

DO YOU NEED A DIGITAL COLOR TRAINING?

One important precision: what we call hereafter "color" is the color such as we perceive it.

"Identical Colors" thus means "identical perceived colors".

BLACK & WHITE:

- 1) The color of a gray depends on the ambient light: True False
- 2) A perfectly neutral gray does not have a color: True False
- 3) Two identical grays have the same densities: True False
- 4) If a body is neutral gray it is because it uniformly reflects all the wavelengths of visible light: True False
- 5) On a blank paper sheet, there are approximately:
 - 1 shade of gray True False
 - 20 levels of gray True False
 - More than 256 levels of gray True False

LIGHT:

- 1) By mixing 3 carefully selected R, G and B lights you can produce all the visible colors: True False
- 2) By mixing 3 carefully selected R, G and B lights you can produce all the printable colors: True False
- 3) You can make a 5000 K light by colored filtering of a 6500 K (D65) light True False
- 4) You can make a 6500 K light by colored filtering of a 2800 K light: True False
- 5) The color of a light source depends on the ambient light: True False
- 6) The standardized light in for prepress is 5000 K: True False
- 7) The standardized light for press room is 6500 K: True False
- 8) You can reproduce in 6500 K lighting the appearance of a 5000 K color: True False
- 9) Two lights of identical colors have identical visible spectra: True False
- 10) For better seeing the yellow screen dots of a print it is better to use a yellow light: True False

DENSITY:

- 1) A printer densitometer makes use of 3 R, G, B filters to display CMYK densities: True False
- 2) A Photo Lab densitometer makes use of 3 R, G, B filters to display RGB densities: True False
- 3) The density of a color depends on the ambient light: True False
- 4) A gray reflecting 50 % of the light has a 0.5 density: True False
- 5) Two identical colors on a color CMYK print and its digital proof have identical densities: True False

DENSITY (Continued):

- 6) The density of a perfectly transparent film depends on:
- The color of film True False
 - The propagation velocity of the light through film True False
 - The thickness of film True False
- 7) When you measure by using an optical densitometer a 50 % dot area on a Graphic Arts film, this means that screen dots occupy 50 % of measured surface: True False
- 8) N factor of a color proof is closer to 1 than that of a film: True False
- 9) N factor depends on the used screen ruling: True False

COLORS:

- 1) The perceived color on objects depends on the ambient light: True False
- 2) The color of an opaque photo paper is produced in subtractive mode: True False
- 3) The color of a Fuji transparency is produced in subtractive mode: True False
- 4) The color of a Polaroid 35 mm slide is produced in subtractive mode: True False
- 5) The color of an auto chrome plate is produced in subtractive mode: True False
- 6) Photography use RGB pigments whereas printing works use CMYK pigments: True False
- 7) With a very good spectrophotometer, obtained measurements are exact: True False
- 8) In Graphic Arts you use spectrophotometers ensuring a better than 0.5 Delta E Lab colorimetric measuring accuracy because it is essential for obtaining top quality results: True False
- 9) Colorimeters being more specialized for measurement of colors, will give slightly more accurate results than spectrophotometers: True False
- 10) Some colorimeters are using 4 filters for better measurement of CMYK colors True False
- 11) Paper densitometers being more specialized for measurement of densities, will give slightly more accurate results than spectrophotometers: True False
- 12) Any color can be measured in RGB: True False
- 13) Any printable color can be measured in CMYK: True False
- 14) Any color can be measured in CIE xyY: True False
- 15) Any color can be measured in CIE Lab: True False
- 16) The Lab variation (Delta E Lab) is measured in densities: True False
- 17) Lab Lch is more accurate than Lab: True False
- 18) Measurements in xyY are more accurate than measurements in XYZ: True False
- 19) The knowledge of the xyY value of a color informs us well about appearance of this color: True False
- 20) The knowledge of the Lab Lch value of a color informs us well about of appearance this color: True False
- 21) A sufficiently accurate spectrophotometer makes it possible to distinguish a green-blue from a blue-green: True False
- 22) A 45/0° spectrophotometer can measure 10° angle xyY colors: True False
- 23) The polarizing filter of a spectrophotometer is intended:
- To measure colors on transparencies True False
 - To protect the spectro when measuring RGB monitors True False
 - To measure densities True False
 - To measure the color of fishes True False
- 24) The D65 filter of a spectrophotometer is intended to measure the appearance of colors in 6500 K light True False

DIGITAL AND TRADITIONAL PHOTOGRAPHY:

- 1) Two different digital cameras with same settings see the same RGB for the same color: True False
- 2) Two identical colors produce the same RGB on the same digital camera with same settings: True False
- 3) A digital camera must be tested:
 - On images True False
 - On test patterns True False
 - With measuring instruments True False
- 4) Human vision distinguishes less than 16 million colors: True False
- 5) For exposing well a positive transparent film, a 3 x 8 bits (16 million colors) RGB file is enough: True False
- 6) RGB filters of digital camera must be optimized to ensure a good display of its RGB data on RGB monitors: True False
- 7) In photography the theoretical resolution of the images is limited by the wavelengths of visible light: True False
- 8) On a traditional camera, the quality of the images is limited more:
 - By the resolution of optics True False
 - By the dimensions the image in the focal plan True False
- 9) On a digital camera, the quality of the images is limited more:
 - By the resolution of optics True False
 - By the dimensions of the image in the focal plan True False
- 10) With a tri-CCD digital camera producing a 2000 x 2000 pixels per RGB image layer, the resolution of obtained photographs will always grow with the resolution of the used objective lens: True False
- 11) On a mono CCD matrix digital camera used with tungsten light, the density range of produced images will be identical on the three RGB layers: True False
- 12) CCD sensors being sensitive to infra-red, ICC offers to correct the image colors by infra-red corrective data: True False
- 13) If you under-exposes of two diaphragms a digital photograph:
 - You lose 0.5 D in density range True False
 - You lose 0.6 D in density range True False
 - You lose 2.0 D in density range True False
- 14) On a digital camera, the resolution can be measured:
 - In pixels True False
 - In line pairs per millimeter at the focal plan True False
 - In mega pixels True False
- 15) The test benches of digital cameras published in Trade press are carried out with measuring instruments: True False

SCANNING AND COLOR RETOUCHING:

- 1) If you address to an RGB printer the RGB data of a scanner and printed colors are not good, that means that:
 - The scanner didn't see well the RGB colors of the original? True False
 - The printer did not reproduce correctly the specified RGB colors? True False
 - This question is stupid True False

SCANNING AND COLOR RETOUCHING: (Continued)

- 2) If the printed CMYK image produced by a scanner CMYK color calculator is not color faithful, that means:
- That the scanner didn't see well the color on the original? True False
 - That the original colors were well seen, but that calculated CMYK color separation is unsuited to the print process? True False
 - You cannot know True False
 - This question is idiot True False
- 3) For accurately scanning an opaque original it is necessary to choose on the RGB scanner a gamma value close to the RGB monitor's gamma: True False
- 4) To get good scans it is necessary to first optimize the choice of the black point and white point on each original: True False
- 5) RGB filters of a scanner must be optimized to ensure a good display of produced RGB data on RGB monitors: True False
- 6) Gamma transfer function of a tri-CCD scanner is a:
- Logarithmic curve True False
 - Exponential True False
 - Linear True False
 - Bilinear True False
 - Tri linear True False
- 7) Gamma of a modern scanner is a function of:
- A technical choice of the scanner manufacturer True False
 - Non uniformity of CCD arrays visible spectral response True False
 - CCD charging voltage non proportional to received light quantity True False
 - The ignorance of the scanner manufacturer True False
- 8) If you double the scanning speed of a scanner without modifying the other parameters, its density range:
- Remains constant True False
 - Decreases by 0.3 D True False
 - Decreases by 0.5 D True False
- 9) On professional drum scanners provided with 4 photomultipliers, these 4 channels are used:
- To measure colors more accurately True False
 - To analyze the image directly in CMYK for a better productivity True False
 - To enhance the image sharpness by analog computation True False
 - Actually the fourth photomultiplier is used as spare (Raid architecture) True False
- 10) For a good printed reproduction it is enough to transform the scanner RGB into press CMYK, by using the ICC profiles of the scanner and the press: True False
- 11) For the same color on the same original, two different scanners with same settings see the same RGB value: True False
- 12) Two identical colors on KODAK and FUJI originals produce the same RGB on the same scanner: True False
- 13) There is only one way of properly copying a transparency on a transparency: True False
- 14) There is only one way of properly copying a transparency on paper: True False
- 15) The test benches of scanners published in Trade press are carried out with measuring instruments: True False

RESOLUTION:

- 1) Gamma is:
- A characteristic of LCD monitors True False
 - A characteristic of presses True False
 - A characteristic of scanners True False
- 2) Two scanners having each one an optical definition of 2500 dpi will produce scans of the same quality: True False
- 3) Two scanners having each one an optical definition of 2500 dpi and delivering each 42 bits RGB files will give scans of the same quality: True False
- 4) Two scanners having each one an optical definition of 2500 dpi and a 3,6 D measured range of density are equivalent scanners because they offer the same image output resolution: True False
- 5) You decreases by 1.5 dimensions of a 2000 x 2000 pixels image with preserving its proportions:
- Information is gained True False
 - Information is lost True False
 - Information is kept True False
- 6) You double the area of a 2000 x 2000 pixels image with preserving its proportions:
- Information is gained True False
 - Information is lost True False
 - Information is kept True False
- 7) You apply a contrast correction to a digital image for better displaying it or making it look nicer; in general:
- Information is gained True False
 - Information is lost True False
 - Information is kept True False
- 8) PostScript is a color management language: True False
- 9) For printing monochrome image on paper 8 bits are enough: True False
- 10) For monochrome print of newsprint with a 1,5 D densities range, 6 bits image coding is enough: True False
- 11) The resolution of an image can be expressed:
- In DPI True False
 - In pixels True False
 - In mega pixels True False
- 12) The resolution of a scanner can be expressed:
- In DPI True False
 - In pixels True False
- 13) The resolution of a printer can be expressed:
- In DPI True False
 - In pixels True False

RESOLUTION (Continued):

- 14) An ICC profile editor software is intended:
- To enhance the simulation of an analog proof or printing press by a color proofing system True False
 - To quickly compensate for the drifts of a professional printer True False
 - To correct for the inherent imperfections in ICC True False
 - To correct for the software bugs True False
- 15) You can use ICC technology as well with Windows NT4 than with Mac OS: True False
- 16) In Graphic Arts it is better to use with Adobe Photoshop the following RGB workspace:
- The color space of your monitor True False
 - ColorMatch RGB Space True False
 - Adobe RGB 98 Space True False
 - sRGB Space True False
- 17) One of above RGB ICC profiles is optimized for Graphic arts works: True False

MONITORS:

- 1) A monitor is an input peripheral: True False
- 2) A monitor is an output peripheral: True False
- 3) To display a gray on a monitor, you should make $R = G = B$: True False
- 4) When two monitors are perfectly calibrated and moreover well characterized by their respective ICC profile in this state of good calibration, the same RGB image sent to these monitors will be visualized with closest possible colors: True False
- 5) When two monitors are perfectly calibrated and moreover well characterized by their respective ICC profile in this state of good calibration, an RGB image created on one of these monitors can be visualized on the other monitor with closest possible colors: True False
- 6) When two monitors are perfectly calibrated and moreover well characterized by their respective ICC profile in this state of good calibration, the same Lab image addressed to each monitor by its ICC profile will be visualized on both monitors with closest possible colors: True False
- 7) A RGB monitor must be tested:
- On images True False
 - On test patterns True False
 - With measuring instruments True False
- 8) Gamma of PC monitors is equal to 2.2: True False
- 9) Gamma of the Apple Computers monitors is equal to 1.8: True False
- 10) The ICC profile of a monitor must take in account the ambient light: True False
- 11) The 4 filters colorimetric probe delivered with an high end proprietary calibrated monitor indicates a white point of 5000 K when a spectrophotometer measures 5500 K:
- This is normal because a colorimeter is more specialized in color measurement True False
 - Why deliver a colorimeter with a high end monitor? True False
- 12) On a high end proprietary calibrated CRT monitor, you can visualize all the colors of an analog proof with a color variation not exceeding 3 or 4 Delta E Lab: True False

MONITORS: (Continued)

- 13) For characterizing a monitor well, it is better to measure it individually in the production factory:
- True, a spectro radiometer will give a much more accurate color measurements True False
 - It is a Belgian story True False
- 14) You needs a graphics board allowing real time gamma corrections by 3 RGB Look Up tables for using comfortably ICC profiles with monitors: True False
- 15) The test benches of monitors published by Trade press are carried out with measuring instruments: True False

COLOUR PROOFING:

- 1) Two identical colors in D50 lighting have identical spectra: True False
- 2) Two identical colors in D50 lighting on the same CMYK printed paper have identical spectra: True False
- 3) The dot gain of an analog proof is identical with 150 and 80 screen rulings: True False
- 4) You can simulate a CMYK analog proof with a trichrome CMY printer: True False
- 5) You can simulate a CMYK analog proof with an RGB photographic film recorder: True False
- 6) You can simulate a CMYK analog proof with a printing press: True False
- 7) You can simulate an analog proof with an RGB monitor True False
- 8) A CMYK printed form with adequate control bars and the ICC profile of the used CMYK printer has value of a contract proof: True False
- 9) A photo print with adequate control bars and the RGB ICC profile of the used photographic film recorder has value of a contract proof: True False
- 10) A CMYK analog proof such as cromalin or MatchPrint with control bars but without the attached CMYK ICC profile has value of a contract proof: True False
- 11) To make a color printer simulate the colors a MatchPrint, the MatchPrint ICC profile should be used as output profile: True False
- 12) Measured inks densities must be identical on a MatchPrint and a digital proof simulating well this MatchPrint: True False
- 13) A good digital proof reproduces perfectly the target colors: True False
- 14) If the reproduction is not perfect any more it needs to re calibrate immediately the color proofing system: True False
- 15) A printed paper form on a drum web press must be proofed with equipment offering an excellent resolution on line work: True False
- 16) Two MatchPrint made from same CMYK file are identical: True False
- 17) Two MatchPrint made from same films are identical: True False
- 18) Two digital proofs made successively from same file CMYK are identical: True False
- 19) To obtain a good digital proof the difference between analog proof and its digital simulation should not exceed 2 or 3 Delta E Lab: True False
- 20) Same CMYK screened films produces identical colors on cromalin and MatchPrint: True False
- 21) An analog proof simulates the offset printing press well: True False

COLOR PRINTING AND PRINTING WORKS:

- 1) The work of a print house generally consists in simulating colors of the Color proof by acting on the adjustments and settings of its printing press: True False
- 2) The adjustments of density or dilution of the primary colors and Ink settings on a printing press are intended for simulating well the customer's Color Proof: True False
- 3) The adjustments of density or dilution of the primary colors and Ink settings on a printing press make it possible to simulate well the customer's Color Proof True False
- 4) An Image Setter is a color printer offering a very high resolution for line work (e.g. 2540 dpi): True False
- 5) In subtractive mode, the absorption spectra of each primary ink CMYK are adding: True False
- 6) To make a trichrome gray you should make $C = M = J$: True False
- 7) On a color printer it is necessary to use more Cyan than of Magenta and Yellow to make a trichrome neutral gray: True False
- 8) A printer is an output peripheral: True False
- 9) A printer is an input peripheral: True False
- 10) A printer must be tested:
 - On a set of images True False
 - On test patterns True False
 - With measuring instruments True False
- 11) To improve the color gamut of a printing press, using additional primary colors inks is compulsory : True False
- 12) Color printers drivers are generally optimized:
 - To maximize the inks consumption True False
 - To authorize a broader range of colors thanks to the impression in RGB mode True False
- 13) Color printers test benches published in the Trade press are carried out with measuring instruments: True False