RECOMMENDATION ITU-R BT.471-1*

Nomenclature and description of colour bar signals

(Question ITU-R 1/11)

(1970-1986)

The ITU Radiocommunication Assembly,

considering

(a) that a number of different colour bar signals used for measurement and adjustment purposes are recorded on magnetic tape, transmitted on national and international circuits or radiated from television transmitters;

(b) that the particular signal in use cannot be readily recognized from the video picture-signal waveform;

(c) that coloured patterns comprising several vertical bars of colour, involving only the primary hues and their complements at particular values of saturation and in descending order of luminance, are frequently used to confirm the correct operation of colour coding, decoding and processing equipment,

recommends

1 that the following nomenclature is used to identify and distinguish between colour bar signals;

1.1 a colour bar generator is assumed to have three outputs corresponding respectively to the red, green and blue primary colour signals, (E'_R, E'_G and E'_B) which are then used as input signals to a colour coder. The signal amplitudes enumerated below refer to these coder input signals expressed as a percentage of the white level (see, for example, Recommendation 567, Part B, § B.1 and Report ITU-R BT.624, Fig. 1), taking this as 100% with the blanking level as zero. During the transmission of colour bars the signal levels should be enumerated in the following order, with an oblique stroke between the numbers:

– the primary colour signal level during the transmission of the "white" colour bar, i.e. maximum value of E'_R, E'_G and E'_B;

– the primary colour signal level during the transmission of the "black" colour bar, i.e. minimum value of E'_R, E'_G and E'_B;

– the maximum level of the primary colour signal during transmission of "coloured" colour bars, i.e. maximum value of E'_R or E'_G or E'_B;

– the minimum level of the primary colour signal during transmission of "coloured" colour bars, i.e. minimum value of E'_R or E'_G or E'_B.

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* Radiocommunication Study Group 6 made editorial amendments to this Recommendation in 2002 in accordance with Resolution ITU-R 44.

Example: Four versions of colour bars are in general use and are illustrated in Fig. 1, which shows the individual components of the red, green and blue primary colour signals as they are generated for four different types of colour bar signal. This data would be expressed as follows:

Colour bars *(a)* 100 / 0 / 100 / 0

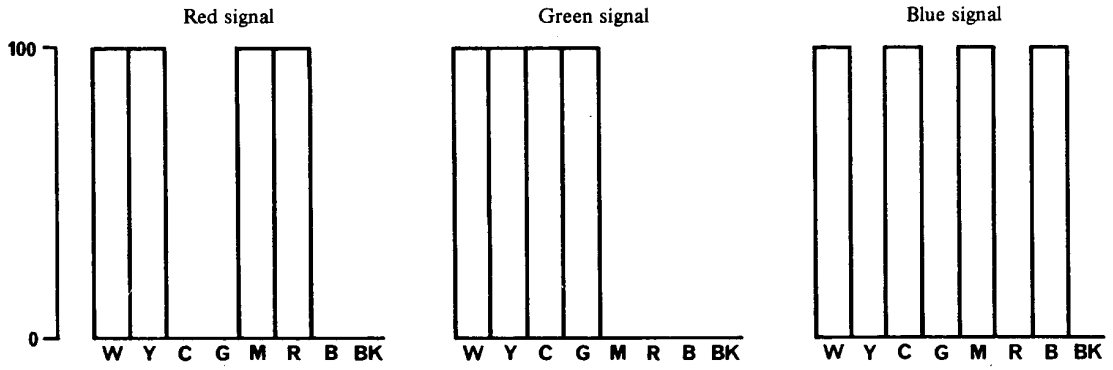
Colour bars *(b)* 100 / 0 / 75 / 0

Colour bars *(c)* 100 / 0 / 100 / 25

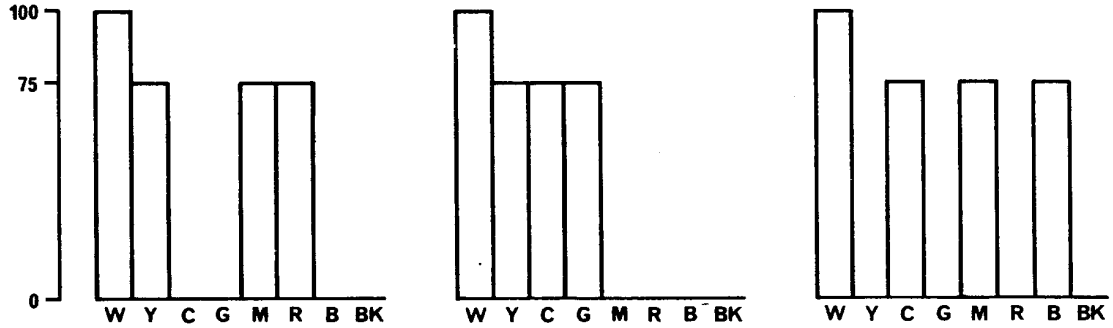
Colour bars *(d)* 75 / 7.5 / 75 / 7.5

2 that the waveforms shown in Fig. 1 be used to ensure conformity between measurements made in different operational environments;

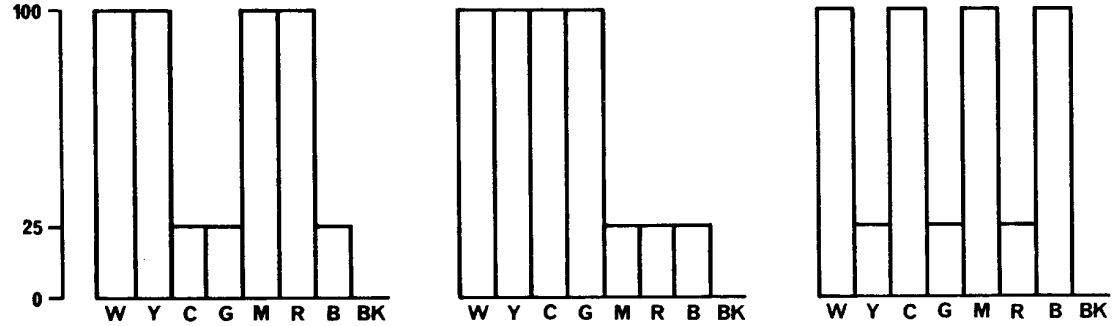
3 that all definitions and calculations relating to descriptions of colour bars shall be consistent with Report ITU-R BT.624.



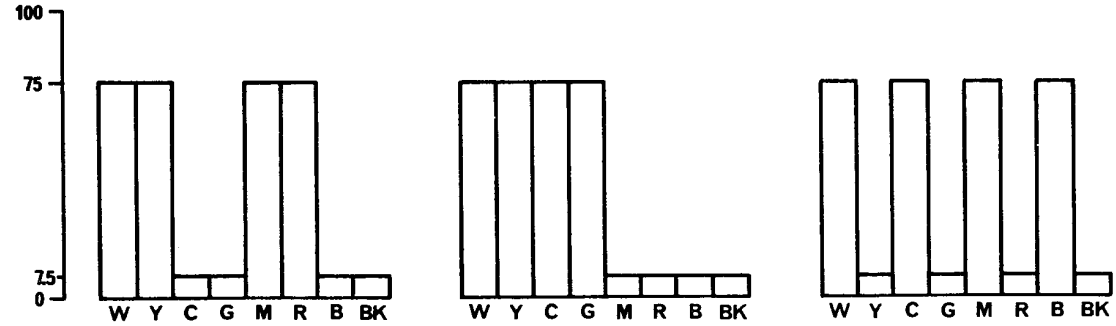
(a) 100/0/100/0 colour bars



(b) 100/0/75/0 colour bars



(c) 100/0/100/25 colour bars



(d) 75/7.5/75/7.5 colour bars

FIGURE 1 – *Relative amplitudes of colour bars for different types of generator*

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W: white Y: yellow C: cyan (turquoise) G: green M: magenta (purple) R: red B: blue BK: black