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Clothing — Digital fittings — Vocabulary and terminology used for the virtual garment

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Foreword

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO nnn-n was prepared by Technical Committee ISO/TC 133, Sizing systems and designations for clothes, WG 2, Digital fitting.

This second/third/... edition cancels and replaces the first/second/... edition (ISO nnn-n:19xx), [clause(s) / subclause(s) / table(s) / figure(s) / annex(es)] of which [has / have] been technically revised.

ISO nnn consists of the following parts, under the general title Sizing systems and designations for clothes – Digital fittings– Vocabulary and terminology used for the virtual garment

— *Part 1:*

— *Part [n+1]: Part title*

— *Part [n+2]: Part title*

Introduction

This International Standard deals with virtual garments for digital fitting.

Various types of virtual garment-based IT-fashion convergence technology are being attempted today, according to rapid development of the vast online fashion market, including the internet, mobile market, smart TVs, and virtual fittings at bricks-and-mortar stores. Meanwhile, the increased demand of ubiquitous fashion business services these days encourages efforts to innovate the traditional process of planning, production and sales. The use of digital technology in this new ubiquitous environment of the international apparel industry is leading to use of three-dimensional information on fashion products that reflect appearance, design and texture characteristics, and consumers can now go online anytime, anywhere, to try on clothes, evaluate the style and fit, and place orders. Despite such advances, there is a lack of an international standard related to virtual garment.

The purpose of this International Standard is to specify the international standardization of data attributes and formats required for virtual garments and to aid in the definition and explanation of virtual garments, facilitating harmonized and smooth communication reducing confusion over virtual terminology.

The standard will be able to provide a platform that unifies specified vocabulary and terminology when virtual garment systems are in development. In addition online consumers, fashion designers, manufacturers and sellers will be able to become familiar with and make use of the said vocabulary

Clothing — Digital fittings —Vocabulary and terminology used for the virtual garment

1 Scope

This International Standard defines the terms that are commonly used for virtual garment system.The virtual garment system includes virtual garment patterns, virtual sewing line, virtual pattern piece properties, virtual cloth, virtual cloth attributes, virtual drape simulation of a virtual garment and digital fitting of a virtual garment on a virtual human body.

2 Normative references

This international standard should be read in conjunction with the following International Standards:

ISO 5084, Textiles — Determination of thickness of textiles and textile products

ISO 8559 (all parts) — Size designation of clothes

ISO 13934-2, Textiles — Tensile properties of fabrics — Part 2: Determination of maximum force using the grab method

ISO 14087, Leather — Physical and mechanical tests — Determination of bending force

ISO 14273, Resistance welding — Destructive testing of welds — Specimen dimensions and procedure for tensile shear testing resistance spot, seam and embossed projection welds

3 Terms and definitions

3.1 Virtual garment

Three-dimensional clothing in digital form that exists in virtual space. An example of a virtual garment is shown in Figure 1.

NOTE Digital fitting may be used for many different areas of application of virtual garments such as product development, marketing, etc.

Figure 1 —Example of virtual garments

3.1.1 Virtual garment pattern

Shapes consisting of closed curves that mark the area of a digitized pattern to be used on the virtual garment.The example of a virtual garment pattern is shown in Figure 2.

Each pattern consists of a contour and multiple internal lines, which are used to express seams, internal openings, fold lines, and other garment characteristics.

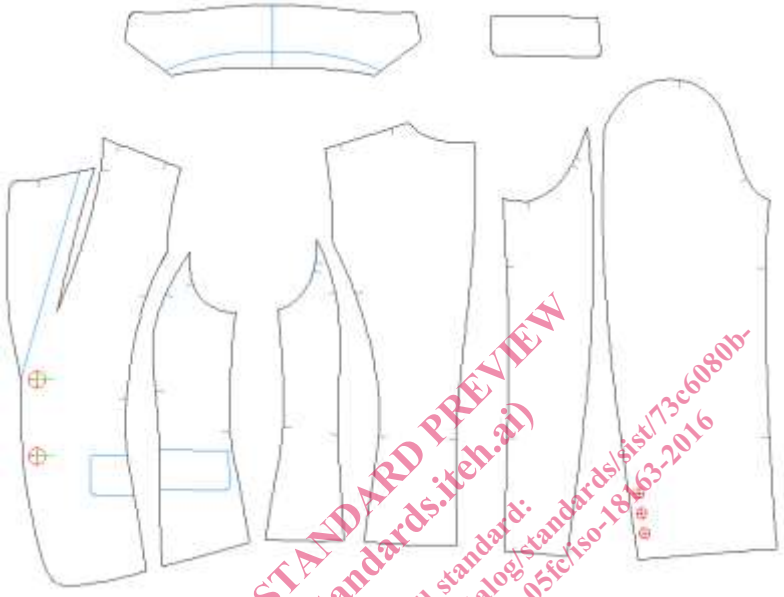

Figure 2 —Example of virtual garment pattern (jacket)

3.1.2 Virtual sewing

Creation of a virtual garment by assembling patterns. An example of virtual sewing is shown in Figure 3.

For each pair of patterns to be sewn together, a pair of line segments is defined. The pattern pieces are then arranged in a space and the points on each pair of line segments are pulled together through physical simulation. This process is repeated to join the pieces and create a virtual garment.

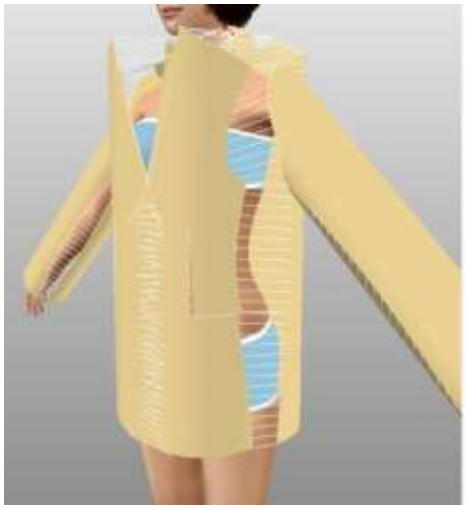

Figure 3 —Virtual sewing

3.2 Clothing simulation

Creation and drape simulation of a virtual garment for the virtual human body using a virtual garment pattern, virtual sewing and bounding volume. An example of clothing simulation is shown in Figure 4.

Figure 4 — Clothing simulation

3.3 Digital fitting

Qualitative and/or quantitative evaluation of overall and/or specific simulation garment fit through analysis of the distribution of surface strain, gap between body and garment, heat map, cross section, surface wrinkles, seam drop, garment balance, etc.

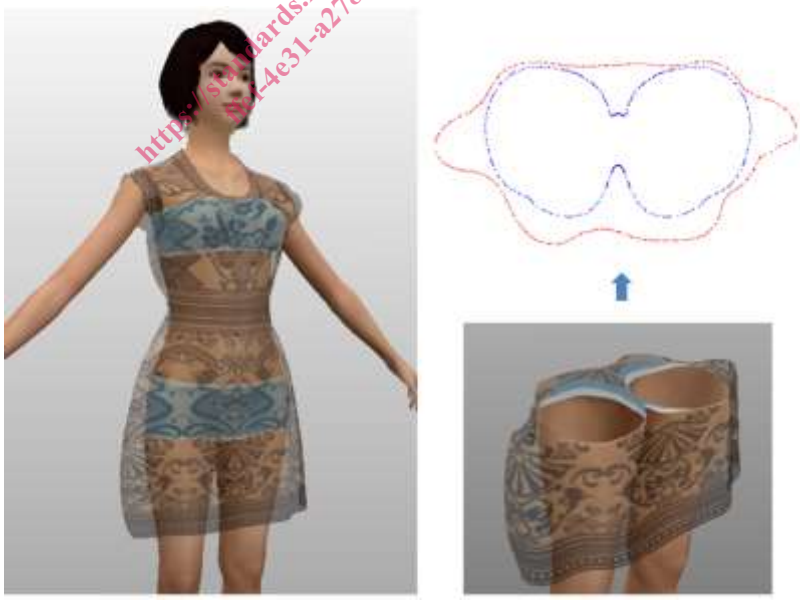

Figure 5 —Digital fitting

3.3.1 Pattern strain

Amount of deformation caused on a garment pattern in the drape simulation process.

NOTE Pattern strain can be expressed in different ways. For example, pattern strain can be expressed through a surface color map where the color is darker as the strain increases, and vice versa. White indicates zero strain.

Figure 6 — Example of color scale for pattern strain

3.3.2 Gap

The distance between a point on a virtual garment and the virtual human body.

NOTE Gap can be expressed through horizontal or vertical slices indicating the relationship between body and garment, or through the distance between a point on a virtual garment and the virtual human body, etc. Gap is expressed as a color map. Color becomes darker as the gap increases. The color scale can vary according to the type of software.