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~~ISO/DIS~~FDIS 11347:2024(en)  
~~ISO TC 8/SC 12~~AWG 05  
~~Secretariat: UNI~~  
**Ships and marine technology — Large yachts — Measurement and assessment of the visual appearance of coatings**  
*Navires et technologie maritime — Grands yachts — Mesurage et évaluation de l'apparence visuelle des revêtements*

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be involved in the subject of a patent right. ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at [www.iso.org/patents](http://www.iso.org/patents), ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 8 Ships and marine technology, Subcommittee SC 12, Large yachts.

This second edition cancels and replaces the first edition (ISO 11347:2012) which has been technically revised.

The main changes compared to the previous edition are as follows: Updated

— updated normative references and bibliography;

— updated the terms and conditions as well definitions in Clause 3;

— updated the test and recording methods.

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Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

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## Introduction

This document defines the measurement and assessment processes used for above waterline exterior surface appearance and quality requirements for large yachts. The purpose of this document is to provide practical measurement processes for the assessment of agreed acceptance criteria for the visual appearance of yacht coatings.

Measurement processes are based on known generic inspection equipment that is available at the time of producing this document. It is not the purpose of this document to provide an exhaustive list of inspection equipment which is ~~currently~~ available, at the time of publication.

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# Ships and marine technology — Large yachts — Measurement and assessment of the visual appearance of coatings

## 1 Scope

This document specifies technical requirements ~~offor the~~ measurement and assessment of the visual appearance of the superficial coating of large yachts. It is valid for coatings above the waterline.

For the purpose of this document, large yachts are of length of hull ( $L_H$ ) ~~higher or equal to 24 m (as defined according to ISO 8666) higher or equal to 24 m,~~ in use for sport or ~~pleasureleisure~~ and commercial operations.

This document describes how the final finish can be evaluated before its acceptance.

## 2 Normative references

The following ~~referenced~~ documents are ~~indispensable for~~ referred to in the application 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.

ISO 2813, *Paints and varnishes — Determination of gloss value at 20°, 60° and 85°*

ISO 4618: ~~2023~~, *Paints and varnishes — Terms and definition Vocabulary*

ISO 4628-2, *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 2: Assessment of degree of blistering*

ISO 4628-4, *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 4: Assessment of degree of cracking*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4618 and the following apply:

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at ~~https://www.iso.org/obp~~ <https://www.iso.org/obp>

— IEC Electropedia: available at ~~https://www.electropedia.org/~~ <https://www.electropedia.org/>

### 3.1 clouding

appearance of lighter and darker patches in a ~~topcoat~~ top coat (3.12) film, most commonly observed in special effect (metallic flake) coatings

### 3.2

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**curing**

term in polymer chemistry that refers to the toughening or hardening of a polymer material by cross linking of polymer chains

**3.3**

**cut line**

visible, raised, hard edge of a coating created when the applied coating borders masking ~~+/~~ fine line tape

**3.34**

**fairness**

particular range of wavelengths of defects from 300-mm to 1-000-mm

**3.5**

**fingerprint**

damage of wet film due to accidental contact by either operators and/or objects, or both

**3.6**

**hull**

main body of a yacht which provides flotation

**3.7**

**polishing mark**

mark from top coat (3.12) polishing, resulting in low gloss areas

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**3.8**

**print through**

visual effect of inconsistencies or faults in the underlying coating/substrate structure

**3.9**

**sanding mark**

raised or indented lines (curved or straight) visible in the top coat (3.12) as a result of the sanding process under the top coat

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**3.10**

**striping**

appearance of lighter and darker repetitive shades in a ~~topcoat~~ top coat (3.12) film, most commonly observed in special effect (metallic flake) coatings

**3.11**

**surface texture**

~~surface texture is the~~ local deviation of a surface from a perfectly flat plane, ~~the measure of the surface texture is generally determined~~ measured in terms of its roughness, waviness and form

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**3.12**

**top coat**

final coat of a coating system

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**3.13**

**visual observation**

process conducted by an observer with normal or corrected-to-normal vision without magnification under a uniform artificial illuminance between 500 lx and 1 000 lx, or normal daylight

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Note 1 to entry: Visual observations should be conducted at a distance of  $\geq 75\text{ cm}$  (or approximate arm's length) and at an incident angle of  $\geq 30^\circ$ .

**3.14 wipe mark**

surface disturbance in the top coat (3.12) paint film as a result of a substrate contamination

**5.4 Evaluations**

**5.4.1 General**

This document specifies methods for evaluating the appearance of the external coating of large yachts. This evaluation can be carried out by using a combination of measurements using either equipment and/or visual observations, or both.

Even if measured separately, measurements and visual observations should converge to determine the overall assessment of visual appearance.

**5.4.2 Measurable effects**

The following effects should be measured when evaluating fairness:

- Distinction — distinction of image (DOI)
- Orange — orange peel
- Microstructure
- Colour
- Gloss — microstructure
- colour
- gloss (see ISO 2813)
- Particulate — particulate contamination

For the above parameters provide descriptions, measurement and test methods.

**5.4.3 Visually assessed effects**

**5.4.3.1 Group 1: point defects**

- Cratering
- Fisheyes
- Dimples

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- Pinholes

**5.4.34.3.2 Group 2: localized defects**

- Sags ~~/Runs/runs~~
- Brush marks
- Sanding marks
- Wipe marks
- Polishing marks
- Water marks
- Cut lines
- Tape marks
- Blistering ~~- which~~ shall be measured in accordance ~~to~~with ISO 4628-2
- Cracking ~~/Crazing/crazing, which~~ shall be measured in accordance ~~to~~with ISO 4628-4

**5.4.34.3.3 Group 3: generalized defects**

- Blushing
- Blooming
- Print through
- Over spray
- Cissing ~~-s://standards.iteh.ai/catalog/standards/iso/d447bd15-af31-48be-85b4-c08828fc63b6/iso-fdis-11347~~
- Striping/Clouding

Other visual effects ~~, such as but not limited to~~ including wrinkling, flaking, peeling, cracking, fish eyes, fingerprints, and lack of opacity should not be present in the coated surfaces of large yachts.

**6.5 Measurable effects and visually assessed effects (including test and recording methods)**

**6.1.5.1 Measurable effects**

**6.1.5.1.1 Fairness**

**6.1.5.1.1.1 Description**

Fairness relates to the large-scale smoothness and smooth distribution of reflection lines on both a flat and a curved surface.

Fairness may be measured at any point during the fairing and coating processes.

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