

# **SLOVENSKI STANDARD**

## **SIST EN 4726:2019+AC:2019**

**01-junij-2019**

**Nadomešča:**  
**SIST EN 4726:2019**

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**Aeronavtika - Prezemna merila za estetske različice vseh vidnih naprav, vgrajenih v letalske potniške kabine po vseh pogodbenih različicah (vključno s popravkom AC)**

Aerospace series - Acceptance parameters of aesthetical variations for all visible equipment installed in aircraft cabins under all contractual variations

Luft- und Raumfahrt - Abnahmeparameter von ästhetischen Qualitätsabweichungen für alle sichtbaren Flugzeug-Kabinenbauteile in allen vertraglichen Varianten

Série aérospatiale - Acceptation des variations esthétiques de l'aspect des éléments visibles de cabine d'avion sous toute forme contractuelle

**Ta slovenski standard je istoveten z: EN 4726:2018+AC:2019**

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**ICS:**

49.095

Oprema za potnike in  
oprema kabin

Passenger and cabin  
equipment

**SIST EN 4726:2019+AC:2019**

**en,fr,de**

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SIST EN 4726:2019+AC:2019

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 4726:2018+AC**

April 2019

ICS 49.095

Supersedes EN 4726:2018

English Version

**Aerospace series - Acceptance parameters of aesthetical variations for all visible equipment installed in aircraft cabins under all contractual variations**

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This European Standard was approved by CEN on 13 May 2018 and includes the Corrigendum issued by CEN on 10 April 2019.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## European foreword

This document (EN 4726:2018+AC:2019) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

This document shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2019, and conflicting national standards shall be withdrawn at the latest by October 2019.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document includes Corrigendum 1 issued by CEN on 10 April 2019.

This document supersedes AC EN 4726:2018 AC.

The start and finish of text introduced or altered by corrigendum is indicated in the text by tags AC AC.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

**EN 4726:2018+AC:2019 (E)****1 Scope**

This document defines the inspection rules and the cosmetic acceptance criteria for surfaces of aircraft cabin equipment. Surfaces will be considered under the aspects of technical feasibility of the industrial design.

This document outlines the framework between airlines, supplier and OEMs with regard to cosmetic issues.

This document aims to:

- a) provide the supplier or manufacturer with quality criteria, which need to be met during the production, testing- and quality-inspection-process.
- b) guide airline-, OEM- and supplier-quality assurance with a description of cosmetic standards for following inspections:
  - supplier internal QA inspection;
  - first article inspection;
  - source inspection;
  - incoming inspection;
  - final assembly line, cabin inspection;
  - customer presentation.

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**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.

EN 12464-1, *Light and lighting - Lighting of work places — Part 1: Indoor work places*

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

**3 Terms, definitions and abbreviations****3.1 Terms and definitions**

No terms and definitions are listed in this document.

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

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

### 3.2 Abbreviations

For the purposes of this document, the following abbreviations apply.

|       |   |
|-------|---|
| 3D    | three Dimensional                                 |
| BFE   | Buyer Furnished Equipment (from OEM perspective)  |
| CAS   | Cabin Attendant Seat                              |
| CDR   | Critical Design Review                            |
| CIE   | international commission on illumination          |
| DPI   | Dots Per Inch                                     |
| DSM   | Decorative Sheet Material                         |
| e.g.  | for example                                       |
| etc.  | and so on   |
| FAI   | First Article Inspection                          |
| FAL   | Final Assembly Line (OEM)                         |
| FFF   | Fit, Form and Function                            |
| HTPT  | Hydro Transfer Printing Technology                |
| i.e.  | that is to say                                    |
| ICS   | Industrial design Colour Specification (OEM)      |
| incl. | including   |
| LED   | Light Emitting Diode                              |
| LHS   | Left Hand Side                                    |
| NTF   | Non-Textile Floor                                 |
| OEM   | Original Equipment Manufacturer                   |
| PTS   | Purchaser Technical Specification                 |
| PVF   | polyvinyl fluoride film                           |
| RFC   | Request For Change                                |
| RHS   | Right Hand Side                                   |
| QC    | Quality Control                                   |
| SCN   | Specific Change Note                              |
| SFE   | Seller Furnished Equipment (from OEM perspective) |
| SSBFE | Seller Supplied BFE                               |
| SU    | Standard Unit                                     |
| UV    | UltraViolet                                       |

## 4 Definitions of cosmetic defects, inspection zones and criteria

### 4.1 Simplified definition of a cosmetic defect

Cosmetic defects are deviations from the standard or customized specifications/definitions. They are distinct from a certain distance without additional illumination and/or mirror and according to the definitions thereof within this European standard. Cosmetic defects do not affect fit-form-function as a rule, however in certain extreme cases this might actually be the case e.g. if paint build up impedes fitting. The defects listed encompass any process relevant material.

**Seller furnished equipment (SFE) or similar status:** The supplier is not allowed to approach the airline concerning cosmetic issues or definition changes.

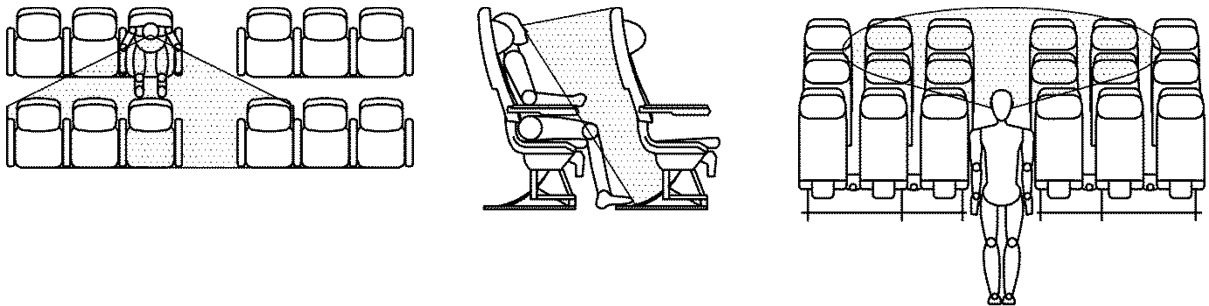
**Buyer Furnished Equipment (BFE)/Seller Supplied BFE (SSBFE) or similar status:** Pickups or points of contention raised by OEM which are disputed between both parties (OEM and supplier or manufacturer) will be submitted to the customer to make the definitive and binding decision for all parties. Any decision has to be documented by the supplier or manufacturer and accompany each individual unit in a conspicuous legible way without causing damage to the part/parts in question. All parties will adhere to the customer decision until as such times another supersedes it.

For SFE, SSBFE and BFE all samples have to be supplied by the supplier and/or the customer to the OEM in order to validate the inspection.

### 4.2 Zonal type definition for installed parts

#### 4.2.1 Zone A

All primary viewed surfaces by a potential passenger or crew either walking through the aircraft or in any normal seating position or passenger/crew used furniture e.g. table top/backs. Any surface which is directly seen, through either expected operation or expected viewing movement, see Figure 1.



a) Passenger and crew member seating, top view

b) Passenger and crew member seating, side view

c) Passenger and crew member walking

**NOTE** The viewing cone would move according to the head movements up/down and left/right.

**Figure 1 — Passenger's viewing cone when seating in any position or walking through the cabin**

#### 4.2.2 Zone B

Secondary perceived surfaces - surfaces requiring extreme movement of the viewing angle to be perceived, i.e. the viewer has to abnormally bend to be able to see it. Areas which may be perceived by passengers or crew through normal operation e.g. stowages inside and stowage doors inside. Standard stowage interiors are appraised from the stowage door threshold, not by climbing or poking the head inside.

Purposely designed “walk in” monuments shall be entered and appraised in the standard method from within i.e. interior walls are A zone etc.

#### 4.2.3 Zone C

Surfaces that require - first “opening up”, e.g. folding, moving or removal of primary or secondarily viewed areas, In order to view the area in question e.g. inside a lavatory mirror cabinet. Can only be viewed using equipment. Areas expected to be perceived by support staff and not passengers. Areas not visible after installation and that have no defined aesthetical surface treatment are still within the parameters of zone C; however still maintaining other requirements e.g. closed edges, fit, form and function etc. Sizes/dimensions of areas/surfaces eligible shall be demonstrated in the technical documentation and require the OEM acceptance.

### 4.3 Classification of surfaces to be inspected

The surfaces to be inspected are classified into three zones (A, B, C).

Customers and suppliers shall document at initial technical coordination meeting or functionally similar meeting latest at Critical Design Review (CDR) or functionally similar meeting areas that may be exceptions after installation in the cabin of the aircraft, all other surfaces according to the below zonal prerequisites unless otherwise agreed.

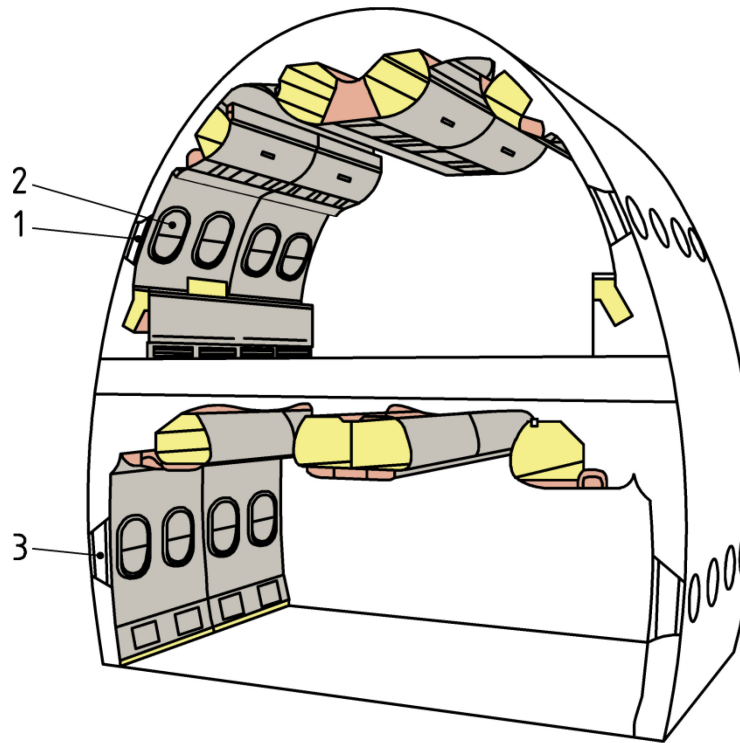
For BFE additionally (or similar status):

The customer is required to clearly document and inform the OEM and supplier of his expectations regarding classification of surfaces.

Figure 2 shows typical areas for the zones, which are applied cross programm i.e. irrelevant of passenger aircraft model.

Cockpit areas (incl freighters) are considered outside of this European standard and need to be defined on demand between OEM, supplier and customer. The exception to this, is furniture, e.g. lavatories or crew rest that share common walls with the cabin.

Freighters, currier or crew perceived or frequented areas i.e. cabin linings/furniture are “A” zones, cargo areas are considered outside this classification and need to be defined on demand between OEM, supplier and customer.



### Key

1 Outboard side of a window shade is C zone. Inboard A zone

2 Side wall stowage lid shown open to view lid inside

3 Window funnel interior is A zone

NOTE 1 Endcaps on over head stowage compartment is not shown.

NOTE 2 LHS lining is a mirror of the RHS.

NOTE 3 Linings- outboard surfaces are generally C zone.

NOTE 4 Linings- inboard surfaces are generally A zone.

■ A zone

■ B zone

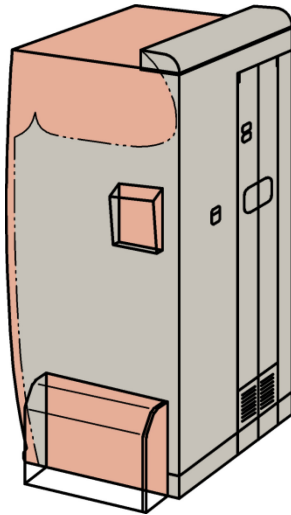
■ C zone

**Figure 2 — Cabin lining**

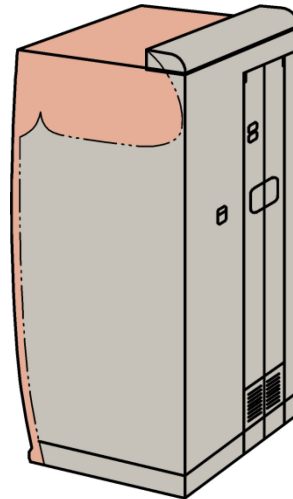
The Figure 3 to Figure 14 show typical areas for the zones which are applied cross program, i.e. irrelevant of passenger aircraft model or monument type.

Interior parts of monuments which the cabin crew or passenger potentially frequent, perceive or view, e.g. lavatories, crew rest, special monuments, etc. are equally governed by the same zone classifications as for the outside of SFE (or similar status) monuments.

Areas covered by other components or monuments will be considered as “C” zones unless, see 4.4.





a) Typical monument with magazine rack and doghouse



b) Typical monument without additional furnishings

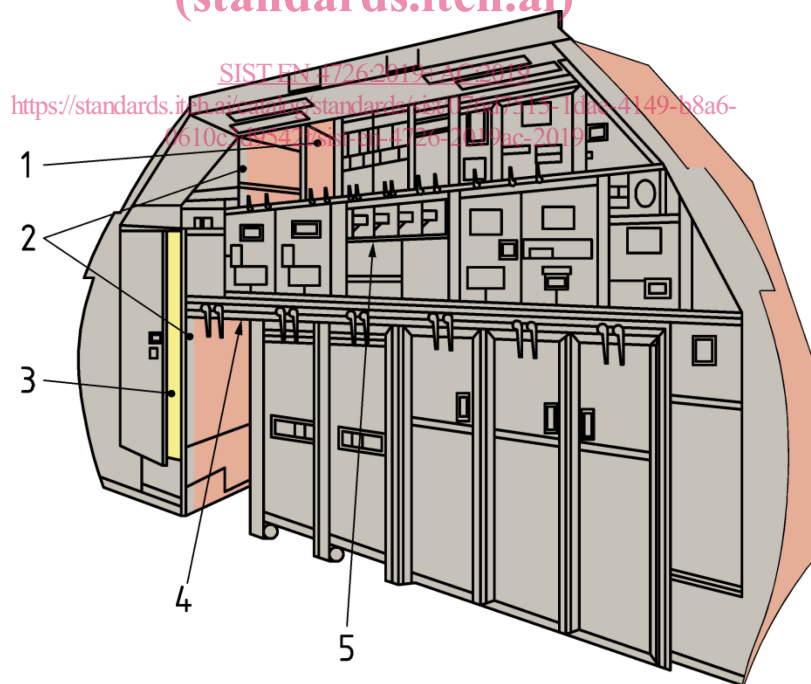
#### Key

|   |        |
|---|--------|
|  | A zone |
|  | C zone |

### iTeh STANDARD PREVIEW

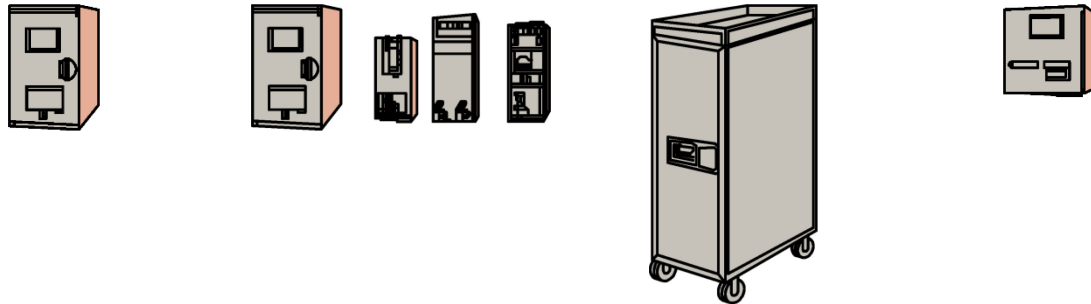
Figure 3 — Cabin monument

(standards.iteh.ai)



a) Galley overview

## EN 4726:2018+AC:2019 (E)



**b) Fixed parts e.g. ovens, coffee makers, boilers; no side visible: C zone**

**c) Fixed parts e.g. ovens, coffee makers, boilers; sides visible: Surrounding gap makes sides visible then first 10 cm (4 inch) of sides are A zone thereafter C zone**




**d) SFE trolley: outside A zone, door inside, interior: B zone, interior shelves etc.: B zone, underneath: C zone, tyres factory new**

**e) Removable parts e.g. SU: First 10 cm (4 inch) of sides are A zone, thereafter C zone**

**Key**

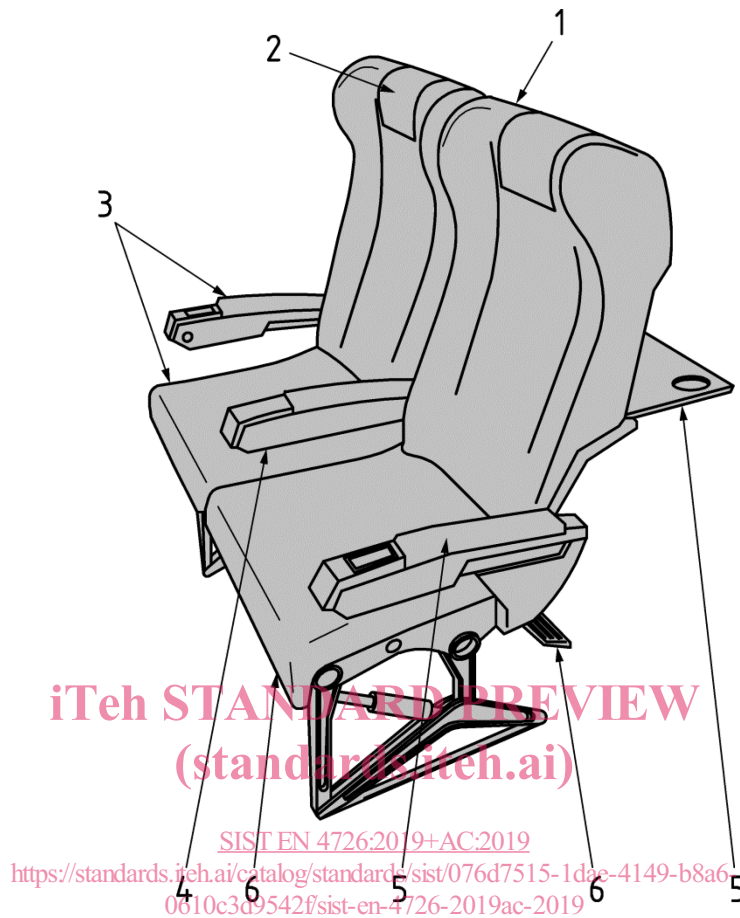
- 1 Walls for fixed parts e.g. ovens, boilers: C zone unless gap makes sides visible then first 10 cm (4 inch): A zone
- 2 Walls for removable parts e.g. SU first 10 cm (4 inch) is A zone thereafter C zone
- 3 Stowage inside: B zone incl. door inside trolley doors inside
- 4 Underneath is C zone
- 5 Underneath is B zone, because it cannot be directly viewed; if higher this will become an A zone

**NOTE** Supplied used BFE units e.g. trolleys or standard units etc. shall not be part of an inspection concerning aesthetical deviations, only new and SFE are eligible. Zonal areas are dedicated to the parts in questions according to the expected operational status, i.e. with full compliment of inserts, trollies, standard units etc.

-  A zone
-  B zone
-  C zone

**Figure 4 — Galley**

Figure 5 shows a typical economy seat. Zones might change with position. Figure 5 shows an example in order to demonstrate the applied theory.



### Key

- 1 Rear sides: if free standing or has any kind of seating behind: A zone. If last row and screened off by a wall: B zone
- 2 Underneath head cloths (if present): due to the fact, they are not permanent and may be removed in the future: A zone
- 3 Aisle sides: if aisle side: A zone. If window side: B zone (or next to a structure which screens off viewing the side in question)
- 4 Underneath armrest: if movable: A zone, if fixed: B zone
- 5 Tables and mechanisms (incl. hidden in armrest): top and bottom i.e. all sides (incl. IFE if present): A zone
- 6 Underneath seat: if "with footrest" movable or fixed: B zone. Top of footrest and mechanism when deployed: A zone. Non visible sides when deployed: B zone

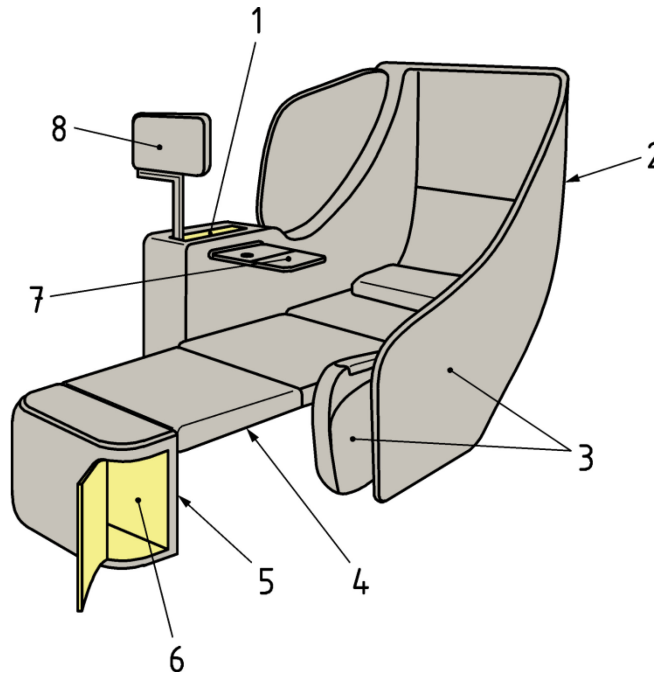
NOTE 1 Passenger/crew used furniture directly viewed in open operating position:  
Compartments inside: B zone  
(assuming surfaces mainly hidden by supplied amenities), Areas of compartments which can be directly viewed when open and seated: A zone

NOTE 2 Lids/flaps inside/outside: A zone

**Figure 5 — Economy passenger seat**

## EN 4726:2018+AC:2019 (E)

Figure 6 shows a typical business class seat. Zones might change with position. Figure 6 shows an example in order to demonstrate the applied theory.



## Key

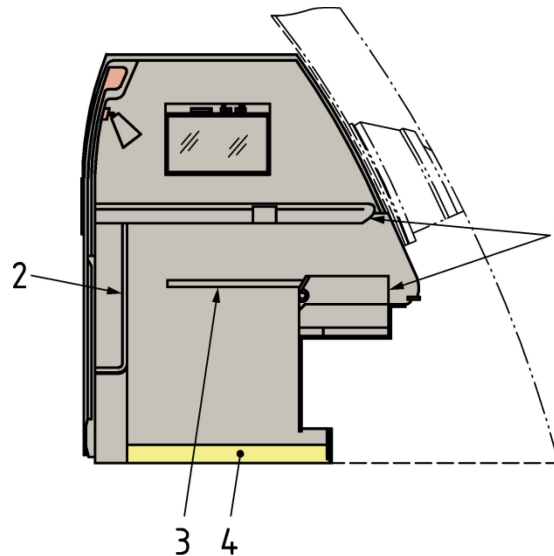
- 1 Stowages insides: B zone
- 2 Rear walls, if free standing: A zone; if rear side very close to a wall (i.e. masked by wall): B zone
- 3 Aisle walls, if aisle side: A zone; if window side: B zone
- 4 Underneath, if “footrest” returns down and backwards: B zone; if “footrest” returns up and backwards: A zone; if “footrest” cannot be viewed incl. during operational movement: C zone
- 5 Read side: A zone
- 6 Stowage insides: B zone
- 7 Tables top and bottom: A zone
- 8 LCD monitor: A zone

 A zone

 B zone

**Figure 6 — Business class passenger seat**

Figure 7 to Figure 12 show a typical First class seat. Zones might change with position. Figure 7 to Figure 12 show an example in order to demonstrate the applied theory.



#### Key

- 1 Hidden sides: not able to be viewed are B zone
- 2 Inside open cupboards: could be a B zone on the "shadow side only" according to the direct viewing rules, (assuming this side is not visible when entering the compartment), otherwise A zone
- 3 Moving furniture parts: if, when operating the table, all sides are revealed, then all A zone (underside B zone, only if never viewable)
- 4 Recessed areas: only ones not naturally visible are B zone

|  |        |
|--|--------|
| <span style="display: inline-block; width: 20px; height: 10px; background-color: grey; border: 1px solid black;"></span>   | A zone |
| <span style="display: inline-block; width: 20px; height: 10px; background-color: yellow; border: 1px solid black;"></span> | B zone |
| <span style="display: inline-block; width: 20px; height: 10px; background-color: orange; border: 1px solid black;"></span> | C zone |

**Figure 7 — Typical first class minisuite – inside, front view (looking forward)**