

RGB Electronic Test Targets

By E. M. Granger, IQ Colour, LLC and Reuben Rettke, Quantum Graphix, LLC

With the advent of digital cameras, there is a transition of graphics data now being stored in RGB form and not in the traditional CMYK format. A new set of RGB test targets is being presented that helps designers trouble shoot problem images.

One of the new test targets is an update of the “Granger Rainbow”. The new rainbow presents RGB combinations that are physiologically uniform in hue and saturation. The target displays color from neutral to full saturation for half of the display. The second half of the display is used to darken the fully saturated colors to the black point. This target is very useful in testing the ability of a transformation to map the convex hull of the real world of color.

A second larger number of targets is used to explore the ability of a gamut mapping scheme to reproduce colors and color gradients within the convex hull of the color space.

These targets are used in the diagnoses of problems of reproducing computer generated images. The requirement of gamut mapping to reproduce an RGB image sometimes produces images with contours. The new targets will aid in identifying color regions where gamut mapping may produce problems.

The Granger Rainbow

For a long while the original Granger Rainbow file was lost into the digital garbage can. Many have found it useful and have tried several methods to reproduce the target. We are providing down loadable files of the Rainbow at our website iqcolour.com.

The Granger Rainbow is presented for our new IQrgb system¹ and for gamut mapped versions for sRGB, Apple RGB and Adobe wide gamut RGB. We can add files for other RGB system as time permits.

The Rainbow has found great use in determining the loss of color quality in A2B – B2A round trips. The target explores the outer most convex hull of each RGB color space from the white point to the brightest colors and on to the black point.

Interior Colors

The Granger Rainbow will give you a quick look at the gross aspects of color reproduction. We have added a number of files that explore the entirety of color space in a large number of vignettes that point out digital contouring due to gamut mapping. These color vignettes are a challenge to reproduce and quickly show reproduction errors that are difficult to analyze using normal color images.

Conclusions

IQ Colour, LLC will provide the Granger Rainbow and a large number of color vignettes that cover all of RGB color space. These files can be found on www.iqcolour.com. The web site is just coming on line. We will first get support for IQrgb, Apple RGB, sRGB and the Adobe wide gamut RGB.

Reference

- 1] E.M.Granger, “ A Vision Based RGB Color Space”, TAGA, 2001