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2009

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ISO 13373-2:2005

Condition monitoring and diagnostics of machines — Vibration condition
monitoring — Part 2: Processing, analysis and presentation of vibration data
(IDT)

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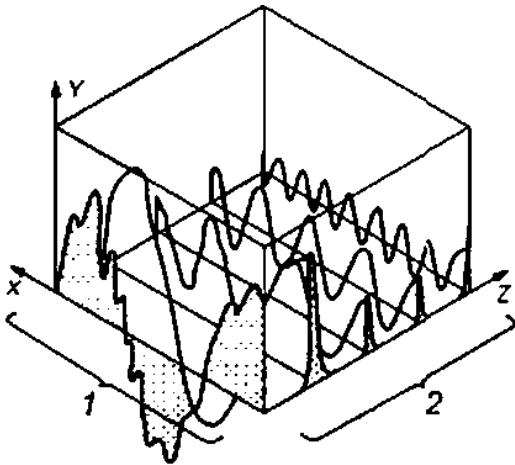
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2. , monitoring and diagnostics of machines — Vibration condition monitoring — Part 2: Processing, analysis and
presentation of vibration data»).

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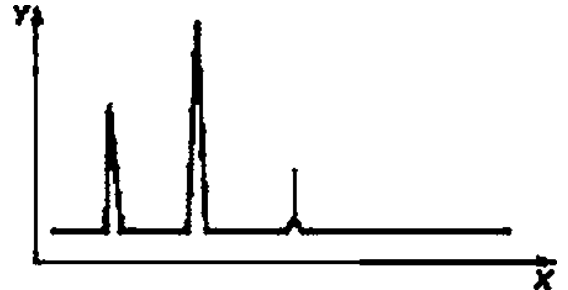
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X — время. Y — значение сигнала (амплитуда).
 Z — частота. 1 — осциллограмма во взятой
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$$v \frac{4\lambda}{dj} fadt. \quad (2)$$

$$\frac{dBdv_s dljL}{dt} \quad (0)$$

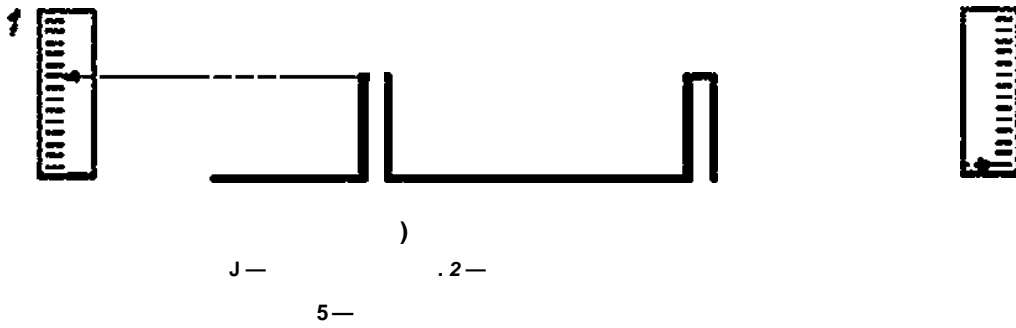
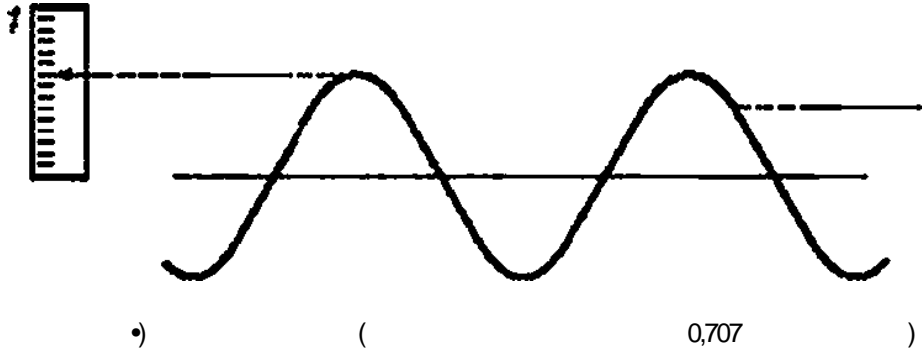
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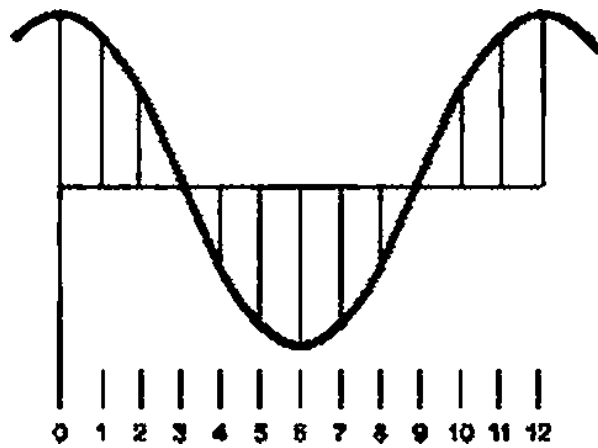
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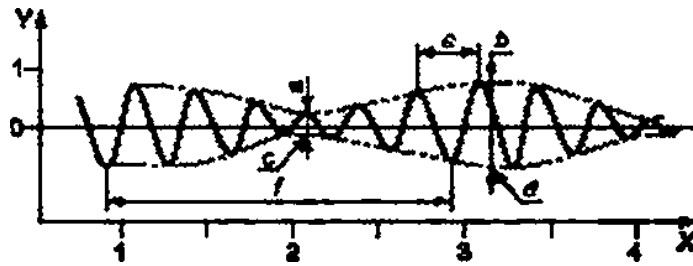
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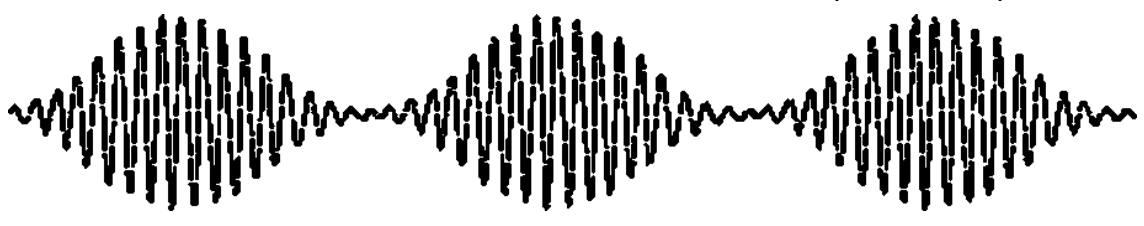
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$$f_t - f_m - U,$$

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$f_b -$;
 $f_m -$;
 $l_s -$.

6 , . . $f_m - 3$. . . 2 . . . 8. , . . . 2 . . . $.15 > = 0.5$. . . (5)
 , . . $l_s f_m - f_b * 3 - 0.5 - 2.5$. . .
 4.2.3



4.2.4

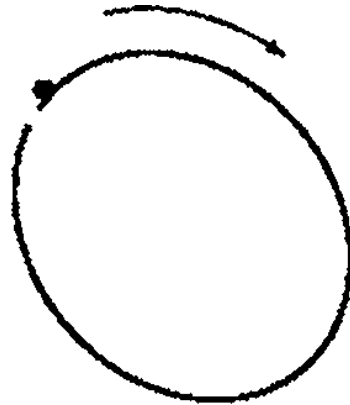
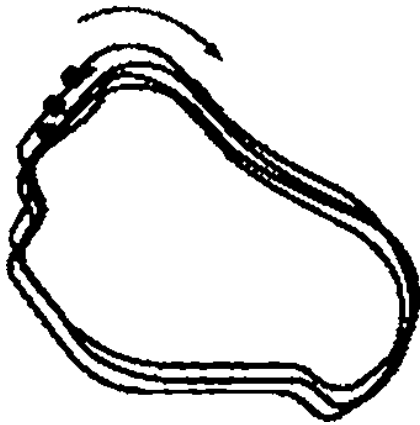


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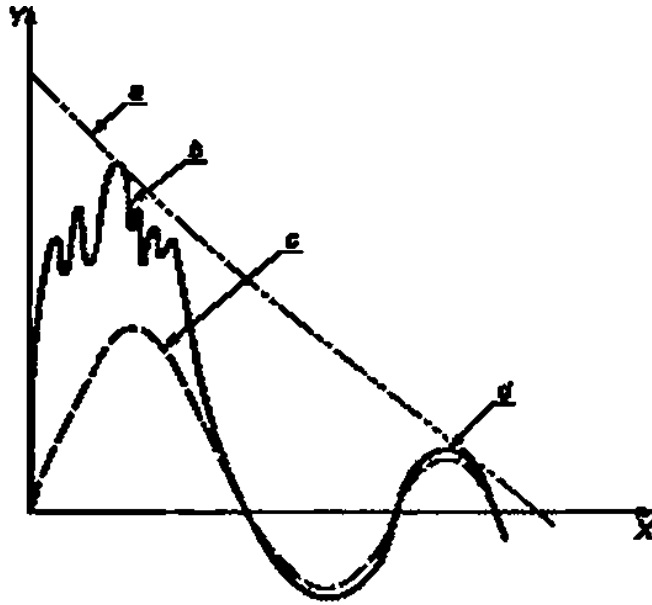
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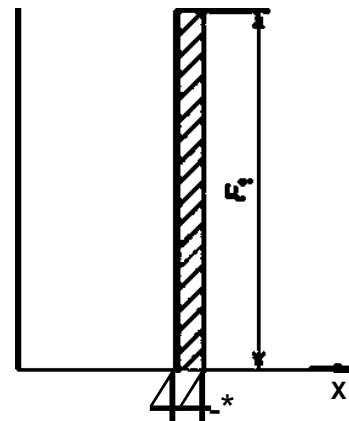
X — время; Y — значение сигнала, а — экспоненциально затух.

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4.2.9

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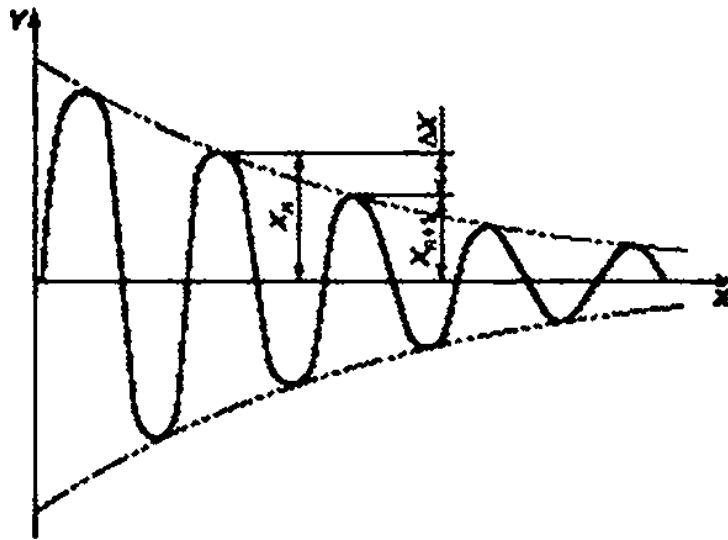
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X — время, Y — значение сигнала
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$$= \sqrt{(27,3 f_n)}, \quad (7)$$

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$$Q = 1/(2 \dots), \tag{8}$$

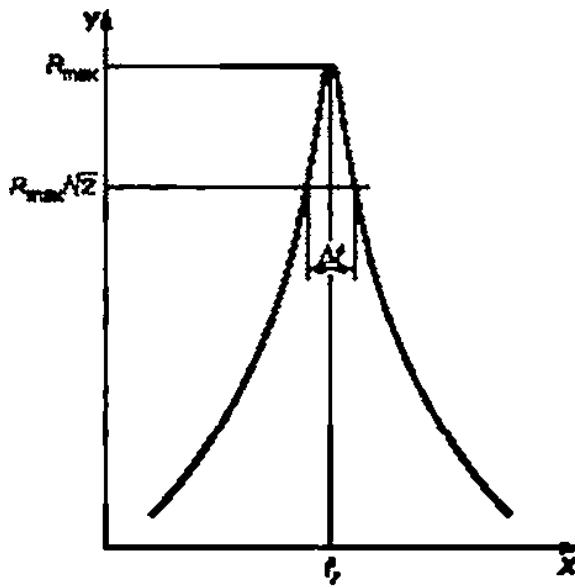
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$$f_r = \dots \tag{9}$$

$$Q = x/(\dots) \tag{10}$$

$$Q = 1/ \dots$$

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X — частота; Y — отклик (амплитудно-частотная характеристика)

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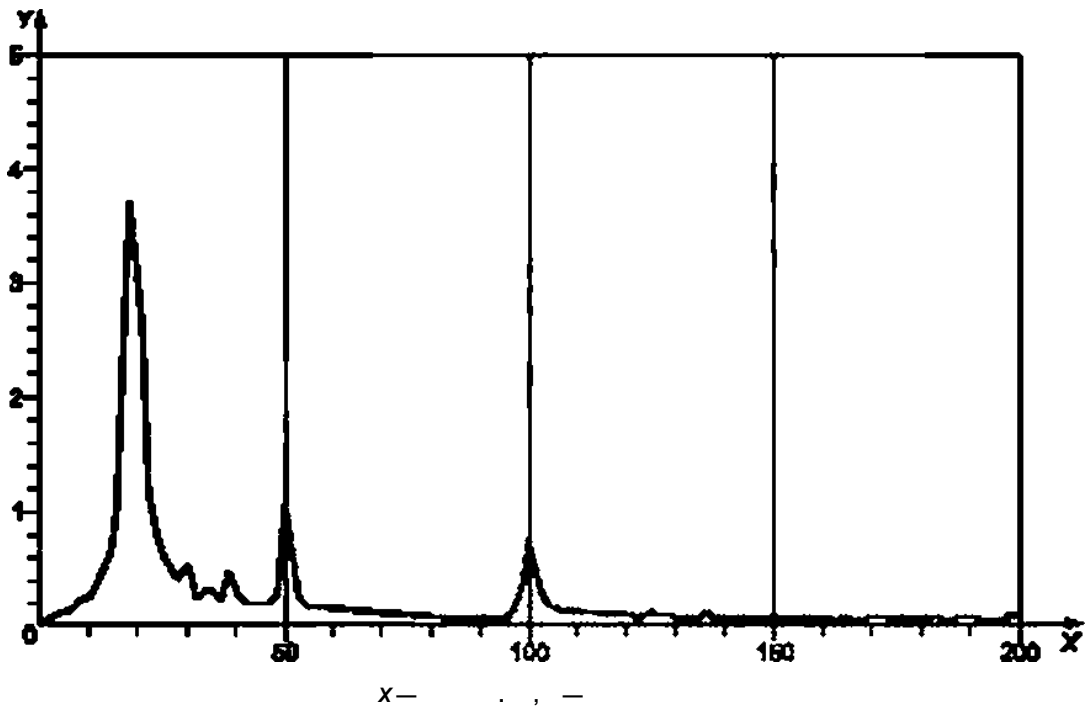
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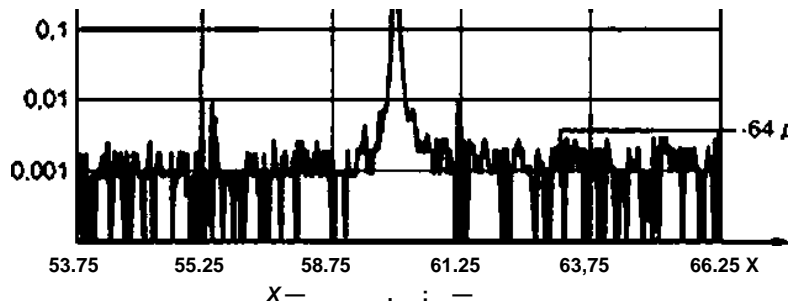
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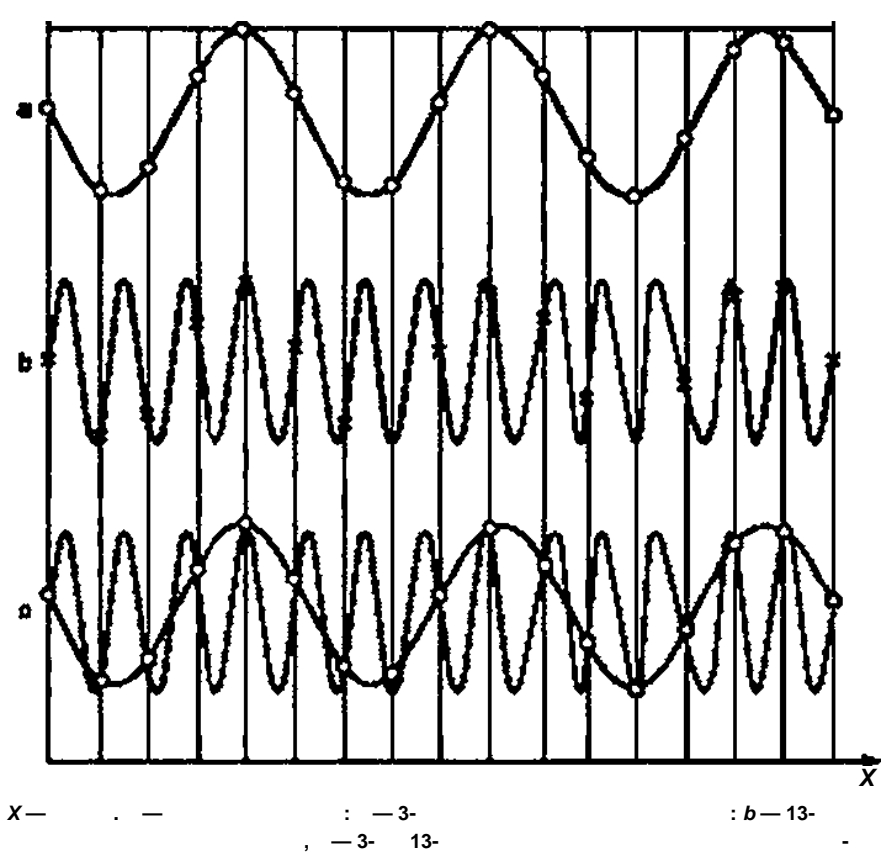
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$X(t) = X(0) e^{-\lambda t}$

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b) \dots

c) \dots

d) \dots

(.4.6).

4.3.9

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4.3.10

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$i = 20 \lg (X/X_0, t) .$

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	$10^5 /$		10^{-}

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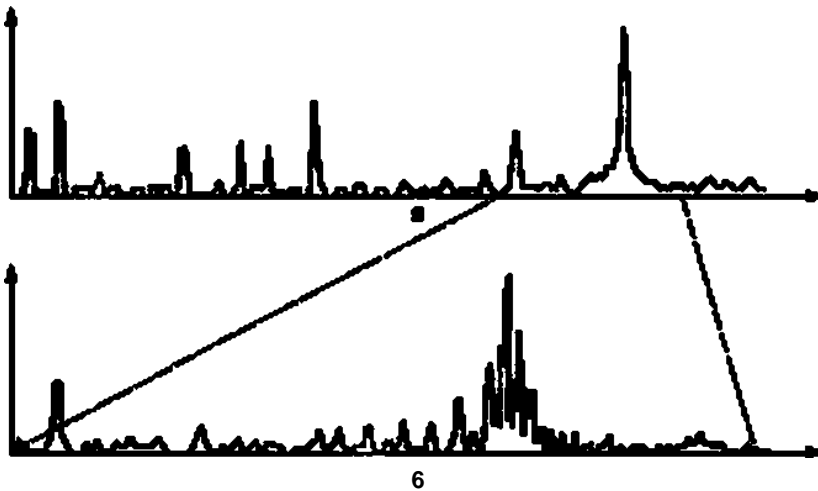
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4.3.12

$$X \cdot X \sin \alpha \tag{15}$$

$$= \cos \alpha = v \cos \theta \tag{16}$$

$$\Rightarrow 2 x \sin \omega f - \text{toysincofa-asincof} \tag{17}$$

$$\text{istnwf}, \tag{18}$$

$$- \text{--- COSCOts-yCOSWt} \tag{19}$$

$$\bullet - \text{SintOT} = - \text{---8ln} = - X \sin (1 > . \tag{20}$$

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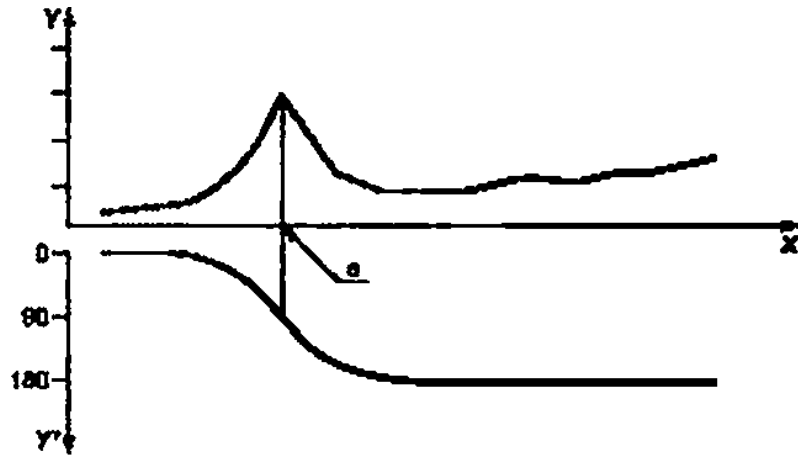
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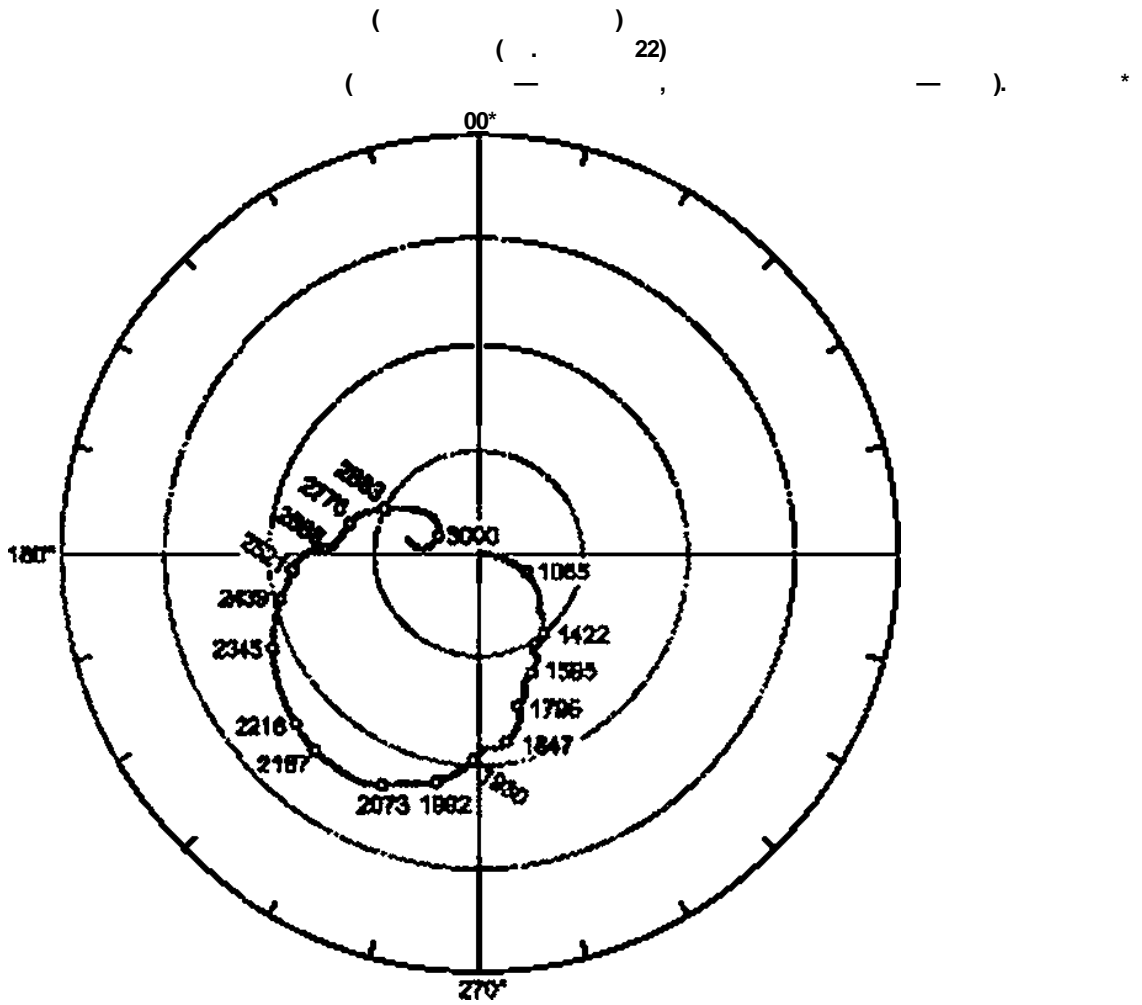
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X — частота вращения; Y — амплитуда; Y' — фаза (в градусах);
a — резонанс

Рисунок 21 — Диаграмма Бодэ

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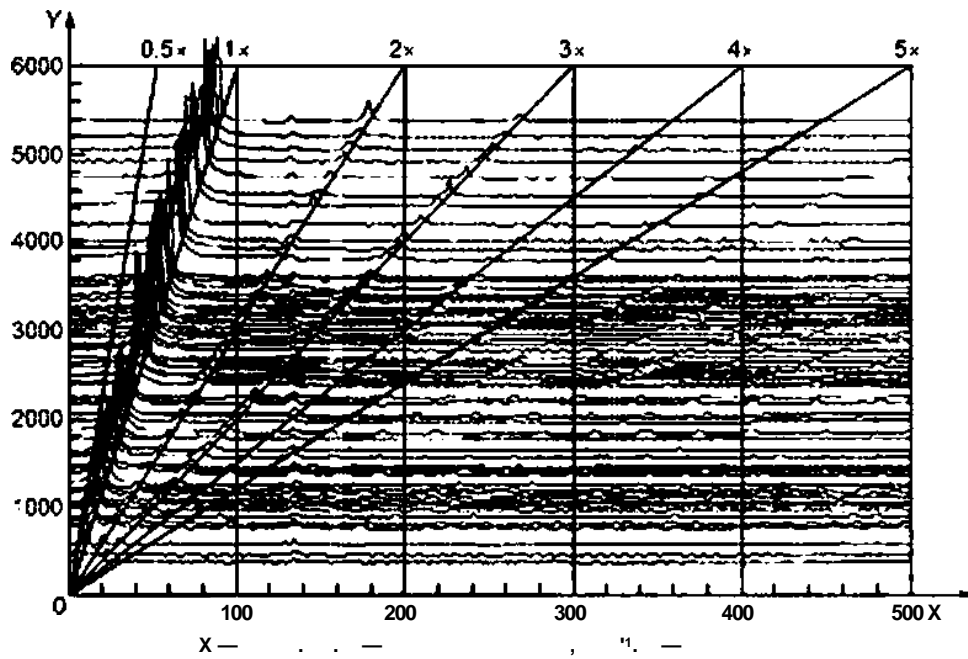


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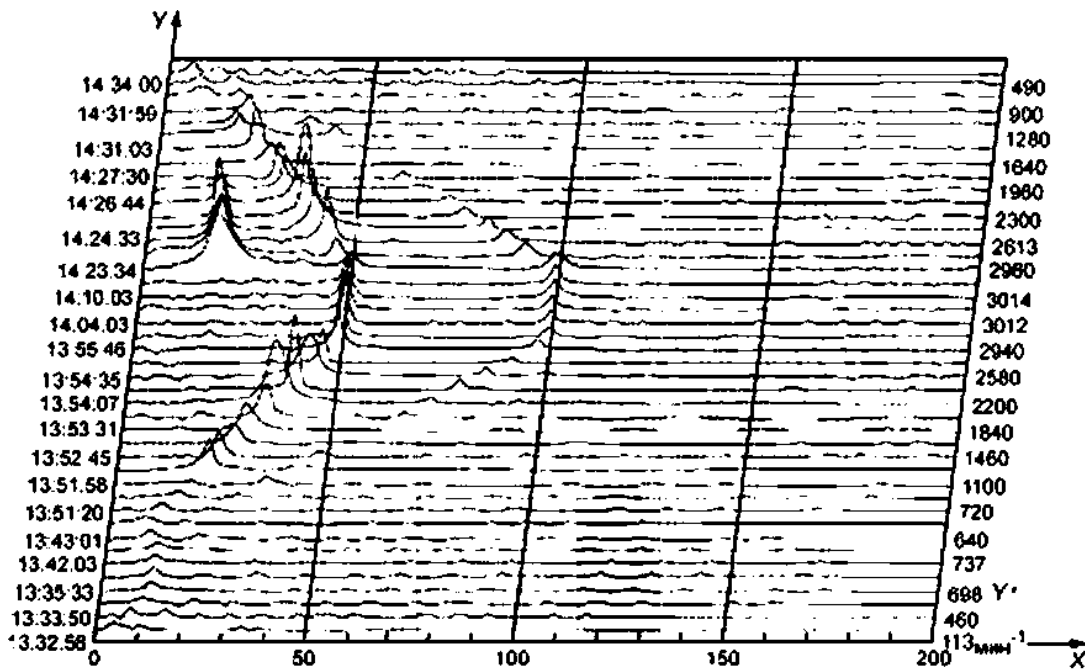
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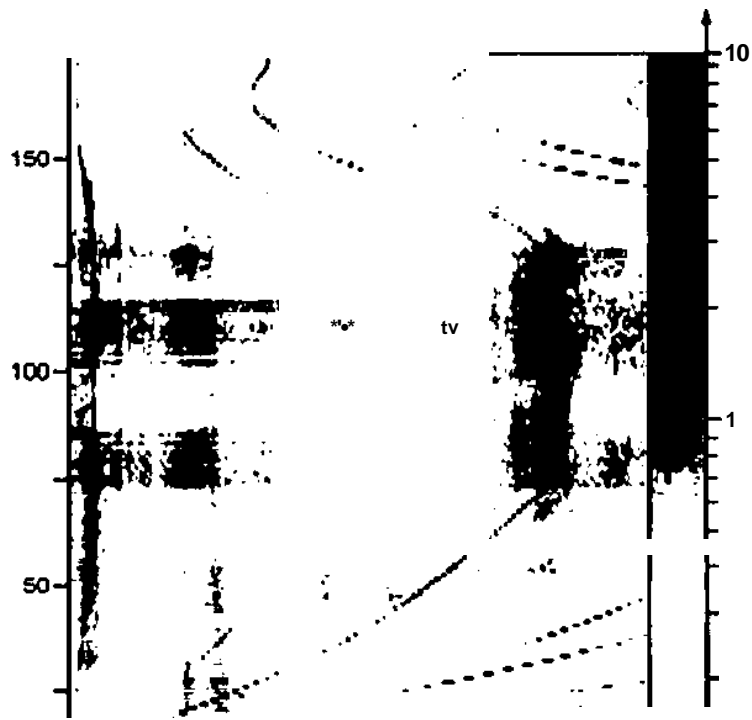
X — частота, Гц; Y — время суток; Y' — частота вращения, мин⁻¹; Y'' — амплитуда

Рисунок 24 — Каскадный спектр вибрации турбины

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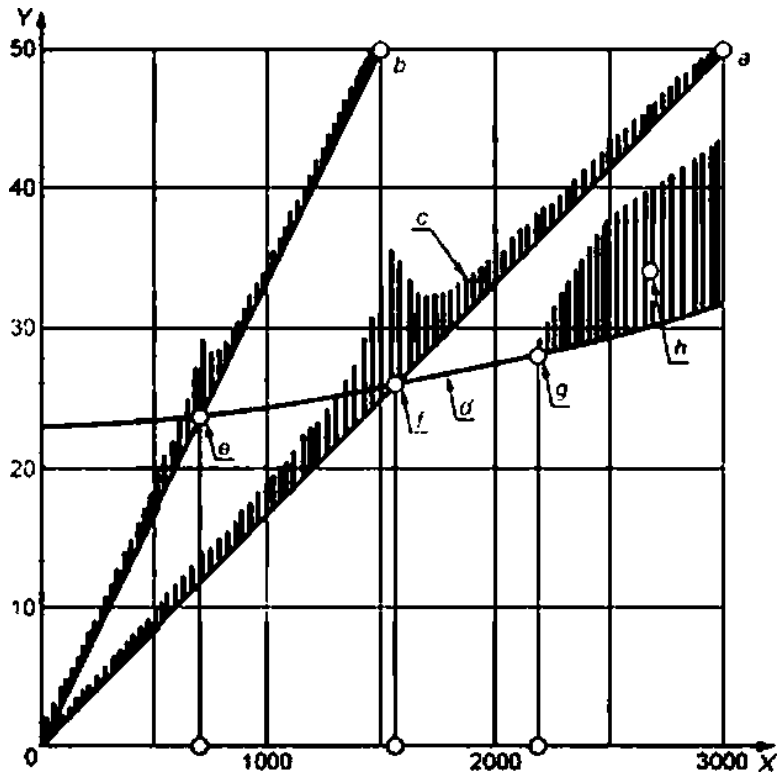
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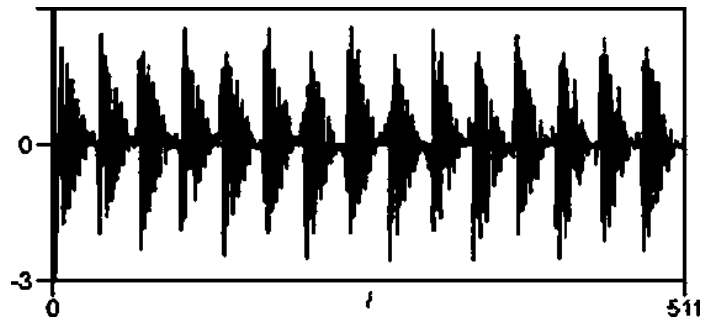
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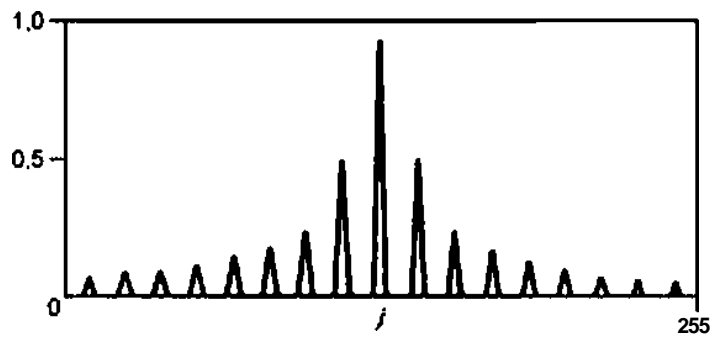
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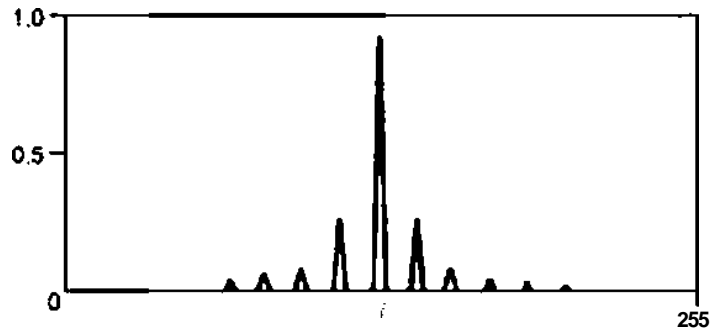
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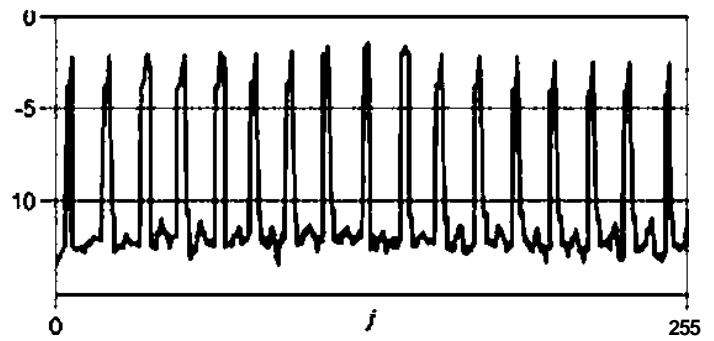
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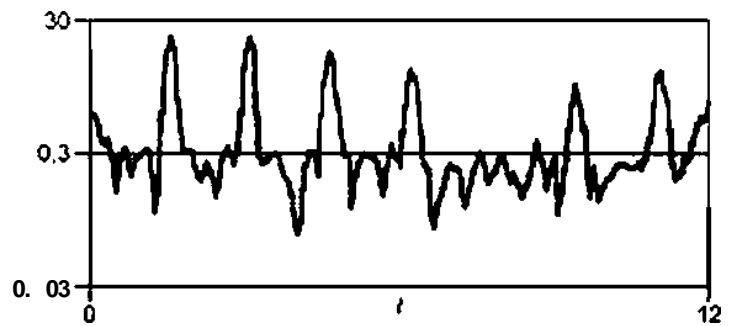


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- [1] ISO 2041. Mechanical vibration, shock and condition monitoring — Vocabulary
- [2] ISO 2954. Mechanical vibration of rotating and reciprocating machinery — Requirements for instruments for measuring vibration severity
- [3] ISO 5348. Mechanical vibration and shock — Mechanical mounting of accelerometers
- [4] ISO 7919 (all parts). Mechanical vibration — Evaluation of machine vibration by measurements on rotating shafts
- [5] ISO 10816-1 (all parts). Mechanical vibration — Evaluation of machine vibration by measurements on non-rotating parts
- [6] ISO 10817-1. Rotating shaft vibration measuring systems — Part 1: Relative and absolute sensing of radial vibration
- [7] ISO 13372. Condition monitoring and diagnostics of machines — Vocabulary
- [8] ISO 13373-1. Condition monitoring and diagnostics of machines — Vibration condition monitoring — Part 1: General procedures
- [9] ISO 16063-21. Methods for the calibration of vibration and shock transducers — Part 21: Vibration calibration by comparison to a reference transducer
- [10] ISO 18431 (all parts). Mechanical vibration and shock — Signal processing
- [11] VDI 3839Blatt 1. Hinweise zur Messung und Interpretation der Schwingungen von Maschinen — Allgemeine Grundsätze (Instructions on measuring and interpreting the vibrations of machine — General principles) (Bilingual edition)
- [12] VDI 3841. Schwingungsüberwachung von Maschinen — Erforderliche Messungen (Vibration monitoring of machinery — Necessary measurements) (Bilingual edition)
- [13] Mitchell, J. S. *An introduction to machinery analysis and monitoring*. Pennwell Publishing, 1993
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