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

GB/T 45068.1-2024

**Digital fittings - Performance evaluation protocol for systems -
Part 1: Virtual human body representation**

数字化试衣 系统性能评估 第1部分：虚拟人体表示

(English Translation)

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Table of Contents

Foreword

Introduction

1 Scope

2 Normative references

3 Terms and definitions

Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting is required.

This document is part 1 of GB/T 45068 "Performance evaluation of digital fitting systems". GB/T 45068 has been published as follows part.

-Part 1: Virtual human representation.

This document is modified to adopt ISO 20947-1:2021 "Evaluation of digital fitting performance Part 1: Accuracy of virtual human representation".

The technical differences between this document and ISO 20947-1:2021 and their reasons are as follows.

Changed the scope (see Chapter 1) to clarify who it applies to; a) the normative reference GB/T 16160 replaced ISO 8559-1 (see 4.4, 6.2), and the human body measurement method for clothing in my country was adopted.

Legal standards;

Added reference to GB/T 41419 (see Chapter 3, 6.2) to ensure consistency of terminology; c) the definition of the term "virtual human feature points and surfaces" (see 3.6) has been changed to make the definition clearer and avoid ambiguity; d) the definition of the term "virtual subthorax point" (see 3.6.5) has been changed to make the definition clearer and avoid ambiguity; e) the definition of the term "virtual upper buttocks" (see 3.6.9) has been changed to make the definition clearer and avoid ambiguity; f) the general requirements (see 6.1) have been changed to make the expression more concise and accurate; g) Deleted the "Virtual back neck point to waist" in the virtual human body size (see Table 2). This item is the same as the "Virtual back waist length" repeat;

Changed the list of subject information, human body size error analysis, and

cross-sectional bounding rectangle dimensions by gender (see Table A.4 to Table A.7, Table A.10~Table A.11, Table B.4~Table B.7, Table C.4~Table C.5) to make the expression clearer.

The following editorial changes were made to this document.

The name of the standard was changed to "Digital Fitting System Performance Evaluation Part 1: Virtual Human Body Representation";

Rewrote the introduction to describe the relationship between some standards. -

Introduction

Digital fitting systems, which use virtual bodies and virtual clothing in cyberspace to perform fitting, are becoming increasingly popular in the clothing industry.

In the product evaluation stage, the system effectively reduces the waste of clothing product materials. Using computers to design virtual clothing samples can not only create Virtual clothing can also be tried on a virtual human body or a virtual mannequin. Digital fitting technology is suitable for designers, manufacturers, educators, etc.

It is beneficial to improve the fit of clothing and increase productivity.

Depending on the evaluation object, GB/T 45068 "Performance evaluation of digital fitting system" is planned to consist of the following three parts.

Part 1: Virtual Human Representation. The purpose is to describe the methods for quantifying human size differences and visualizing real human and virtual human models.

The method of shape difference between them.

Part 2: Virtual Clothing Representation. The purpose is to describe the virtual clothing samples and clothing fitting related aspects of the digital fitting system.

Methods for functional description and performance evaluation.

Part 3: The gap between human body and clothing. The purpose is to describe the gap between virtual clothing and virtual human body in digital fitting system.

Or the method of gaps between virtual fitting mannequins.

Performance evaluation of digital fitting system Part 1: Virtual Human Representation

1 Scope

This paper describes methods to quantify human size differences and visualize shape differences between real humans and virtual human models.

This document provides a virtual human body (including a virtual fitting mannequin) created

based on 3D human body scan data and/or human body size data.

Protocol for performance evaluation of virtual human representation systems.

This document is applicable to all stages of design, development, application, communication and business of digital fitting systems.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies.

in this document.

GB/T 16160 Definition and method of measuring human body size for clothing GB/T 41419 Terms and definitions for digital fitting virtual human bodies (GB/T 41419-2022, ISO 18825-1:2016, MOD) GB/T 45066 Digital fitting virtual human attributes - Terms and definitions (GB/T 45066-2024, ISO 18825-2:2016, MOD)

3 Terms and definitions

The terms and definitions defined in GB/T 41419 and the following apply to this document.

Digital fitting system digital fitting system by analyzing surface stress distribution, gaps between the human body and clothing (including human cross-sections), thermal maps, surface wrinkles, seams, Clothing balance, etc., a system for qualitative and/or quantitative fit evaluation of the overall and/or partial clothing simulating the effect of wearing it on the human body.

virtual human model

A three-dimensional model of a person in digital format.

[Source. GB/T 41419-2022, 3.1.1] 3.2.1 parametric human body A virtual human model with variable parameters such as size and shape (3.2).

Example. See Figure 1.