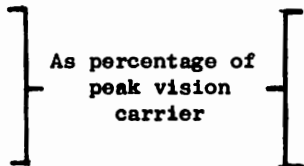


COMMUNICATIONS DATA SHEET 406

405-LINE VISION SIGNAL WAVEFORM

Channel bandwidth	5 Mc/s
Spacing between sound and vision carriers	3.5 Mc/s
Vision modulation	AM positive
Upper sideband	0.75 Mc/s
Lower sideband	3 Mc/s
Synchronizing level	Not greater than 3%
Blanking level	30% + 0 - 3%
Difference between black level and blanking level	0
Peak white level	100%
Sound modulation	AM
Ratio of peak vision carrier power to unmodulated sound carrier power	4 : 1
Lines per picture	405
Interlace	2 : 1
Nominal field frequency*	50 c/s
Nominal line frequency*	10, 125 c/s
Approximate gamma of picture signal	0.5
Nominal video bandwidth	3 Mc/s
Aspect Ratio	4 : 3



* The synchronizing signals are normally locked to the mains frequency of the UK Grid.

The idealized carrier-amplitude waveform as a function of time is shown in Figs A and B

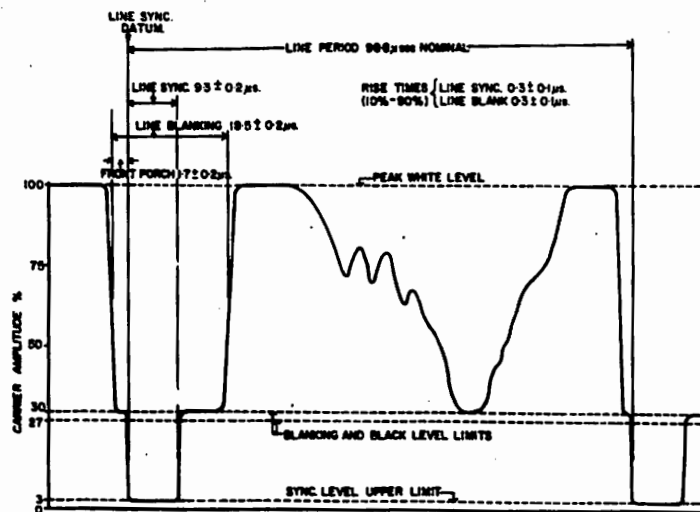


Fig. A Waveform showing line synchronizing signals

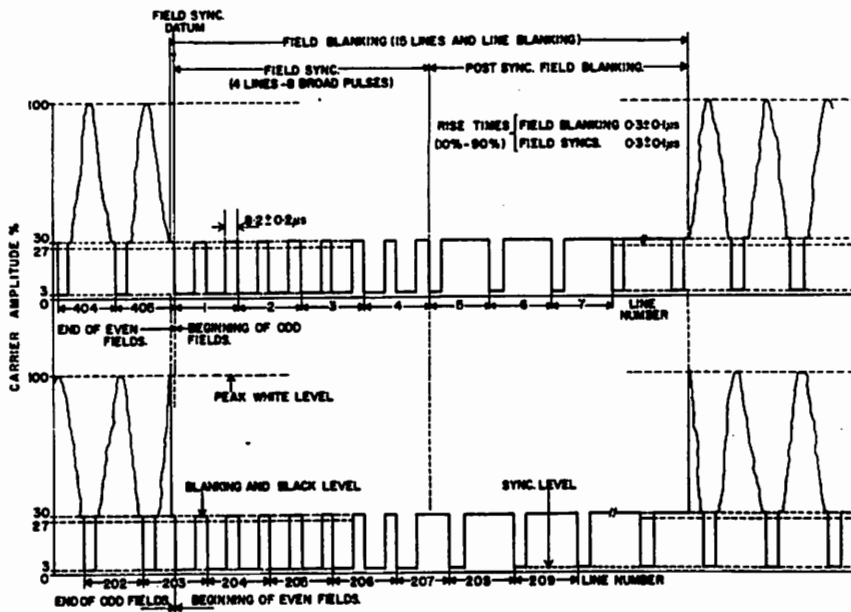


Fig. B Waveforms showing field synchronizing signals

The carrier-amplitude waveform indicated in the diagrams is to be taken as representing either,

- (a) the amplitude of a double-sideband a.m. signal from which the transmitted waveform is derived by attenuation of upper-sideband frequencies more than 0.75 Mc/s from the vision carrier frequency,

or, equally well,

- (b) the output of a balanced synchronous demodulator in an ideal monitoring receiver having the r.f. response curve illustrated in Fig C, and having a constant group-delay at all frequencies.

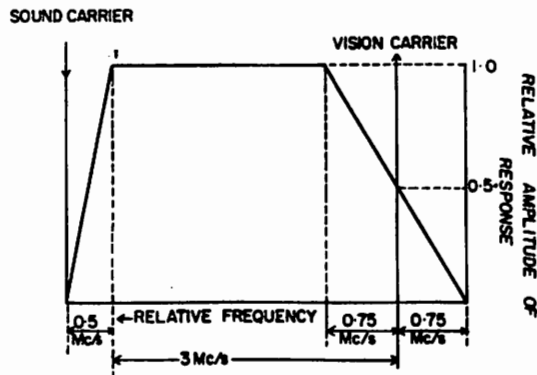


Fig. C Amplitude response of ideal monitoring receiver

A test line signal is inserted on lines 12 and 214 ; it consists of a bar (duration $20 \pm 1 \mu\text{s}$), containing a negative-going sine-squared pulse (half-amplitude duration $0.33 \mu\text{s}$) and followed by an identical but positive-going pulse and a five-step staircase. The duration of each of the first four steps is $8 \pm 0.5 \mu\text{s}$ and that of the final step is not less than $6 \mu\text{s}$. The steps in the staircase are of nominally equal height; the difference in height between the largest and smallest steps does not exceed 1% of the height of the largest. The whole of the test line signal is on a pedestal of $50 \pm 10 \text{ mV}$.

625-LINE MONOCHROME TELEVISION

NOMINAL SPECIFICATION OF TRANSMITTED SIGNAL

Channel width		8 MHz
Spacing between unmodulated sound and vision carriers		6 MHz
Vision modulation (AM negative)		
Upper sideband		5.5 MHz
Lower sideband		1.25 MHz
Synchronizing level	} ————— As percentage of maximum vision carrier amplitude	100%
Blanking level		77%
White level		20%
Sound modulation (FM)		
Peak deviation		50 kHz
Pre-emphasis		50 μ s
Ratio of vision power during synchronizing pulses to sound power		5 : 1
Lines per picture		625
Interlace		2 : 1
Field frequency		50 Hz*
Line frequency		15,625 Hz*
Approximate gamma of picture signal		0.5
Aspect ratio		4 : 3

* The transmissions are asynchronous; i.e. the synchronizing signals are derived from a stable oscillator and are not locked to the mains.

The idealized vision carrier amplitude as a function of time is shown in Figs. A & B

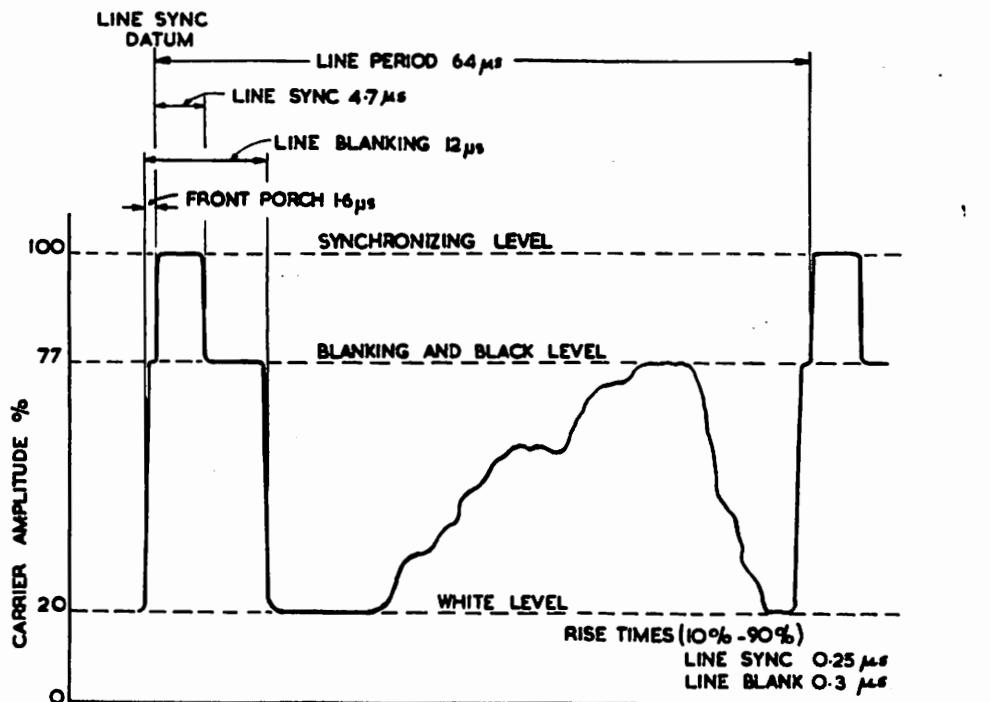


Fig. A: Vision Waveform Showing Line Synchronizing Signals

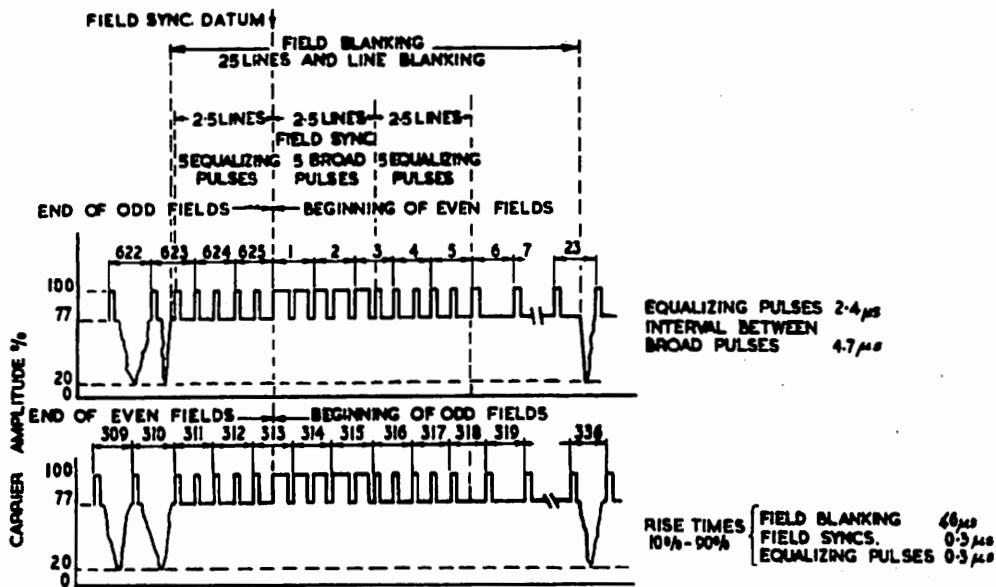


Fig. B: Vision Waveform Showing Field Synchronizing Signals

The vision carrier-amplitude waveform indicated in Figs. A and B represents the amplitude of a double-sideband a.m. signal from which the transmitted vestigial-sideband signal is derived. Sideband frequencies more than 1.25 MHz below the vision carrier are attenuated.

TEST-LINE SIGNAL

A test-line signal is transmitted on lines 18 and 329*. It consists of a 10- μ s white bar containing an inverted sine-squared pulse (half-amplitude duration, 0.2 μ s) and followed by an erect sine-squared pulse (half-amplitude duration, 0.2 μ s), a chrominance pulse (half-amplitude duration, 1 μ s) and a five-step staircase. The duration of each of the first four steps is 4 μ s and that of the last step is approximately 3.5 μ s. The steps are of nominally equal height and the top step is at peak white. A colour sub-carrier signal, having a peak-to-peak value equal to the step height, is superimposed on the whole staircase.

At times when the 625-line network is carrying colour tests, those transmitters not radiating colour will transmit the test-line signal in a slightly modified form.

* When equipment modifications are completed, these will be changed to 18 and 331, to accord with international practice on test signals.