

INTERNATIONAL  
STANDARD

**ISO**  
**8590**

Second edition  
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**Cinematography — Audio records on  
70 mm motion-picture release prints with  
magnetic stripes — Recorded  
characteristic**

*Cinématographie — Enregistrements sonores sur copies d'exploitation  
sur film cinématographique 70 mm à pistes magnétiques —  
Caractéristique d'enregistrement*



Reference number  
ISO 8590:1994(E)

**ISO 8590:1994(E)****Foreword**

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Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 8590 was prepared by Technical Committee ISO/TC 36, *Cinematography*.

This second edition cancels and replaces the first edition (ISO 8590:1985), of which it constitutes a technical revision.

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# Cinematography — Audio records on 70 mm motion-picture release prints with magnetic stripes — Recorded characteristic

## 1 Scope

This International Standard specifies the recorded characteristic of audio records on 70 mm motion-picture release prints with magnetic striping when reproduced at the nominal speed of 24 frames per second.

## 2 Recorded characteristic

With a constant amplitude sine-wave applied to the input of the recording system, the relative characteristic in effective values of the short-circuit magnetic flux versus frequency shall decrease with increasing frequency proportionately to the impedance of a combination of capacitance and resistance having time constants,  $t_1$  and  $t_h$ , of 35  $\mu\text{s}$  and 3 180  $\mu\text{s}$ . The characteristic defined above is obtained by the following formula:

$$L_{\phi} = C_0 - 10 \log_{10} \left[ \frac{1 + (2\pi t_h)^2 f^2}{1 + \frac{1}{(2\pi t_1)^2 f^2}} \right]$$

where

- $L_{\phi}$  is the recorded relative magnetic flux level, in decibels;
- $f$  is the frequency, in hertz;
- $t_1$  is a time constant with a value of 3 180  $\mu\text{s}$ ;
- $t_h$  is a time constant with a value of 35  $\mu\text{s}$ ;
- $C_0$  is a constant calculated to make  $L_{\phi} = 0$  at the reference frequency of 1 000 Hz.

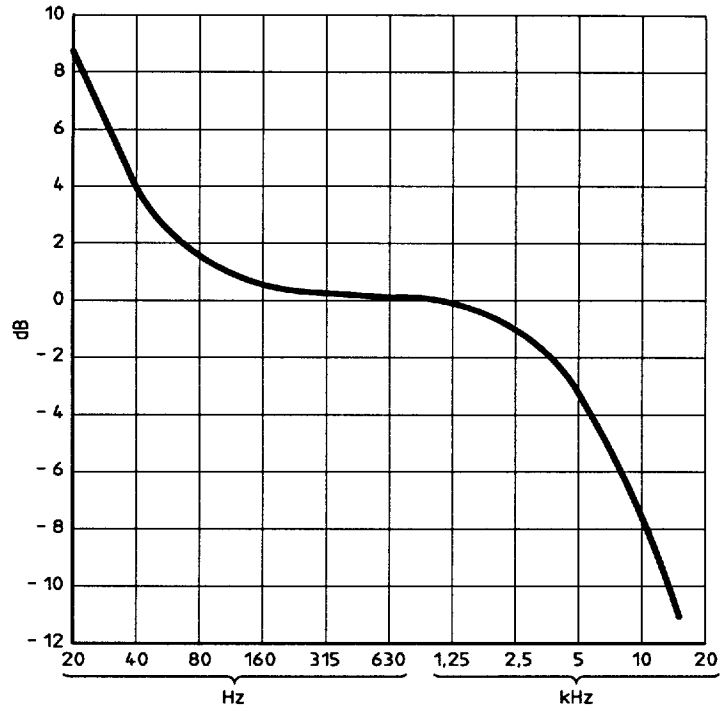
### NOTES

1 A frequency response curve may be conveniently defined as proportional to the impedance curve of a resistance-capacitance network having stated time constants. Such a network is not intended as a recommended electrical circuit.

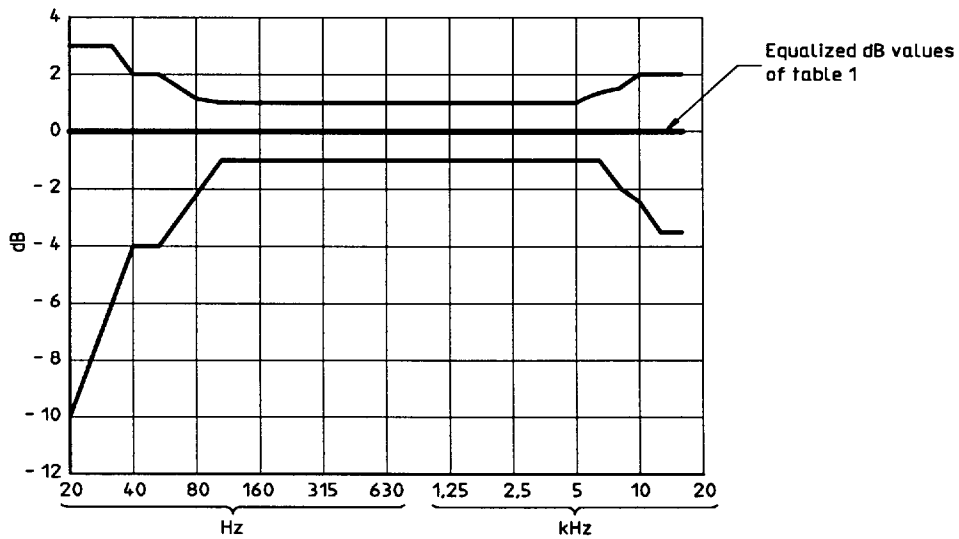
2 It has been shown that a low-frequency time constant of infinity should be used for best headroom versus frequency of the medium. It is recognized, however, that it is necessary for the immediate future to continue to add low-frequency pre-emphasis of 3 180  $\mu\text{s}$  because much theatre equipment cannot meet the tolerances of this International Standard when using a time constant of infinity.

**Table 1 — Approximate values of the recorded relative magnetic flux**

Frequency, <i>f</i> Hz	$L_{\phi}$ dB	Tolerances dB
20	8,8	+3,0 -10,0
25	7,19	+3,0 -8,0
31,5	5,66	+3,0 -6,0
40	4,29	+2,0 -4,0
50	3,21	+1,5 -3,0
63	2,32	+1,3 -2,0
80	1,63	
100	1,16	
125	0,84	
160	0,59	
200	0,45	
250	0,35	
315	0,28	
400	0,23	
500	0,19	
630	0,14	+1,0 -1,0
800	0,08	
1 000	0	
1 250	- 0,12	
1 600	- 0,31	
2 000	- 0,57	
2 500	- 0,95	
3 150	- 1,51	
4 000	- 2,29	
5 000	- 3,25	
6 300	- 4,46	+1,3 -1,0
8 000	- 5,93	+1,5 -2,0
10 000	- 7,47	+2,0 -2,5
12 500	- 9,13	+2,0 -3,5
16 000	- 11,07	



**Figure 1 — Approximate values of the recorded relative magnetic flux**



**Figure 2 — Tolerances**

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**Descriptors:** cinematography, motion-picture film, motion-picture film 70 mm, sound recording, magnetic recording, recording characteristics.

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