BS IEC 62715-5-3:2017

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Flexible display devices

Part 5-3: Visual assessment of image quality and defects

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FLEXIBLE DISPLAY DEVICES –

Part 5-3: Visual assessment of image quality and defects

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

FDIS	Report on voting
110/844/FDIS	110/867/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

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

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INTRODUCTION

This part of IEC 62715 was developed in response to demands for the standardization of the general rules and detailed procedures that are used in the visual assessment of flexible display devices.

Visual assessment is an essential means for evaluating flexible display devices and is intended to complement objective display measurements [1] [1]. The advantages of visual assessment are as follows:

a) It is speedy, e.g. defects are instantly recognized by a human observer.

b) It allows the evaluation of various device shapes and allows evaluation from various directions and distances, which can lead to higher sensitivity for detecting defects.

c) It completely covers the area of even the largest display, allowing identification and selection of regions of interest for objective measurements.

d) It is sensitive, e.g. for some defects, visual assessment is the most sensitive means of detection.

e) It corresponds to the perception of humans.

f) It can detect unexpected changes or defects that can be overlooked by predetermined measurements with equipment.

Visual assessment is a necessary first step for specifying types of measurements and the regions of interest for measurements.

Evaluation results from visual assessment depend on the observer, region of interest for the assessment, lighting and geometrical conditions of the assessment, criteria in making judgments, and various other factors. Therefore, it is important to standardize the general rules, including the terms, conditions, criteria and reporting of results from visual assessments.

Regarding the procedures for visual assessment of electronic display devices, the following standards can be consulted: IEC 62341-6-2 [6] and IEC 61747-20-3 [7].

Visual assessment is usually performed by comparing a test sample with a limit sample or a set of grade samples. This document stipulates the framework and procedures to be used in the assessments; it also describes the preparation of a limit sample or a set of grade samples.

This document also applies when a limit sample or a set of grade samples are not available for the same type of defect. Concerning defects of flexible display devices, many kinds of defects can be observed. Even within the same category of defect, factors, such as the shape, size, luminance, colour, gradation of the edge, width of the edge, solitary or repetitive, position in the display area, can differ. Therefore, in most cases, it is practically impossible to prepare the same type of limit sample or comparison samples for visual assessment.

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

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FLEXIBLE DISPLAY DEVICES –

Part 5-3: Visual assessment of image quality and defects

1 Scope

This part of IEC 62715 provides the framework and procedures for performing the visual assessment of flexible display devices.

Visual assessment stipulated in this document is applicable to flexible display modules in the following states:

– initial states and ageing states under standard ambient conditions,
– mechanically or environmentally stressed conditions,
– states after mechanical endurance test(s), after environmental endurance test(s) and after a combination of mechanical and environmental endurance tests.

NOTE Visual assessment under the mechanical or environmental stress is usually difficult to do, but this document can be applied when it is possible.

Visual assessment is performed by comparing a test sample to a limit sample or to a set of grade samples. This document provides the framework and procedures for visual assessments that use a limit sample or a set of grade samples. This document describes the framework and procedure that are followed while preparing limit samples and a set of grade samples. This document also describes visual assessment when limit samples and grade samples are not available for the same type of defect.

This document provides sets of test patterns that can be used in visual assessments.

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 61747-30-1, *Liquid crystal display devices – Part 30-1: Measuring methods for liquid crystal display modules – Transmissive type*

IEC 62715-1-1, *Flexible display devices – Part 1-1: Terminology and letter symbols*

IEC 62715-6-1, *Flexible display devices – Part 6-1: Mechanical stress test methods*

IEC 62715-6-2[2], *Flexible display devices – Part 6-2: Environmental testing methods*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62715-1-1 and the following apply.

[2] Under preparation. Stage at the time of publication: IEC/AFDIS 62715-6-2:2017.

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