

ANNEX III

TECHNICAL DETAILS OF SOUND SIGNAL APPLIANCES

1. Whistles

(a) *Frequencies and range of audibility*

The fundamental frequency of the signal shall lie within the range 70-700 Hz.

The range of audibility of the signal from a whistle shall be determined by those frequencies, which may include the fundamental and/or one or more higher frequencies, which lie within the range 180-700 Hz (± 1 per cent) and which provide the sound pressure levels specified in paragraph 1(c) below.

(b) *Limits of fundamental frequencies*

To ensure a wide variety of whistle characteristics, the fundamental frequency of a whistle shall be between the following limits:

- (i) 70-200 Hz, for a vessel 200 metres or more in length;
- (ii) 130-350 Hz, for a vessel 75 metres but less than 200 metres in length;
- (iii) 250-700 Hz, for a vessel less than 75 metres in length.

(c) *Sound signal intensity and range of audibility*

A whistle fitted in a vessel shall provide, in the direction of maximum intensity of the whistle and at a distance of 1 metre from it, a sound pressure level in at least one $\frac{1}{3}$ rd-octave band within the range of frequencies 180-700 Hz (± 1 per cent) of not less than the appropriate figure given in the table below.

Length of vessel in metres	$\frac{1}{3}$ rd-octave band level at 1 metre in dB referred to 2×10^{-5} N/m ²	Audibility range in nautical miles
200 or more	143	2
75 but less than 200	138	1.5
20 but less than 75	130	1
Less than 20	120	0.5

The range of audibility in the table above is for information and is approximately the range at which a whistle may be heard on its forward axis with 90 per cent probability in conditions of still air on board a vessel having average background noise level at the listening posts (taken to be 68 dB in the octave band centred on 250 Hz and 63 dB in the octave band centred on 500 Hz).

In practice the range at which a whistle may be heard is extremely variable and depends critically on weather conditions; the values given can be regarded as