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Flexible displays ~~devices~~ -
Part 6-22: Mechanical test methods - Crease and waviness measurement methods for foldable displays

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CONTENTS

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IEC 62715-6-22 has been prepared by IEC technical committee 110: Electronic displays. It is an International Standard.

This second edition cancels and replaces the first edition published in 2023. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) addition of multiple-folding;

b) addition of new data analysis logic.

The text of this International Standard is based on the following documents:

Draft	Report on voting
110/1841/FDIS	110/1852/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 62715 series, published under the general title *Flexible displays*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

– reconfirmed,

– withdrawn, or

– revised.

INTRODUCTION

The market for foldable display devices is growing rapidly, as shown in the new form factors for portable devices. It is expected that various foldable display devices will be released in the near future.

Typically, the cover for rigid displays is made of glass. A rigid glass cover protects the display panel from external shock and produces a surface uniformity without visual distortion. In order to utilize a foldable display, a thin and flexible cover is preferred rather than the thick general rigid cover. Although cover materials like thin films or plastics can be flexible, their surface is rougher and can crease more easily. Based on this expectation, there is an anticipation to standardize the measurement of surface creasing and waviness due to folding in order to evaluate the surface quality of foldable displays.

There is a wide variety of ways to analyse the surface of an object, and many of them are already standardized, [1] to [9][1]. In this document, two of the non-contact methods and one contact method using a probe are described, and the manner in which to report the values of crease and waviness of foldable displays from the measured data is specified.

[1] Numbers in square brackets refer to the Bibliography.

1 Scope

This part of IEC 62715 specifies the standard measurement conditions and methods for determining the surface crease and waviness for the evaluation of foldable displays. The measurement methods are used to specify the extent of geometrical distortions in foldable display surfaces. This document applies to foldable display panels and modules ~~(e.g. in-folding and out-folding) with one axis~~. If the foldable display panel has two or more folding axes, this document applies only to the case that folding axes are parallel.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050-845, *International Electrotechnical Vocabulary (IEV) - Part 845: Lighting* (available at http://www.electropedia.org)

IEC 62341-1-2, *Organic light emitting diode (OLED) displays - Part 1-2: Terminology and letter symbols*

IEC 62341-6-2:2015, *Organic light emitting diode (OLED) displays - Part 6-2: Measuring methods of visual quality and ambient performance*

IEC 62715-5-3, *Flexible display devices - Part 5-3: Visual assessment of image quality and defects*

IEC 62715-6-1, *Flexible display devices - Part 6-1: Mechanical test methods - Deformation tests*

ISO 4287, *Geometrical Product Specifications (GPS) - Surface texture: Profile method - Terms, definitions and surface texture parameters*

ISO 16610-21, *Geometrical product specifications (GPS) - Filtration - Part 21: Linear profile filters: Gaussian filters*

ASME B46.1-2019, *Surface Texture (Surface Roughness, Waviness, and Lay)*

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[3] ISO 25178-603:2013, *Geometrical product specifications (GPS) - Surface texture: Areal - Part 603: Nominal characteristics of non-contact (phase-shifting interferometric microscopy) instruments*

[4] ISO 25178-604:2013, *Geometrical product specifications (GPS) - Surface texture: Areal - Part 604: Nominal characteristics of non-contact (coherence scanning interferometry) instruments*

[5] ISO 25178-605:2014, *Geometrical product specifications (GPS) - Surface texture: Areal - Part 605: Nominal characteristics of non-contact (point autofocus probe) instruments*

[6] ISO 25178-606:2015, *Geometrical product specifications (GPS) - Surface texture: Areal - Part 606: Nominal characteristics of non-contact (focus variation) instruments*

[7] ISO 25178-607:2019, *Geometrical product specifications (GPS) - Surface texture: Areal - Part 607: Nominal characteristics of non-contact (confocal microscopy) instruments*

[8] ISO 25178-601:2010, *Geometrical product specifications (GPS) - Surface texture: Areal - Part 601: Nominal characteristics of contact (stylus) instruments*

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