Color Dynamic Sweep
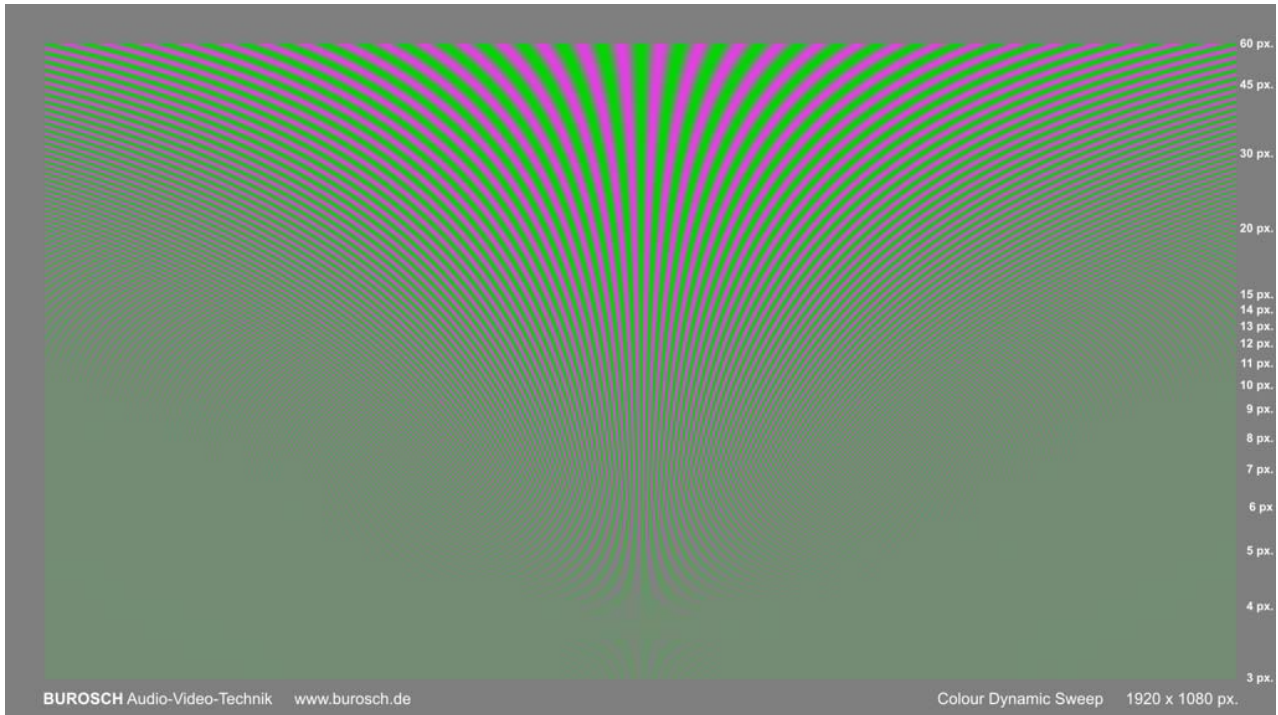
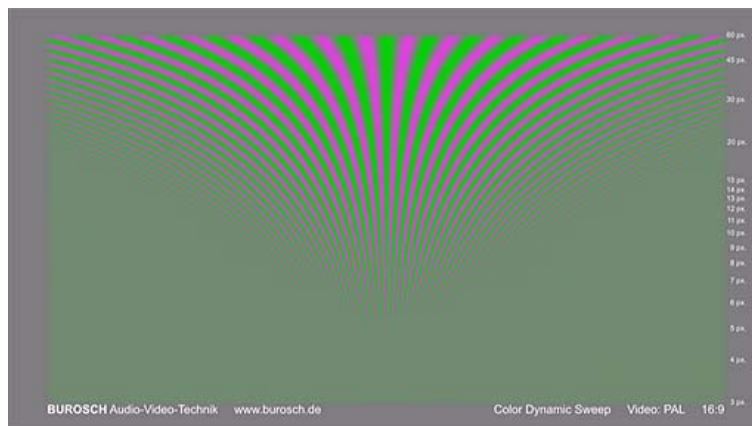![BUROSCH Audio-Video-Technik logo]

Test Pattern: Color Dynamic Sweep

The color dynamic sweep test pattern gives a lot of possibilities for image calibration and quality evaluation without measurement devices. The test pattern elements are optimized for accurate reading precision. The following aspects of the playback quality you can perceive in the Color Dynamic Sweep test pattern or with its help to modify:

- colored Dynamic Sweep..pages........................4
- Chroma band width...pages....................4, 5
- composite signal..pages....................7, 8
- over-focus...pages..................9, 10
- noise..pages................11, 12

Please check before using the testpatterns the signal path and the light conditions so that all conditions come up to the following application. If you modify some parameters never forget to save the options. Please note the options of your image sender (e.g. DVD Player). Also try to get by with as few as possible of so-called image-improving features which distort the original image more than improve it.

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Test Pattern: Color Dynamic Sweep

Subsequent you find the description of the individual image elements and parallel the effect of possible image failures on a real image „Jasmin and Sabrina".

In addition to many abstract technical test images this real image shows the typical problems and its effect on real, complex images. To clarifiy these problems there are heightened cut-outs of this image. On this page you see the image in correct exposition.

All images are evaluated to the screen evaluation standard ITU-R BT500-11 and shown as stars. This should give you an intuition for the heaviness of the shown difference to the original image:

Excellent	Good	Fair	Poor	Bad
★★★★★	★★★★	★★★	★★	★
image is equivalent to original	No visible differences to original	Visible, uncritical differences to original	Highly visible differences to original	Image is not equal to original, indicate a loss of information

A very good playback string with applicable connections like HDMI or YUV component video should reach a quality of five stars, at worst four stars. Good digital sources over middle connections like scart-RGB or S-video shouldn't reach less than 3 stars on a good display, doesn't matter which technology – CRT, LCD, Plasma, DLP or projection.
Correct wired, labeled devices should never fall to two or one star niveau at right adjustement. This is typically an unmistakable sign that there is a problem in the signal-string. It could be the configuration, calibration or other wrong adjustment or simply a defect. This needs to be checked once more.

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Element-description
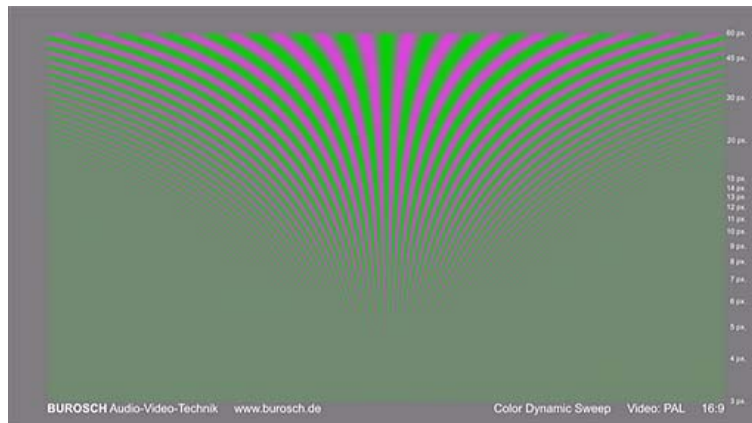
Color Dynamic Sweep

The background of the test pattern consist of 50-percent gray with the white caption. There is a laminar, colored striped pattern, the colored Dynamic Sweep. The stripes change green to magenta (magenta consists of red and blue). So the strongest color / chroma contrast is represented. By the help of the fine lines from middle top to bottom you can easily detect the limit of the color resolution.

Correct exposition:

- The Dynamic Sweep shows clear, fluent green and magenta lines.
- The Sweep becomes finer from middle top to bottom and to the sides and is at least until the middle of the image clearly to recognize.
- The background is gray with clearly white font.

Typical failures:

- The Dynamic Sweep is not enough focussed – lacking color band width or deficient cabeling (figure 1)
- fluttering color border – composite signal in signal path (FBAS, CVBS) (figure 2)
- white stripes in colored sweep – image over-focussed, probably the focus control is adjusted too high. Probably it's also shown as black outline on the capture (figure 3)
- gray area heavily interfered (figure 4)

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Test Pattern: Color Dynamic Sweep
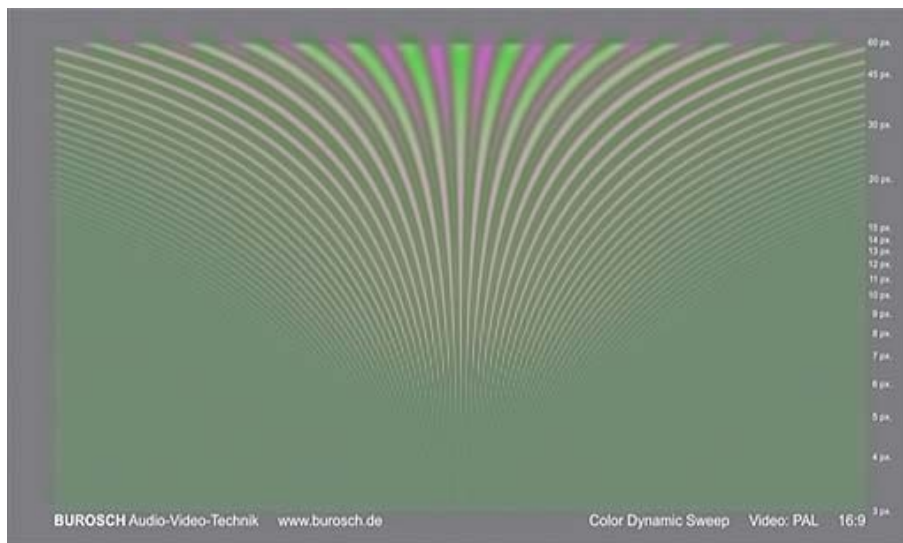
Color Dynamic Sweep

Typical failures:

fig. 1: Only the widest part of the sweep shows clear colors – lacking color band width or deficient cabeling.

The quality of this image is „bad" ★

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Test Pattern: Color Dynamic Sweep

In case of lacking chrominance band width only the color contingent seems blurred. In spite of sharp contoures the colors washed up in nearby areas, like here the skin tones in the white teeth or the textiles and the skin with the background. You can see a curious, washed up, unnaturally image.

The quality of this image is „poor" ★★

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Test Pattern: Color Dynamic Sweep

Color Dynamic Sweep

Typical failures:
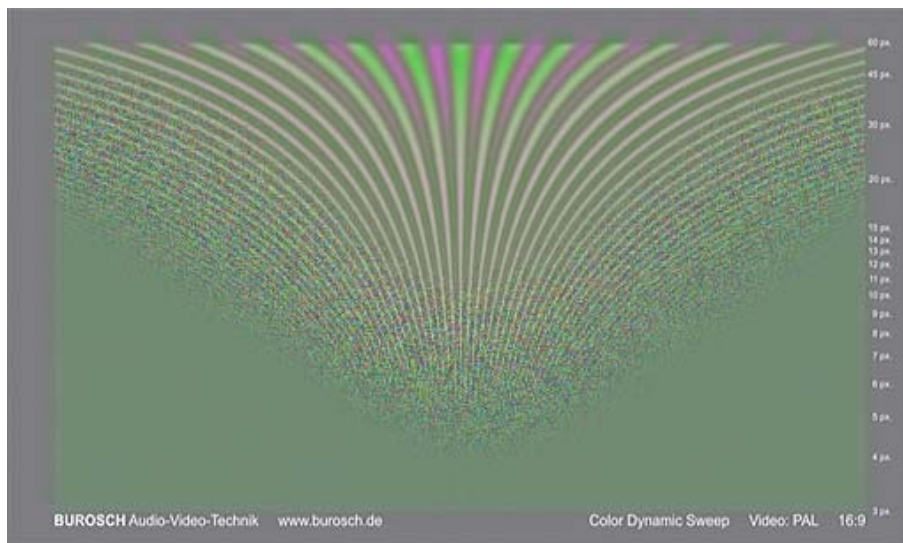
fig. 2: composite signal present – in this example color contingent and luminance signal becomes mixed up so that they never be completely separated.

The quality of this image is „poor" ★★

Test Pattern: Color Dynamic Sweep

A composite video signal mixes up color contingent and luminance signal. These two can never be completely separated. This is expressed in form of flitting color contoures. You should avoid common cinch and scart connections and instead of this please use component-signals, doesn't matter if anolog (scart-RGB, YUV, YcbCr, YpbPr, RGB-HV, VGA) or digital (HDMI, DVI). If you do this the effects won't appear.

The quality of this image is „poor" ★★

Test Pattern: Color Dynamic Sweep

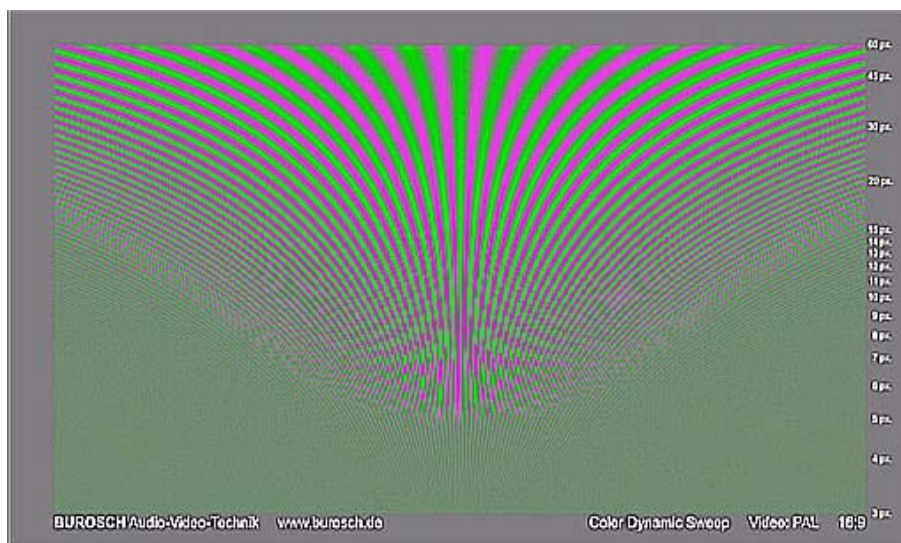### Color Dynamic Sweep

Typical failures:

fig. 3: over-focussing – focus control adjusted too high

The quality in this image is „poor" ★★

Test Pattern: Color Dynamic Sweep

over-focussing, appears often well focussed in the first moment, but produces unnatural annoyances on all image details and accentuate hairs and skin pores unnaturally.

The quality of this image is „poor" ★ ★

Test Pattern: Color Dynamic Sweep

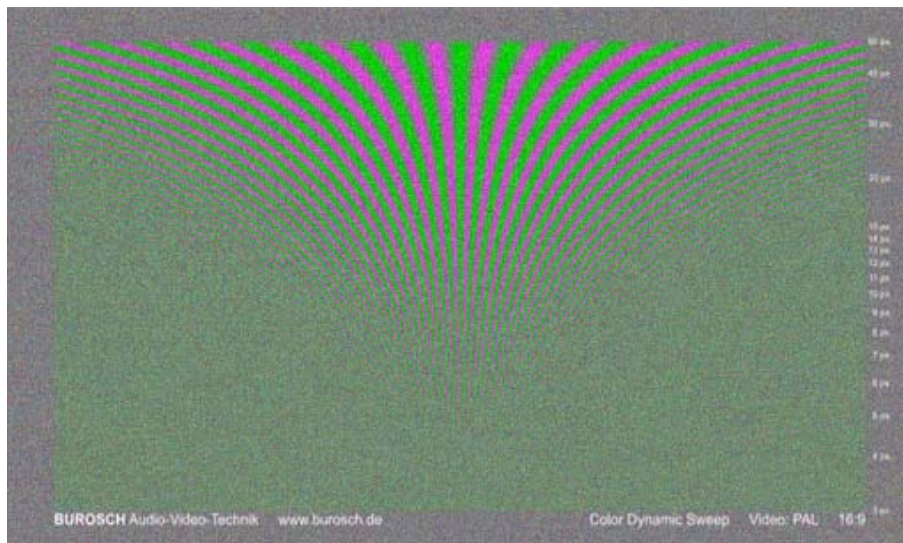### Color Dynamic Sweep

Typical failures:

fig. 4: noise

The quality of this image is „poor" ★★

Test Pattern: Color Dynamic Sweep

noise in a image could has many reasons and is different from compression artifacts by itselfs random graining.

The quality of this image is „poor" ★★

Test Pattern: Color Dynamic Sweep

Standards are helpful and important

For a correct playback of a film or a video or even of an image there have to be a neutral transfer. You often hear the argumentation that these isn't necessary because the vision of every human is different and so a objective playback isn't possible. As a matter of principle is this argumentation right. Admittedly there will be ignored that it's only possible if the signal transfer acts neutral and straight. Only when the expressed image is similar to the recorded image by the camera, the human is able to perceive what he would saw at location by his individual sensation.

The transfer itself have to behave neutrally. Big worldwide institues look after the standards so that the neutrality is warranted.

In german speaking countries is the institute for broadcast engineering of the public broadcasting corporation of ARD, ZDF, DLR, ORF and SRG/SSR mainly responsiblefor the standards:

www.irt.de

For the whole european area the European Broadcast Union, EBU in Switzerland handles superordinate to the local development institutes:

www.ebu.ch

On international floor established in 1865 in Paris the International Telecommunication Union, ITU is included:

www.itu.int

For best image evaluation and calibration you use the test pictures from this document. It works also with real, filmed motives but with reservations. The big advantage of test patterns from Burosch Audio-Video-Technik is the knowledge how the test patterns have to look and the knowledge how to reproduce them. Only this way the neutrality of the transmission and the playback can be measured extactly and if necessary to correct it:

www.burosch.de

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