

ICS 17.140.50
CCS A 59



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 3769-2010

Replacing GB/T 3769-1983

**Electroacoustics -- Scales and sizes for plotting frequency
characteristics and polar diagrams**

电声学 绘制频率特性图和极坐标图的标度和尺寸

(English Translation)

Issued on: December 1, 2010

Implemented on: May 1, 2011

Issued by: Standardization Administration of China

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Foreword

This standard is identical with IEC 60263. 1982 "electro-acoustics plotting frequency characteristics and polar diagrams of scale and size" (in English).

For ease of use, this standard made the following editorial changes.

- Remove the IEC 60263. 1982 in the preface;
- Press in Appendix A of GB/T 1.1-2000 defined as informative appendix;
- With a decimal point instead of a comma as the decimal point, "";
- Appendix A of the example in Figure A.3 "k" with "x 10³" in place;
- Appendix A of the example in Figure A.4 unit symbol to "sound level dB (A)".

This standard replaces GB/T 3769-1983 "plotting frequency characteristics and polar diagrams of scale and size." this standard compared with GB/T 3769-1983 The main changes are as follows.

- "Introduction" section of GB/T 1.1-2000 requirements rewritten;
- Increased introduction;
- Linear scale is incorporated in a logarithmic scale;
- Polar scale will be drawn into the absolute level and relative level in both cases;
- Added Appendix A "sample This standard specifies the requirements." Appendix A of this standard is a normative appendix.

The standard proposed by the Ministry of Industry and Information Technology of the People's Republic of China.

This standard by the National Standardization Technical Committee electro-acoustics.

Drafting of this standard. Jiangsu Provincial Academy of Electronic Information Products

Quality Supervision, Inspection, Chinese Academy of Sciences Institute of Acoustics.

Introduction

To be able to order from a frequency response amplitude plotted on a logarithmic scale (in decibels) graph to get a clear impression, will sit Subject proportion standardization is very important. Otherwise, some scale compression or expansion, or the spectrum response curve may appear Excessive flat or steep.

Our ultimate concern is usually the output spectrum, which is the input signal spectrum and as a microphone, amplifier, speakers, or the possible transmission losses Several individual response characteristics of synthetic and other consumption. Similarly, hearing aids, recorders and other equipment vibration measuring instrument can also be synthesized by a similar method of transmission the frequency spectrum. If we are to use each feature a standard drawn to scale, we can more easily understand the parts for most end Contribution fruit.

It represents the frequency response characteristics require different ranges and accuracy class. For example, the range of 10dB may be for a standard microphone the response is sufficient, and for a filter may need to be greater than the range of 60dB. Although these requirements emphasize the use of a different scale than

Example of necessity, but for ease of comparison, we should use as little as possible the number of proportion.

If you use the same size scale, we can draw the curve in the translucent paper stacked on each other a simple comparison. although However, the graphic publications may need to fit the printed page and narrow, but in the case of using a standard scale, we will be a different Curve version was performed on the right amplified directly compare the overlap is still workable.

Electro-acoustics

Plotting frequency characteristics and polar diagrams of scale and size

1 Scope

1.1

This standard specifies the proportion of plotting frequency characteristics and polar diagrams of scale.

1.2

This standard does not apply to the audiogram.

2 Log frequency scale

Plotting frequency (logarithmic scale) - the amplitude (dB) diagram, the scale length of each 10.1 frequency ratio should be equal to the ordinate 10dB, 25dB or scale length differential of 50dB.

3 Polar plots

3.1

linear scale, represents Level (dB) increases radially outwardly of polar plots, the maximum possible level should be drawn on a radius corresponding to the 50dB level difference on the reference circle, or painted in the range from the reference circle of 5dB. In another case, the maximum possible level should be drawn in a A radius corresponding to the level difference of 25dB reference circle, or painted in the range of 2.5dB from this reference circle. In both cases the corresponding reference Tolerance limits on the radius of the circle should be respectively $\pm 0.5\text{dB}$ and $\pm 0.25\text{dB}$. Choose any length represents 1dB required to meet the above requirements.

3.2

absolute level refers to a fixed reference value, when the reference radius and 50dB differential corresponds to the reference circle specified level should be 10dB Multiples, when the reference radius and 25dB differential corresponds to the reference circle specified level should be a multiple of 5dB. Level reference should be represented by a circle in the depicted maximum level 5dB (or 2.5dB) range.

3.3

relative level, for example, in a particular direction and the reference direction at a predetermined distance sensor absolute level of the difference between the specified reference circle the relative order of 0dB, the reference direction is designated angle 0°.