK2019.</div> <div>This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.</div> <div>This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.</div> <div>3-D Isotropic Range Histogram and 3-D Cumulative Range Histogram are copyright of RONC © 2019.</div>	

HISTOGRAM TRANSFORMS COMMENTS for Photoshop by RONC © 2019
PHOTOSHOP SCRIPTS and PLUGINS by RONC
HISTOGRAM TRANSFORMS This Photoshop Script and Plugin allow the user to compute various types of histogram transforms of the input image.
<div>HOME PROCESS DIALOG/RECAP</div> <div>IMAGE Examples: SYNTHETIC 1 page 1 (1-D) page 2 (3-D) SYNTHETIC 2 SYNTHETIC IMAGES</div> <div>LENA HISTOGRAM page 1 (1-D and 2-D) page 2 (3-D)</div> <div>TRI-MODAL HISTOGRAM page 1 (1-D) page 2 (3-D)</div> <div>Information: INSTALLATION/REMOVAL/EXECUTION(Use)/DOWNLOAD GLOSSARY</div> <div>COPYRIGHT CONTRIBUTORS/COMMENTS/ABOUT</div>
CONTRIBUTORS
This is a CONTRIBUTORS list for HISTOGRAM TRANSFORMS Vincent Waldron - made available Tri Modal Histogram data example.
COMMENTS
This is a COMMENTS list for HISTOGRAM TRANSFORMS In an effort to make this more useful, please make constructive comments which can be included. If there is an easier way to state what is here, please let me know.
ABOUT
RONC, Ron Chambers, is a retired research physicist and one time avid amateur photographer.