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

GB/T 4086.5-2025

Replacing GB/T 4086.5-1983

**Data analysis and decision - Tables for statistical distributions -
Part 5: Binomial distribution**

数据分析与决策 统计分布数值表 第5部分：二项分布

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents". Drafting. This document is Part 5 of GB/T 4086 "Statistical Distribution Numerical Tables for Data Analysis and Decision Making". GB/T 4086 has been published. The following section.

1. Normal Distribution;

---Part 2. χ^2 Distribution;

---Part 3. t-distribution;

---Part 4: F-distribution;

5. Binomial Distribution;

6. Poisson Distribution;

7. Non-central t-distribution. This document replaces GB/T 4086.5-1983 "Statistical Distributions - Numerical Tables - Binomial Distribution". Compared with GB/T 4086.5-1983, except for the conclusion... Aside from structural adjustments and editorial changes, the main technical changes are as follows:

---Added notes on table spacing and accuracy (see Chapter 1). Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed and is under the jurisdiction of the National Technical Committee on Standardization of Statistical Methods Application (SAC/TC21). This document was drafted by: Zhejiang Zhongguang Electric Group Co., Ltd., Beijing University of Technology, China National Institute of Standardization, and Chinese Academy of Sciences. Institute of Mathematics and Systems Science, Jilin Provincial Institute of Product Quality Supervision and Inspection. The main

drafters of this document are. Ling Yongjun, Xie Tianfa, Wang Gongming, Zhang Xuan, Zhao Jing, Zhang Fan, Wu Gang, Yang Ziqiang, Wei Gongyi, and Li Ning. This document was first published in 1983, and this is its first revision.

Currently, with the widespread use of computers, using computer programs to obtain the required statistical distribution values is a good method. However, if a computer is not readily available, or if it is desirable to obtain the required statistical distribution values easily, then statistical distribution tables are still necessary. However, it is an indispensable tool. In practice, basic statistical distributions, such as the normal distribution, χ^2 distribution, t distribution, F distribution, binomial distribution, and Poisson's distribution, are essential. Loose distribution and noncentral t-distribution are the distributions that people are most interested in. GB/T 4086 "Statistical Distribution Numerical Tables for Data Analysis and Decision Making" is proposed to consist of 7 parts.

1.Normal Distribution. The aim is to provide the probability density function, distribution function, and quantiles of the standard normal distribution. Numerical value.

2.Chi-square distribution. The purpose is to provide the distribution function of the chi-square distribution and the numerical values of its quantiles.

---Part 3.t-distribution. The purpose is to provide the distribution function of the t-distribution and the numerical values of its quantiles.

1 Scope

GB/T 4086.5-2025 is the Chinese national standard covering the binomial tables - the point and cumulative probabilities by sample size and proportion, which is what every attribute sampling plan and every proportion confidence interval is read from. At 45,500 words. Part 5 of the series. It replaces GB/T 4086.5-1983 and is already in force. Issued on 5 October 2025, it has been in force since 5 October 2025, replacing GB/T 4086.5-1983.

This document provides a table of distribution functions for the binomial distribution, with the table intervals as follows: $n=2(1)30(2)50$ $x=0,1,2,,k$ Where k simultaneously satisfies $F(k;n,p) \leq 1-5 \times 10^{-7}$ and $F(k-1;n,p) > 1-5 \times 10^{-7}$. Note

1.Table spacing such as $n=2(1)30(2)50$ indicates that the value range of n is 2~50, where the interval between values in the range of 2~30 is 1, and the interval between values in the range of >30~50 is 1. The value interval is 2. The distribution function table is accurate to 6 decimal places. Note

2.Precision refers to the number of decimal places retained in a numerical value. This document applies to situations where the distribution function value of the binomial distribution is used in data analysis and decision-making.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 3358.1 Statistical vocabulary and symbols - Part

3 Terms and Definitions

The terms and definitions defined in GB/T 3358.1 apply to this document.

4 Overview

Although the distribution function table provides 6 decimal places, the number of decimal places required in practice depends on the specific problem. If the numerical tables listed in this document do not meet the application requirements, refer to Appendix A and Appendix B for calculations, or use interpolation methods. Rough calculation.

5. Distribution function table of binomial distribution The distribution function of a binomial distribution with parameters n and p is. $F(x;n,p) = \sum_{y=0}^x \binom{n}{y} p^y (1-p)^{n-y}$, $0 < p < 1$, $x = 0, 1, 2, \dots, n$ The probability of finding the integer point x is $f(x;n,p) = F(x;n,p) - F(x-1;n,p)$, where $x = 1, 2, \dots, n$. The distribution function of the binomial distribution with parameters n and p is shown in Figure

1. The distribution function of the binomial distribution with parameters n and p is shown in the figure.