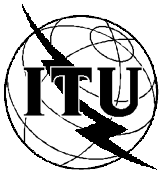

INTERNATIONAL TELECOMMUNICATION UNION

ITU-T N.60

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

(03/93)

MAINTENANCE OF INTERNATIONAL SOUND-PROGRAMME AND TELEVISION TRANSMISSION CIRCUITS

NOMINAL AMPLITUDE OF VIDEO SIGNALS AT VIDEO INTERCONNECTION POINTS

ITU-T Recommendation N.60

(Previously "CCITT Recommendation")

FOREWORD

The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the International Telecommunication Union. The ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Conference (WTSC), which meets every four years, established the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

ITU-T Recommendation N.60 was revised by the ITU-T Study Group IV (1988-1993) and was approved by the WTSC (Helsinki, March 1-12, 1993).

NOTES

1 As a consequence of a reform process within the International Telecommunication Union (ITU), the CCITT ceased to exist as of 28 February 1993. In its place, the ITU Telecommunication Standardization Sector (ITU-T) was created as of 1 March 1993. Similarly, in this reform process, the CCIR and the IFRB have been replaced by the Radiocommunication Sector.

In order not to delay publication of this Recommendation, no change has been made in the text to references containing the acronyms "CCITT, CCIR or IFRB" or their associated entities such as Plenary Assembly, Secretariat, etc. Future editions of this Recommendation will contain the proper terminology related to the new ITU structure.

2 In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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ABSTRACT

This Recommendation provides the guidance on the nominal amplitude of picture signals.

Keywords

Amplitude,

television signal,

video.

NOMINAL AMPLITUDE OF VIDEO SIGNALS AT VIDEO INTERCONNECTION POINTS

(Published 1964; revised 1968, 1972, 1993)

At video interconnection points, the nominal amplitude of the picture signal, measured from the blanking level to the white level should be 0.7 V (0.714 V for system M signals), while the nominal amplitude of the synchronizing pulses should be 0.3 V (0.286 V for system M signals), so that the nominal peak-to-peak amplitude of a monochrome video signal should be 1.0 V. The addition of colour information results in an increase in the overall amplitude of the video signal. The magnitude of this increase depends upon the colour system employed, but should not exceed 25% (i.e. nominal amplitude of composite colour video signal ≤ 1.25 V). Figure 1 shows the waveform of a video signal.

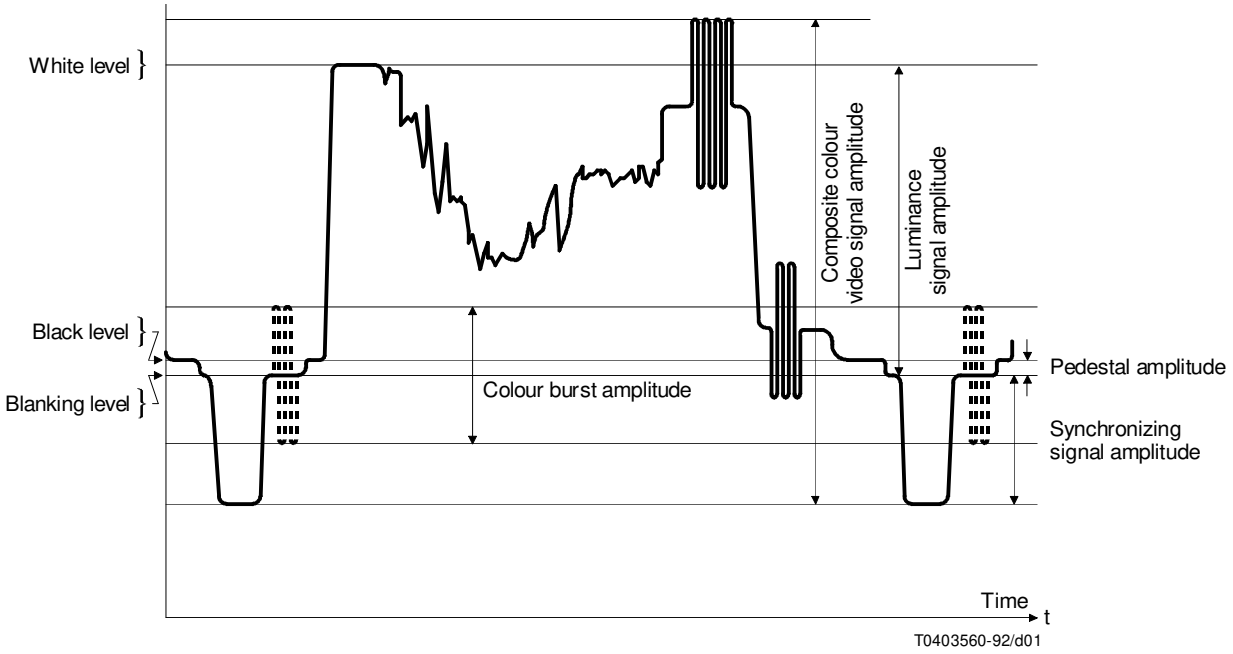
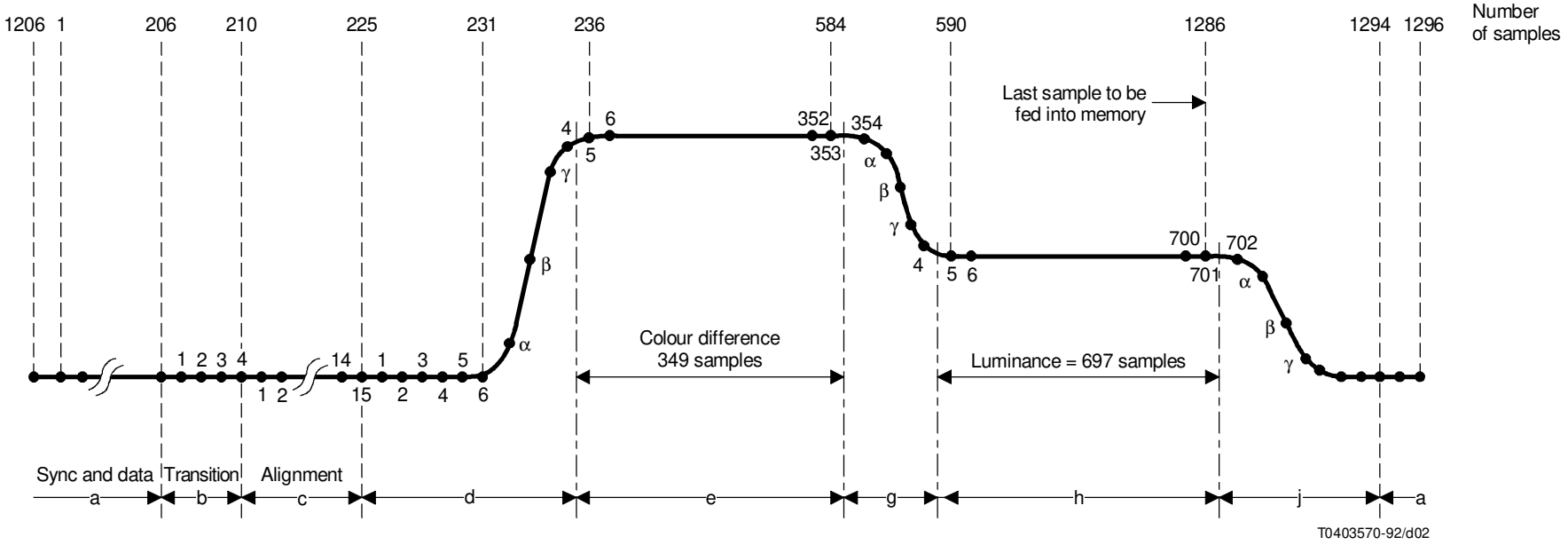


FIGURE 1/N.60

Waveform of one line of video signal

At video interconnection points, the nominal amplitude of the multiplexed analogue components (MAC) signal is 1 Volt. It is defined as the difference between 624 line white level and black level. Figures 2a and 2b illustrate MAC signal waveform.



Gr Grey level
Bl Black level

NOTES

1 (n): value of sample n.

2 Colour and luminance difference samples which correspond to each other at the display level are linked by the relation C(n) = L(2n – 5).

3 Gr: grey level (0.5 V)
(black level = 0.0 V; maximum luminance level = 1 V;
colour difference signal range = 0.5 V ± 0.5 V).

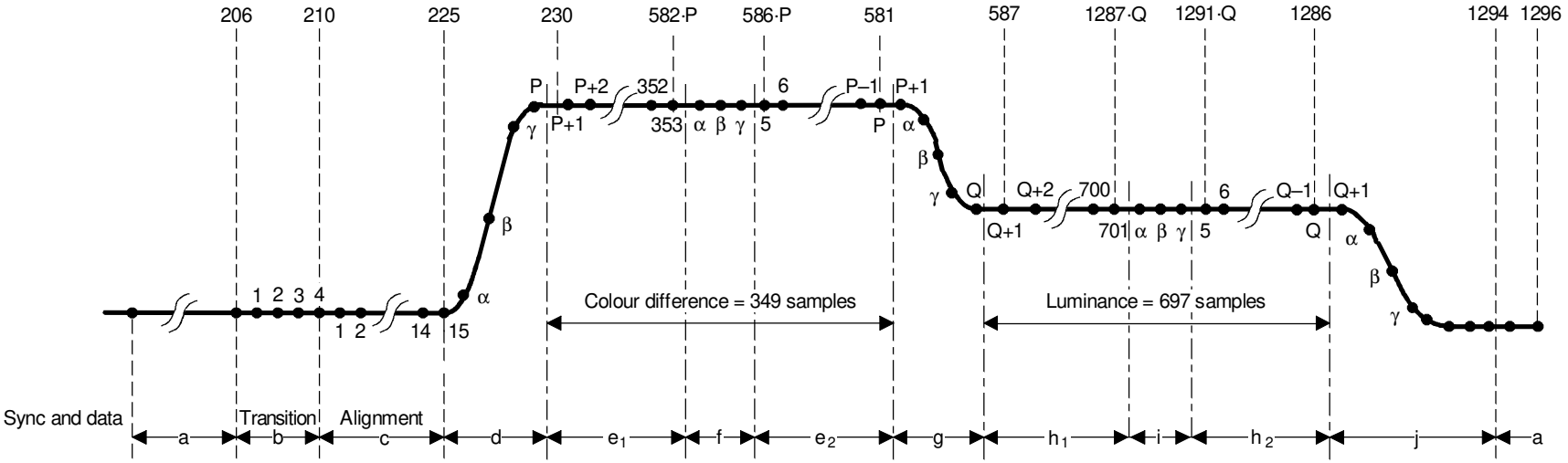
Transitions

	Method A (sliding samples)	Method B (fixed samples)
d:	α = 1/8 (1) + 7/8 Gr	α = 1/8 (4) + 7/8 Gr
	β = 1/2 (2) + 1/2 Gr	β = 1/2 (4) + 1/2 Gr
	γ = 7/8 (3) + 1/8 Gr	γ = 7/8 (4) + 1/8 Gr
g:	α = 7/8 (355) + 1/8 (1)	α = 7/8 (354) + 1/8 (4)
	β = 1/2 (356) + 1/2 (2)	β = 1/2 (354) + 1/2 (4)
	γ = 1/8 (357) + 7/8 (3)	γ = 1/8 (354) + 7/8 (4)
j:	α = 7/8 (703) + 1/8 Gr	α = 7/8 (702) + 1/8 Gr
	β = 1/2 (704) + 1/2 Gr	β = 1/2 (702) + 1/2 Gr
	γ = 1/8 (705) + 7/8 Gr	γ = 1/8 (702) + 7/8 Gr

FIGURE 2a/N.60

MAC signal waveform (not scrambled)

i) Double cut component rotation



ii) Single cut line rotation

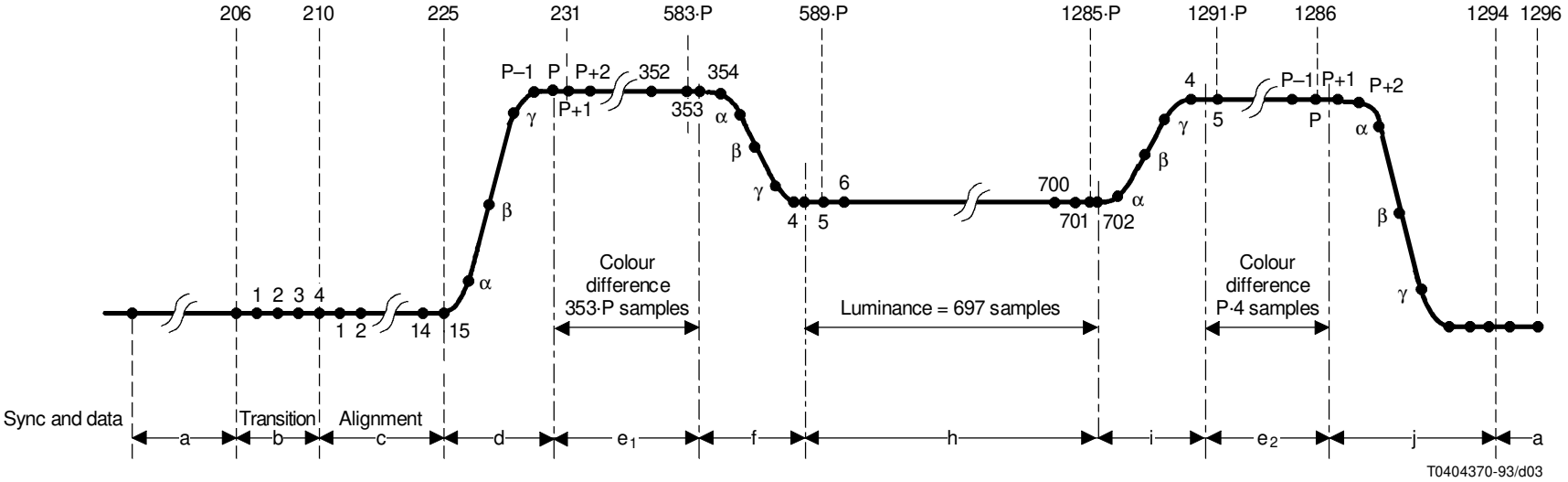


FIGURE 2b/N.60

MAC signal waveform (scrambled)