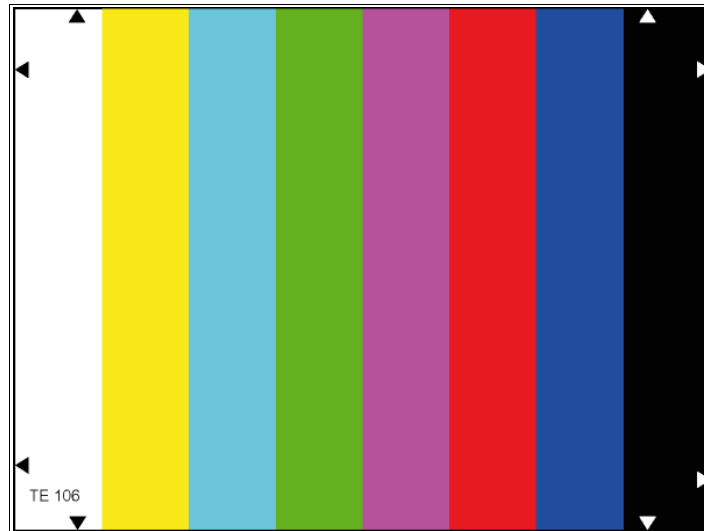




COLOR BAR TEST CHART

TRANSPARENCY



The test chart TE106 is designed for checking the colour rendition of TV cameras.

The picture area is divided into 6 colour bars showing the three primary colours red, green and blue and the secondary colours cyan, yellow and purple; in addition there is one bar of white and black. The succession is from left to right - white, yellow, cyan, green, purple, red and blue - corresponds to that of an electronically generated colour bar.

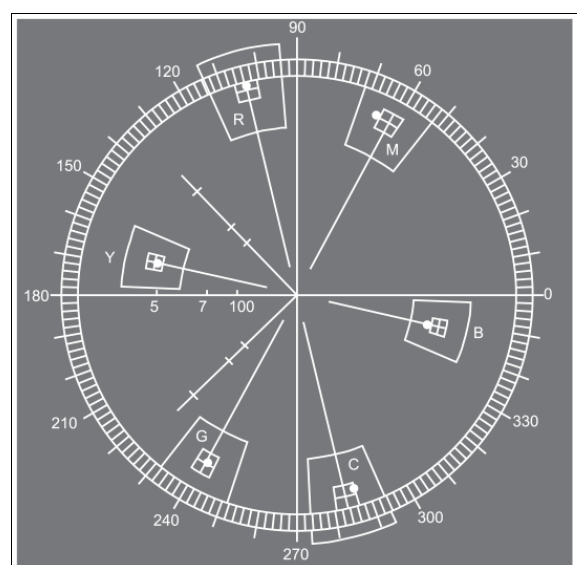
The test chart is adjusted to standard light D65. It can be used in an illuminator with fluorescent tubes like the LG2. With all kinds of light it is important to effect a white balance to the white bar of the transparency first, before starting the measuring procedure.

The colours of the transparency are close to the standard colours of the electronic colour bar as far as chroma, saturation and luminance are concerned. Slight deviations from the standard values can, however, not be avoided due to the colour pigments of the filters available.

The spectral transmission values of the colours were measured by a spectrometer under standard conditions. Then the CIE-XYZ values were calculated for standard illumination D65. The resulting XYZ-values were mathematically transformed by the EBU-matrix and give the results shown in figure and the the table on the following page.

Deviations of the test transparency colour coordinates from the standard values are usually under 5%. The largest deviations are with blue, which has a to small colour saturation. It has to be noted that different measuring devices and methods may lead to significant deviations, i.e. Measuring errors of 5% are considered acceptable.

The figure on the right shows the calculated values of the colors as they should appear on a vectorscope.





Color Bar Test Chart – Colorimetric results compared with the EBU 100/75 Color Bar

Color	RGB values						Light density		Color difference		Color difference		chromin.signal (peak to peak)		Phase angel		
	R%		G%		B%		EBU	106	EBU	106	EBU	106	EBU	106	EBU	106	
	EBU	106	EBU	106	EBU	106											
White	100	100	100	100	100	100	100	100	100	0	0	0	0	0	0		
Yellow	75	74	75	75	0	0	66,4	66	-32,8	32,5	7,5	7,2	67,2	65,9	167,1	167,5	
Cyan	0	0	75	71	75	81	52,6	51,0	11,1	14,7	-46,1	-44,7	94,8	94,2	283,5	288,2	
Green	0	0	75	73	0	0	44,0	43,0	-21,7	-21,2	-38,6	-37,7	88,6	86,5	240,7	240,7	
Purple	75	79	0	8	75	67	31,0	36,0	21,7	15,4	38,6	37,6	88,6	81,3	60,7	67,7	
Red	75	76	0	0	0	0	22,4	22,6	-11,1	-11,1	46,1	46,5	94,8	95,7	103,5	103,5	
Blue	0	0	0	0	75	69	8,6	7,8	32,8	30,2	-7,5	-6,9	67,2	61,9	347,1	347,1	

In the diagram below the oscilloscope image of the 100/75 standard color bar is compared with the calculated values of the test chart colors. The striped areas show the chrominance-signal for the test color values. The underlying white fields marked in black outline show the EBU chrominance-signal. White lines within the striped areas mark standard values for the Y-signal resp.the upper and lower limits of the standard chrominance-signal.

