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

GB/T 14054-2013

Replacing GB/T 14054-1993

**Radiation protection instrumentation -- Installed dose rate
meters, warning assemblies and monitors for X and gamma
radiation of energy between 50 keV and 7 MeV**

(English Translation)

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Foreword

This standard was drafted in accordance with GB/T 1.1-2009 given rules.

This standard replaces GB/T 14054-1993 "radiation protection with fixed X, gamma radiation dose rate meters, warning assemblies and monitors", and GB/T 14054-1993 compared, in addition to editorial changes outside the main technical changes are as follows.

--- Standard name changed to "Radiation protection instrumentation energy 50keV ~ 7MeV X and gamma radiation dose rate meter fixed, alarm Assemblies and monitors ";

--- "2 Normative references" to remove the GB/T 8993.1 "Nuclear Instruments and Methods Basic environmental testing General" and GB/T 10257 "nuclear instruments and nuclear radiation detectors quality inspection rules," added the reference radiation, environmental testing, electromagnetic compatibility, National standard nuclear power plant instrumentation and control systems important to safety, the standard voltage, equipment and other aspects of random files, industry standards and national International standards;

--- In the "terms and definitions" commonly used to remove the amount of radiation terminology and definitions, such as. ambient dose equivalent, release air ratio of kinetic energy, dose Etc; increased test terminology;

--- Chapter 4, the heading "technical requirements" to "design requirements" include only "general characteristics of 4.1" and "4.2 detailed characteristics", and Radiation characteristics as well as electrical, mechanical and environmental characteristics of this

standard are as Chapters 6 and 7 and the technical contents of Changes and additions;

--- Increase EMC technical content, including the emission of electromagnetic radiation, electrostatic discharge, radio frequency electromagnetic fields, or by a fast transient burst Conducted disturbances induced by conducted disturbances induced surge, conducted disturbances induced by the radio frequency, oscillation, 50Hz magnetic field, voltage Requirements and test methods dips and interruptions;

--- Delete Chapter 6, "Inspection Rules";

--- Delete Chapter 7 "logo, packaging, transportation and storage";

--- Chapter 8, the heading "in the specification and quality certificate" to "File";

--- Appendix A of the "number of readings required to determine the inter-instrument indicating real difference" to "pulse ionizing radiation monitoring";

--- Increase the "References." this standard uses the translation method identical with IEC 60532:2010 "Radiation protection instrumentation fixed radiation dose rate meters, warning assemblies and Monitor X and gamma radiation energy 50keV ~ 7MeV ".

Consistency correspondence with international standards in this standard references of the document Appendix NA.

The standard IEC 60532:2010 made the following editorial changes.

--- "2 Normative references" in the prior corresponding national standards with international standards to our standards, increase in 4.2.2 IEC 60987, and references cited in 4.2.3 of IEC 61559, delete does not appear in the text of the IEC 60068-2-27:2008;

--- "3 Terms and definitions" of key words according to GB/T 1.1-2009 provisions to "GB/T 2900.81, GB/T 2900.82 and GB/T 2900.83 define the following terms and definitions apply to this document, "removal instructions expressed in terms of the operative verb Note;

--- 6.4.2 in the second row instead of a column content item description, but the following Energy explanatory method, so deleting "---";

--- 7.1 "Power" just to keep the content of the current use;

--- 7.2.4.1 The "Table 4" is a clerical error, was changed to "Table 6";

--- 7.2.9 does not meet the conditions to remove the "60Hz";

--- 7.4.1.2 "Table 4" is a clerical error, was changed to "Table 5";

--- Table 3 "nominal voltage $\pm 1\%$ " was changed to "nominal voltage ($1 \pm 1\%$)", "nominal frequency $\pm 2\%$ " was changed to "nominal frequency ($1 \pm 2\%$) ";

--- Table 5 "Power" just to keep the content of the current use;

--- Increased appendix NA "Normative references in this standard correspondence

documents of international documents and files." the standard proposed by the Defense Science and Technology Industrial Development Bureau.

This standard by the National Nuclear Instrument Standardization Technical Committee (SAC/TC30) centralized.

This standard was drafted. Xi'an Nuclear Instrument Factory.

Introduction

a) standard technical background, major publications and organizations this standard specifically focuses on the use of normal and accident conditions of radiation monitoring systems.

The standard for users in its dedicated power plant radiation monitoring system when preparing technical specifications and manufacturing facilities in the development of normal and accident conditions the process used to determine the system's use of the desired product characteristics. Some special characteristics of the instrument (for example. measurement range, the required energy response and surrounding environmental requirements) depending on the particular application. In these cases, the special requirements established to provide guidance, but did not specify the specific Requirements, but typical examples are given in the informative appendix.

This standard is a standard relating to the nuclear power plant after the accident radiation monitoring equipment important to safety series. The series of standards consists of the following standard Associate composition.

GB/T 12726.1 important to safety of nuclear power plants after the accident and radiation monitoring instrumentation - Part 1. General requirements (IEC 60951-1:2009, IDT)
Instrumentation important to safety after the accident and radiation monitoring - Part 2
GB/T 12726.2 nuclear power plants. in gaseous effluents and ventilation Radioactive continuous off-line monitoring equipment (IEC 60951-2:2009, IDT) GB/T 12726.3 important to safety of nuclear power plants after the accident and radiation monitoring instruments - Part 3. High range area gamma continuously monitored Measuring equipment (IEC 60951-3:2009, IDT) GB/T 12726.4 important to safety of nuclear power plants after the accident and radiation monitoring instrumentation - Part 4. Process flow tube or inner tube placed beside Radioactive continuous monitor (IEC 60951-4:2009, IDT)

b) in the SAC/TC30/SC2 and SC3 standard structure in the current standard status GB/T 12726 series of standards is in the third level in SC2 standard hierarchy.

GB/T 12726 series of standards for the design and testing after accidents and accident conditions, radiation monitoring equipment to provide guidance. SC2 and SC3 other criteria established for normal operating conditions for radiation monitoring instrumentation to provide guidance.

GB/T 7165 series of standards for the off-line continuous monitoring of radioactivity in gaseous effluents under normal operating conditions of the equipment specified requirements.

GB/T 10253 is a continuous off-line monitoring normal conditions of liquid radioactive effluents device specifies the requirements. IEC 60768 is a continuous monitor Measured normal operation and anticipated operational occurrences within the process stream or a bypass pipe radioactive device specifies the requirements. Finally, ISO 2889 for the gas and Particle sampling guidance. Table 1 shows the relationship between these different standards of radiation monitoring.

Table 1 SAC/TC30/SC2 and SC3 standard series

Making organization ISO SC2 --- process and safety monitoring After the scope and methods of sampling circuit accidents and accident conditions of normal and anticipated operational occurrences SC3 --- Radiation Protection and effluent monitors Zone sampling gases, particulates and Iodine monitoring (offline) ISO 2889 GB/T 12726.1 and GB/T 12726.2 GB/T 7165 series of standards Monitor with a liquid sample (from line) NA NA GB/T 10253 Without sampling (gaseous discharge Flow, steam or liquid) process Flow monitor (next to the pipe or tube) not applicable GB/T 12726.1 and GB/T 12726.4 IEC 60768 is not applicable Regional monitoring does not apply GB/T 12726.1 and GB/T 12726.3 GB/T 14054 the central control system is not applicable IEC 61504 IEC 61559 (all parts)

c) Recommendations and limitations of the standard applications this standard does not pay particular attention to the establishment of additional functional requirements for the safety systems.

Relations d) SC2/SC3 standard describe the structure of the series and with other standards and other bodies (IAEA, ISO) file IEC 61508 series of standards defines the overall security architecture and life cycle system life cycle framework requirements. When developed with security when functional, regional nuclear power plant radiation monitoring instruments used beyond, it should at the same time meet the IEC 61508 series of standards also comply with this standard Requirements.

Top standard SC2 standard series is NB/T 20026. It is important for the implementation of nuclear power plant safety functions and instrumentation and control systems set up Preparation of the provisions of the general requirements. NB/T 20026 standard series built SC2.

NB/T 20026 standard SC2 direct reference to the other, to the functional classification and grading systems, qualification, system isolation, common cause Barrier defense, computer-based software systems, hardware-based computer systems and control room design and other aspects. At the secondary level should be considered Direct reference to these standards and with the NB/T 20026 together as a reference document.