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

GB/T 4833.3-2008

**Multichannel analyzers -- Part 3: Histogram data interchange
format for nuclear spectroscopy**

多道分析器 第3部分：核谱测量直方图数据交换格式

(English Translation)

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Foreword

GB/T 4833 "Multi-channel analyzer" is divided into three parts.

--- Part 1. Technical requirements and test methods;

--- Part 2. Test methods as a multi-channel scaler fixed;

--- Part 3. nuclear spectroscopy histogram data interchange format.

This part of GB/T 4833 Part of, identical with IEC 61455:1995 "Nuclear Instruments nuclear spectroscopy measurements with straight multi-channel analyzer Square data interchange format. " this part relative IEC 61455 with the following editorial changes.

a) modify the standard name, so this section as part of the GB/T 4833 "Multi-channel analyzer," the;

b) to Chapter 4, "Definitions" in "term" and "the definition of" staging writing;

c) a "footnote" in the form of the original description of errors in the program.

This part of the Annex A, Annex B and Annex C is informative appendices.

This section proposed by the Defense Science, Technology and Industry Committee.

This part of the jurisdiction of the Institute of Nuclear Industry Standardization.

Drafting this Part. Nuclear Industry Standardization Institute, Tsinghua University.

1 Scope

This section applies to nuclear spectroscopy pulse amplitude histograms exchanging data with the data source, read or write data on the device and hold the number According to the

media independent.

Objective 2

The purpose of this section is to provide a nuclear spectroscopy measurements with multi-channel analyzer interchange format (MCA) histogram data interchange format that can be used in various Laboratory multi-channel pulse amplitude data transmission as well as for the purpose of inspection and distribution of these data. As with a large number of computer language, computer and compatible hardware links, must be written in full ASCII file. These files are expected prior to use to convert the native format.

3 Overview

Compatible with a large number of computers and its hardware and software, a complete pulse amplitude histogram data file (hereinafter referred to as data files) should Using ASCII code written with the intention that prior to use the data file is converted to native format.

The data file contains a variable number of records. Each record consists of 70-byte characters, numbers, and treated with 4-byte "A004" as Prefix, indicating that the record in ASCII representation. After a prefix followed by 64 bytes of data. All records are contained carriage return and linefeed Two-byte as the end. Record all unused bytes are filled the ASCII space character. Format data files recorded in Table 1;

Examples of the data file is shown in Figure 1; Table 1 records the contents of the data format, see Chapter 3; using FORTRAN, BASIC and C language to read See an example of program data sequentially in Appendix A, Appendix B and Appendix C.

Table 1 Documentation

Record number each record content type byte characters System identification, character identification subsystem 8 + 8 simulation Digital converter (ADC) number, paragraph number numeral 4 + 4 Digital offset number 6 Live time, real-time float 14 + 14 the total number of tracks the number 6 Get the character start time (8 + 1) x 2 Character sampling time (8 + 1) x 2

4 Energy scale factor (correction factor) A, B, C, D float 14 x 4

6-9 Sample Description (description) -1/-2/-3/-4 character 64 x 4

10 Alternate

11 to 22 and the number of channels of energy (each record two pairs of data) Float 16 x 4
23 to 34 for the energy and resolution (two pairs of data for each record) Float 16 x 4
35 to 46 and the energy efficiency (each recording two pairs of data) Float 16 x 4
47 to 58 user-defined 59 to the end of the spectral data A digital channel number 6 5 10 x 5 digital

channel data Note. The table increases the number of bytes per character type and recorded content.

GB/T 4833.3-2008/IEC 61455:1995