EASA
European Aviation Safety Agency

Certification developments

2nd EASA Workshop on Cabin Crew and Cabin/Passenger Safety

14 April 2015, Cologne

Your safety is our mission.

An agency of the European Union

Agenda

- A350 certification – Cabin Crew
- Life vest compartments
- Suites on board
- Pictograms
- Minimum number of cabin crew (SIB 2014-029)
- Child Restraint Systems
- Baby bassinettes
- MERU Travel chair

A350 certification – cabin crew

Luana Herescu

Senior Expert Cabin Crew Training, Certification

A350 Certification – Cabin Crew

- **Part 1**

Brief introduction to Operational Suitability Data - Cabin Crew (Cabin Crew Data-CCD)

- **Part 2**

Applied Operational Suitability Data Cabin Crew - A350 Pilot Case

A350 Certification – Cabin Crew – Part 1

Part-21 (Commission Regulation (EU) No 69/2014 amending Regulation 748/2012)

"…

Subpart B Type-Certificates and Restricted Type-Certificates

…

21A.15 (d)

The application for a type-certificate or restricted type-certificate for an aircraft shall include, or be supplemented after the initial application to include operational suitability data, consisting of, as applicable:

…

4. determination of type or variant for cabin crew and type specific data for cabin crew;

…"

<u>Note</u>: 21A.15(d)(4) compliance is detailed by the EASA Certification Specifications - Cabin Crew Data (CS-CCD)

A350 Certification – Cabin Crew – Part 1

CS - CCD Scope and Applicability

These Certification Specifications for Cabin Crew Data (CS-CCD) establish the specifications for the applicant for a type certificate, change approval or supplemental type certificate to develop and provide:

- (a) data for the determination process of a new type or variant for cabin crew; and
- (b) type specific data for cabin crew.

CS CCD.100 Applicability

These Certification Specifications are applicable to:

- (a) aircraft with a maximum passenger seating configuration capacity of more than 19 seats; and
- (b) aircraft with a passenger seating capacity of 19 seats or less required to carry cabin crew; and
- (c) any other aircraft with a maximum passenger seating configuration capacity of 19 seats or less if voluntarily elected by the applicant to facilitate operations with cabin crew.

A350 Certification- Cabin Crew – Part 1

EASA Operational Suitability Data Cabin Crew consist of <u>mandatory</u> and <u>non-mandatory</u> elements for the user

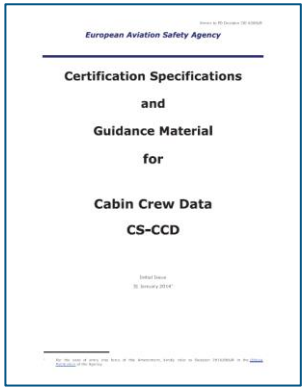
- **Mandatory elements**
  - Required by EU regulation 965/2012
  - Must be included in training
- **Non-mandatory elements**
  - Additional technical data
  - Reference information for Operators Manual

EASA

ED Decision 2014/006/R

Description:	ED Decision 2014/006/R
Language:	English
Agency Decision Category:	Rulemaking activities
Decision number:	2014/006/R
Related Certification Specification(s)	CS-CCD / Initial Issue

European Aviation Safety Agency Ottoplatz 1, D-50679 Cologne, Germany - easa.europa.eu


European Aviation Safety Agency

Certification Specifications

and

Guidance Material

for

Cabin Crew Data

CS-CCD

CS-CCD BOOK 1

Appendix 1 to CS CCD.310 Type specific data content

Type specific data content

The type specific data for cabin crew include the following, as relevant to the candidate aircraft:

Aircraft description

General

(a) type of aircraft – narrow/wide-bodied; single/multi passenger deck;

(b) range of operation and maximum operating altitude;

(c) principal dimensions (length; height; width; wing span);

(d) main characteristics (engines; landing gear; fuel tanks; flight controls; speed; maximum take-off weight);

(e) engine danger area;

A350 Certification – Cabin Crew – Part 1

Operational Suitability Data Cabin Crew – segregation of Mandatory and Non-mandatory elements

- **Mandatory elements** to be provided by the manufacturer
  - ✓ Determination of type or variant by assessing at least the following type specific elements, and the associated type specific data
    - aircraft configuration (e.g. narrow/wide - bodied; number of passenger decks);
    - doors/exits (e.g. number, types and location; assisting evacuation means);
    - aircraft systems (e.g. system operation; location);
    - normal and emergency operation of the relevant type specific elements.

- **Non-mandatory elements** by the manufacturer
  - ✓ additional data to support type training and differences training (e.g. portable safety & emergency equipment, passenger seats, info from the 25.803 evacuation demonstration test, etc.).

A350 Certification – Cabin Crew – Part 1

Operational Suitability Data Cabin Crew mandatory elements to be included in type training and differences training

- Training Organizations (under AOC) must include mandatory training elements
  - in all courses seeking approval after 17 Feb 2014
  - in all courses approved before 18 Feb 2014:
    not later than 17 Feb 2016 or within two years after the operational suitability data was approved, whichever is the latest

- Operators shall ensure that cabin crew member training includes any mandatory OSD CC data
  - before starting operation of new aircraft having approved OSD CC data
  - not later than 18 Dec 2017 or two years after the approval of any OSD CC data (whichever is the latest) for cabin crew members assigned for duty on aircraft already in operation

A350 Certification – Cabin Crew – Part 1

EASA Operational Suitability Data Cabin Crew - Availability and Deliverables

- Availability - Operational Suitability Data Cabin Crew are:
  - held by the TC/STC holder;
  - approved by EASA;
  - held and managed by the manufacturer;
  - referenced in the Type Certificate Data Sheet (TCDS);
  - made available upon request to Authorities, Approved Training Organisations, Operators and other users who have a need for the data.
- Deliverables:
  - CS CCD. 400 – Cabin Aspects of Special Emphasis (CASE) - as a stand-alone document if necessary at the time of the Initial TC, or, included in the Type Specific Data of the respective new type or variant;
  - CS CCD. 310 – Type Specific Data for the new type or variant;
  - CS CCD. 215 – Aircraft Difference Table for variant.

A350 Certification – Cabin Crew – Part 1

Operational Suitability Data requirements are dependant on TC application/issue date, and on aircraft delivery to an EU operator

- TC issued before 17 Feb 2014
  or
- TC application before 17 Feb 2014 & TC issued after 17 Feb 2014
  and
- intending to deliver a new aircraft to an EU operator on or after 17 Feb 2014:
  - OSD required no later than 18 Dec 2015 or before the aircraft is operated by an EU operator, whichever is the latest

- Existing (J)OEB Reports constitute the Operational Suitability Data Cabin Crew
  - (J)OEB Reports will be transposed into OSD Cabin Crew Data

A350 Certification – Cabin Crew – Part 2

A350 TC and OSD - Applications and Outcome

- A350 application for Type Certification (TC) - dated 15th Nov.2009
- A350 application for OSD (including CCD evaluation) – dated 20th June 2010
- A350-900 type certificated by EASA on 30th Sept. 2014
- A350-900 OSD (including CCD) must be available before a/c Entry Into Service (EIS) in the EU, anticipated for Sept.2015.

EASA

European Aviation Safety Agency

EASA.A.151

Description:	A 151 Airbus A350
Language:	English
TCDS:	EASA A 151
Product type:	Aircraft (CS-25, CS-22, CS-23, CS-VLA, CS-LSA)
Manufacturer/TC Holder:	Airbus

European Aviation Safety Agency: Ottoplatz 1, D-50679 Cologne, Germany - easa.europa.eu

An agency of the European Union

A350 Type Certification Data Sheet:

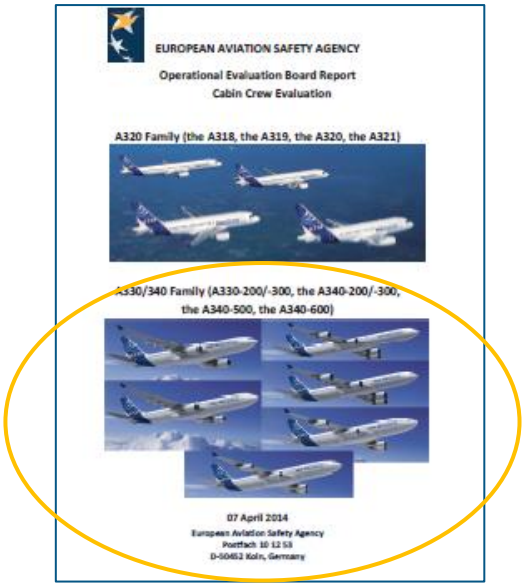
"Maximum Seating Capacity:

- - 385 for the basic passenger emergency exit configuration C-A-A-A and A-A-C-A,
- - 330 for the optional passenger emergency exit configuration C-A-C-A,
- - 440 for the optional passenger emergency exit configuration A-A-A-A."

A350 Certification – Cabin Crew – Part 2

A350 OSD CC Evaluation - Scope

- Establish the A350 Cabin Crew Type Specific Data;
- Demonstrate that for cabin crew training and operations purposes the A350-900 is determined to be a variant of the A330/A340 series aircraft.


EUROPEAN AVIATION SAFETY AGENCY

Operational Evaluation Board Report
Cabin Crew Evaluation

A320 Family (the A318, the A319, the A320, the A321)

A330/340 Family (A330-200/-300, the A340-200/-300, the A340-500, the A340-600)

07 April 2014
European Aviation Safety Agency
Postfach 10 12 53
D-50452 Köln, Germany

A350 Certification – Cabin Crew – Part 2

A350 OSD CC Deliverables

- A350-900 Cabin Areas of Special Emphasis" (CASE) document, as per CS CCD.400
  - Is the means to provide "special instructions" to the Operators;
  - Established at the time of the A350 Initial TC, to demonstrate the Type Certificate Holder (TCH) compliance with Part 21.A.16B-"Special Conditions".
- A350-900 Aircraft Differences Table (ADT), as per CS CCD.215 - Determination of variant
  - Determination of "variant" status (where applicable), is required for the TCH demonstration of compliance with Part 21.A.15(d)(4);
  - CS CCD.215(b)- " Existing differences (between the base and the candidate aircraft) and their assessed impact are compiled in the aircraft difference table in accordance with CS CCD.200(b)(1), or using the applicant's standard form in accordance with CS CCD200(b)(2), to support the development of the differences training by the end user(s)";
  - Airbus used their standard form, titled Operator Difference Requirement (ODR) Table, providing the "A330-200 to A350-900 ODR CC".
- A350-900 Type Specific Data, as per CS CCD.310 - Type specific data content
  - Determination of type specific data for cabin crew is required for the TCH demonstration of compliance with Part 21.A.15(d)(4);
  - CS CCD.300 -Data required from the applicant :

    "(a) The applicant includes the following in the type specific data for cabin crew:

    (1) all necessary data in accordance with CS CCD.310 to support the development of type specific training programme(s); and

    (2) all necessary data in accordance with CS CCD.205 to support the development of differences training programmes".

A350 Certification – Cabin Crew – Part 2

A350 CASE Document - to show compliance with CS-CCD.400

- A350-900 Cabin Areas of Special Emphasis" (CASE) document

Excerpt:

"1 Introduction

As required by CS-CCD.400 Cabin Aspects of Special Emphasis (CASE), Airbus shall provide operators with any information relevant to the A350-900 that cabin crew should be aware of. This information is gathered under the name of CASE and it is part of the Operational Suitability Data (OSD).

The required information has been identified during the A350-900 certification process.

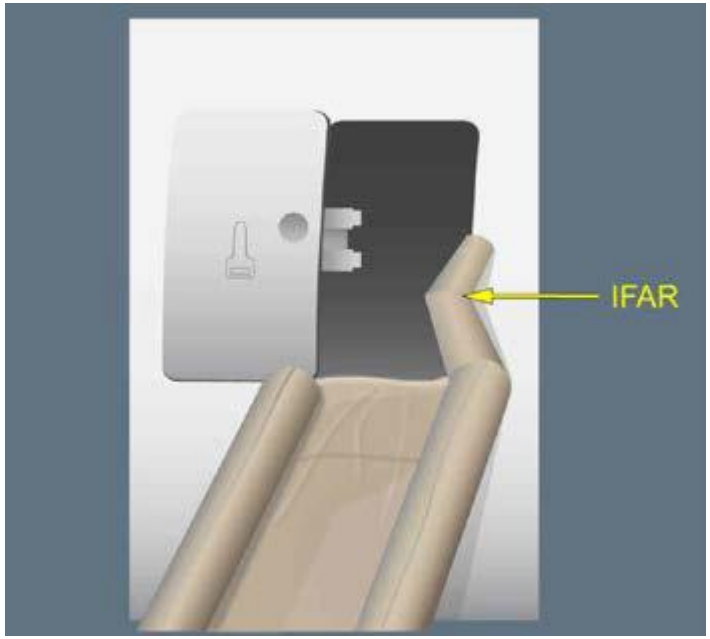
This document is intended to be used by operators as mandatory OSD Cabin Crew when developing their cabin crew operating manual and their cabin crew training programs, as per the mandatory elements of Air Operations ORO.CC.125 & 130."

Special instructions to operators - examples:

"Operators shall ensure the following information is embedded in its operating manual and cabin crew is trained accordingly :

- Cabin crew direct view ...
- Inflatable Free Aisle Restrictor (IFAR) – for single lane slides at Type C doors …
- Slideraft portability … "

A350 CASE Document – example: IFAR



- The single lane slideraft has a specific feature called Inflatable Free Aisle Restrictor (IFAR).The IFAR is a part of the head end of the inflatable structure of the single lane slideraft. The IFAR intends to reduce the width of each doorway, to ensure that only one person can access the slideraft at a time.
- **Conclusion – Operators shall ensure the following information is embedded in its operating manual and cabin crew is trained accordingly: if doors 1L&R and/or doors 3L&R are derated to type C, the specific Inflatable Free Aisle Restrictor (IFAR) fitted on the single lane slideraft shall be described to cabin crew.**

A350 Certification – Cabin Crew – Part 2

A350-900 ADT/ODR CC - to establish the "variant" status

A330-200 to A350-900 Operator Difference Requirement Table - Cabin Crew (ODR CC)

- This Airbus ODR CC contains a formal description of the differences identified between the A330-200 as the "base" aircraft and the A350-900 as the "candidate" aircraft, for the purpose of establishing the "variant" status of the A350-900, in compliance with the EASA Certification Specifications-Cabin Crew Data (CS-CCD), Initial Issue-31 January 2014.
- "Variant" means an aircraft that has differences to the base aircraft requiring completion of differences training.
- The ODR CC include a description of the level of training and checking associated to the differences identified between the base and the candidate aircraft;
- The following elements (as detailed in Appendix 1 to CS CCD.200(b)(1)) were assessed in order to identify the existing differences between the A330-200 and A350-900:
  - aircraft configuration (e.g. narrow/wide - bodied; number of passenger decks);
  - doors/exits (e.g. number, types and location; assisting evacuation means);
  - aircraft systems (e.g. system operation; location);
  - normal and emergency operation-of the type specific elements.

A350 Certification – Cabin Crew – Part 2

A330-200 to A350-900 ODR CC Content-example

BASE AIRCRAFT: A330-200	CANDIDATE AIRCRAFT: A350-900			DIFFERENCE LEVELS	
SYSTEMS	DIFFERENCES	DESC	OPS	TRNG	CHECK
DOORS and EXITS Description General	The base aircraft has 8 cabin doors: - Doors 1, 2 and 4 are type A - Doors 3 are type I emergency exit The candidate aircraft has 8 cabin doors: - Doors 2 and 4 are always type A - Doors 1 and 3 can either be type A or de-rated to type C, impacting the evacuation means and operations(i.e. evacuation of dual/single pax flow)	YES	YES	2	
DOORS and EXITS Description Inside door features	On the candidate aircraft, Type A doors are equipped with, additional features: - a Fresnel lens fitted on the observation window, and - one additional door assist handle.	YES	NO	1	
DOORS and EXITS Description External door features	On the candidate aircraft, doors are equipped with an evacuation area light located on the external bottom part of the door and a lower door sill light.	YES	NO	1	
DOORS and EXITS Controls and indicators Door actuation controls	On the candidate aircraft, the gust lock release pushbutton is located on the hinge arm assist handle, whereas on the base aircraft it is located on top of the hinge arm	YES	NO	1	
DOORS and EXITS Controls and indicators Door actuation indicators	On the candidate aircraft, the door locking indicators are located underneath the observation window, whereas the door locking indicators on the base aircraft are located on the top part of the door.	YES	NO	1	
DOORS and EXITS Controls and indicators Door actuation indicators	On the candidate aircraft, the cabin pressure indicator buzzer provides aural indication when the door control handle is lifted, whereas the cabin pressure indicator on the base aircraft has no buzzer (aural indication).	YES	NO	2	

A350 Certification – Cabin Crew – Part 2

A350 Type Specific Data for Cabin Crew - to support development by operators of customised CCOM and Training Programmes

- Airbus has conducted the A350 Operational Suitability Data (OSD) Cabin Crew evaluation, as per the mandatory element of Part 21- Initial Airworthiness;
- The A350 Type Specific Data represents one component of the A350 OSD Cabin Crew process;
- The A350 Type Specific Data has been established in accordance with CS CCD.310- Type specific data content;
- The A350 type Specific Data is intended to be used by EU operators as the basis for the development of their cabin crew operating manual (CCOM) and their cabin crew training programs, in accordance with Air Operations ORO.CC.125 and ORO.CC.130.
- A350 type specific data for cabin crew include detailed information pertaining to the following:
    - Aircraft description-General;
    - Flight crew compartment
    - Cabin compartment
    - Aircraft systems including associated equipment

A350 Type Certificate Data Sheet (TCDS) – Chapter V - Operational Suitability Data – reference to OSD compliance

"V. OPERATIONAL SUITABILITY DATA (OSD)

The Operational Suitability Data elements listed below are approved by the European Aviation Safety Agency under the EASA Type Certificate [original TC number] as per Commission Regulation (EU) 748/2012 as amended by Commission Regulation (EU) No 69/2014.

1. Master Minimum Equipment List

.....

2.Flight Crew Data

.....

3. Cabin Crew Data

a. The Cabin Crew data is in the process of being approved as per the defined Operational Suitability Data Certification Basis until aircraft entry into service.

b. Required for entry into service by EU operator.

c. The A350-900 is determined to be a variant of the A330/A340 series aircraft. Based on the comparison conducted using the aircraft differences table ADT (as per Appendix 1 of CS CCD.200(b)(1)) it has been concluded that the A350-941 is to be considered a variant of the A330-200.

d. The minimum required cabin crew number resulting from the certification evacuation evaluation of the A350-900 is 8 for all of the emergency exit configurations shown in section 2.4, irrespective of the Maximum Operational Passenger Seating Capacity (MOPSC) for the concerned aeroplane.

However, in accordance with operational rules, if the MOPSC for the concerned aeroplane exceeds 400, the minimum required cabin crew number becomes 9.

e. The document "A350-900 Cabin Areas of Special Emphasis" (CASE), reference V01RP1428088 Issue 2.2 is the mean to provide "special instructions" to the Operators."

Life vest compartments

Thomas Ohnimus

Senior Expert Cabin Safety, Certification

Life vest compartments

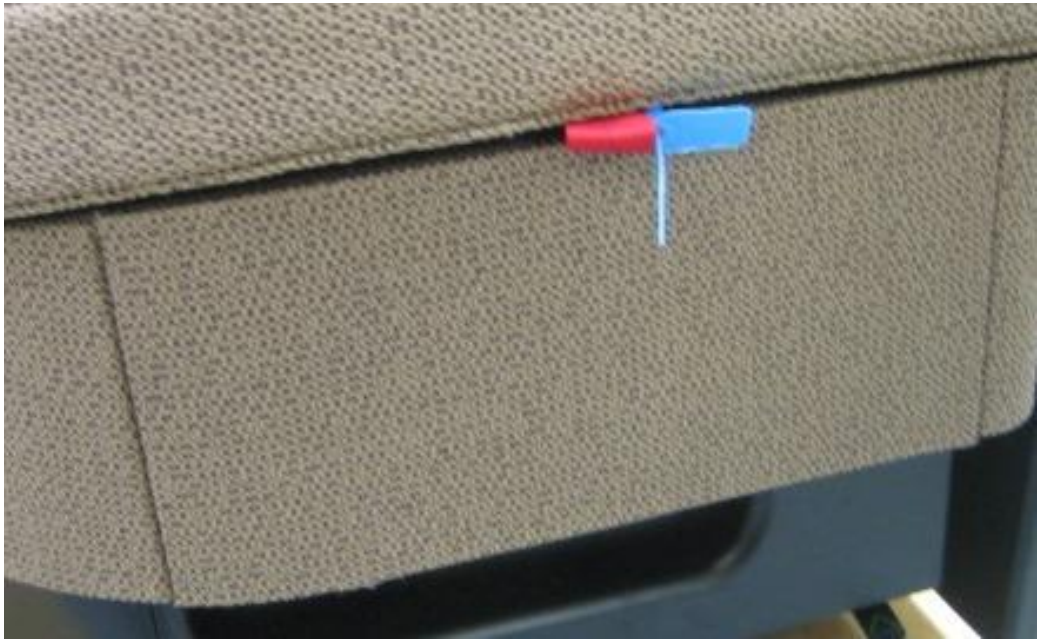
From the start on the installation of life vests in aeroplanes had to meet several demands:

- Passengers should have easy access
- Life vests should be stored in a safe way
  - Should stay in the “pouch” in normal operation
  - Should stay in the “pouch” in minor crash landing conditions (16g seat test)
- 25.795: Life preservers or their storage locations must be designed so that tampering is evident.

Life vest compartments

There are several solutions on the market:

Life vest compartments



Life vest compartments

- To ease the check of the life vest and the stowage:
  - The seal can have a contrast colour.
  - The seal can be combined with an RFID tag.
  - The life vest can have an RFID tag.

Life vest compartments

- New challenges:
  - The check of the life vest compartments is adding workload to the cabin crew.
  - The tamper evidence should not affect the access to the life vest.

Suites on board

Thomas Ohnimus

Senior Expert Cabin Safety, Certification

Suites on board

The installation of mini suites on board of aircraft is currently limited to long range aircraft.

Airlines want to offer more privacy to upper class passengers.

Passengers are accepting higher ticket prices for more privacy.

An increasing number of aircraft is equipped with mini suites in first class zones.

The wall height of mini suites is increasing.

Suites on board

The certification challenges are:

- Direct view during take off and landing.
- Visibility of the cabin during flight.
- Egress from the suite following a minor crash.
- The existing certification specifications do not adequately address the installation of mini suites.

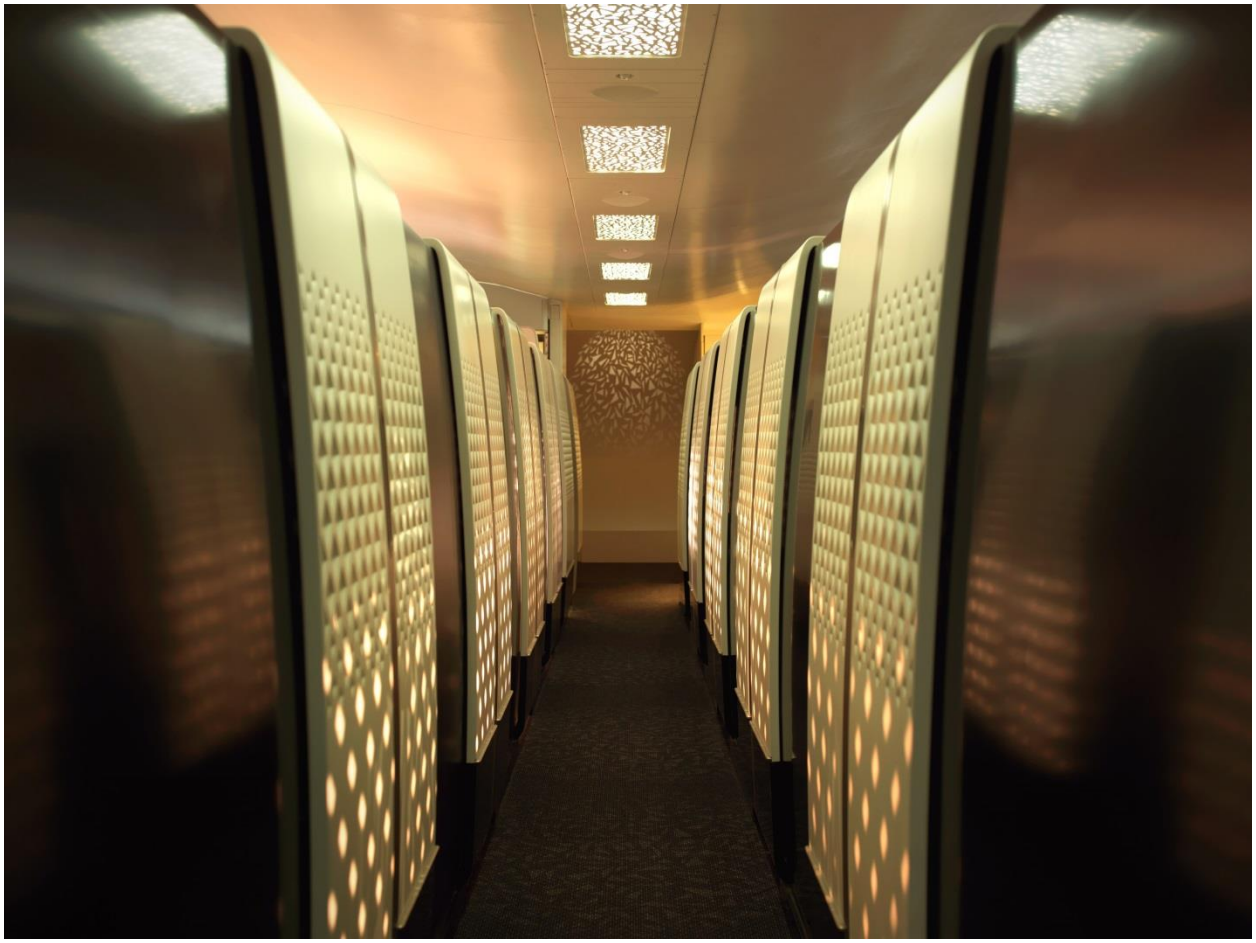
Suites on board

The operational challenges are:

- Additional cabin crew tasks
  - Locking of the sliding screens / doors in the open position prior to take off and landing.
  - Check of the mini suite passengers during flight.
  - Cabin preparation in case of emergency.
  - Cabin check after emergency evacuation.
- Compensating factor is the significantly reduced passenger number in the mini suite zone.

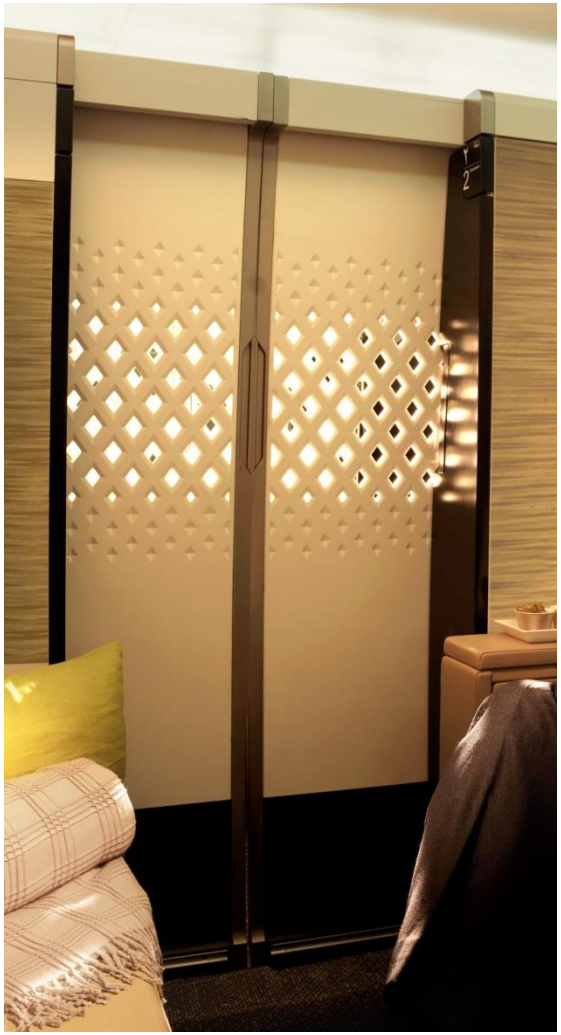
Suites on board

Examples:



Suites on board

Examples:



Suites on board

The future:

- Individual compartments?
- Business class seats are developed for more privacy. Next step mini suites?

EASA would like to receive feedback from operator and cabin crew related to the operational challenges of the currently existing mini suite installations.

Pictograms

Peter Chittenden

Cabin Safety Expert, Certification

Cabin Pictograms

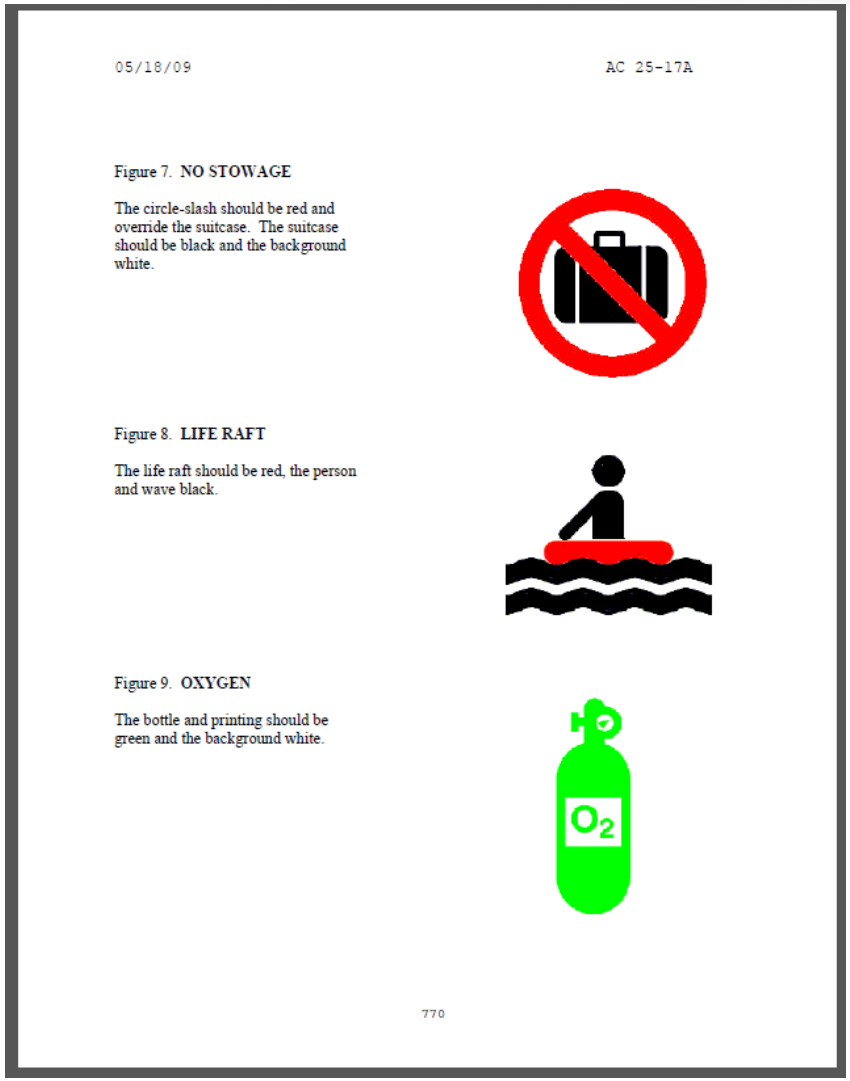
- Why?
  - Avoids need for multi-lingual signs/placards
  - Safety
  - Aesthetics
- Substantiation?
  - Testing to e.g. ISO 3864 standard
  - Questionnaire of crew/passengers of different gender, age, culture.

Cabin Pictograms

- CS25 specifically allows symbolic (pictogram) versions of certain required signs/placards.
- i.e. no smoking, fasten seat belt, fire extinguisher, emergency exit.

Cabin Pictograms

- FAA Advisory Circular (AC 25-17A) has included further examples of accepted pictograms for many years.
- EASA accepts AC25-17A.
- Additional to those shown here:
  - No Smoking
  - Fire Extinguisher
  - Fasten Seat Belt
  - No Cigarette Disposal
  - Return to Seat
  - Megaphone



05/18/09 AC 25-17A

Figure 7. NO STOWAGE

The circle-slash should be red and override the suitcase. The suitcase should be black and the background white.

Figure 8. LIFE RAFT

The life raft should be red, the person and wave black.

Figure 9. OXYGEN

The bottle and printing should be green and the background white.

770

Cabin Pictograms

- Boeing have developed several additional cabin pictograms under the B787 programme.

- These are accepted by FAA and EASA for use on any Boeing model.

BOEING

CAGE Code 81205

Approved Symbology for Use in Passenger Cabins

DOCUMENT NUMBER:	RELEASE/REVISION:	RELEASE/REVISION DATE:
D6-84808	**REV. NEW**	June 13, 2012

CONTENT OWNER:

Payload Systems, 787 Interiors LCPT (66-CH-R000)

All revisions to this document must be approved by the content owner before release.

No License is required for the dissemination of commercial information contained herein to foreign persons other than those from or in terrorist-supporting countries identified in the EAR.

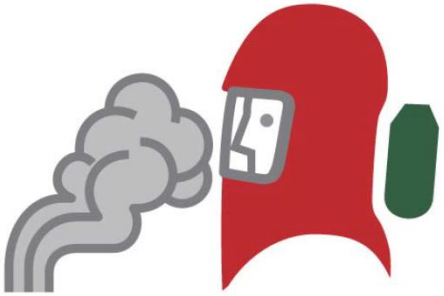
It is the responsibility of the individual in control of this data to abide by U.S. export laws.

Information Classified as ECCN 9E991

BOEING is a trademark of Boeing Management Company.

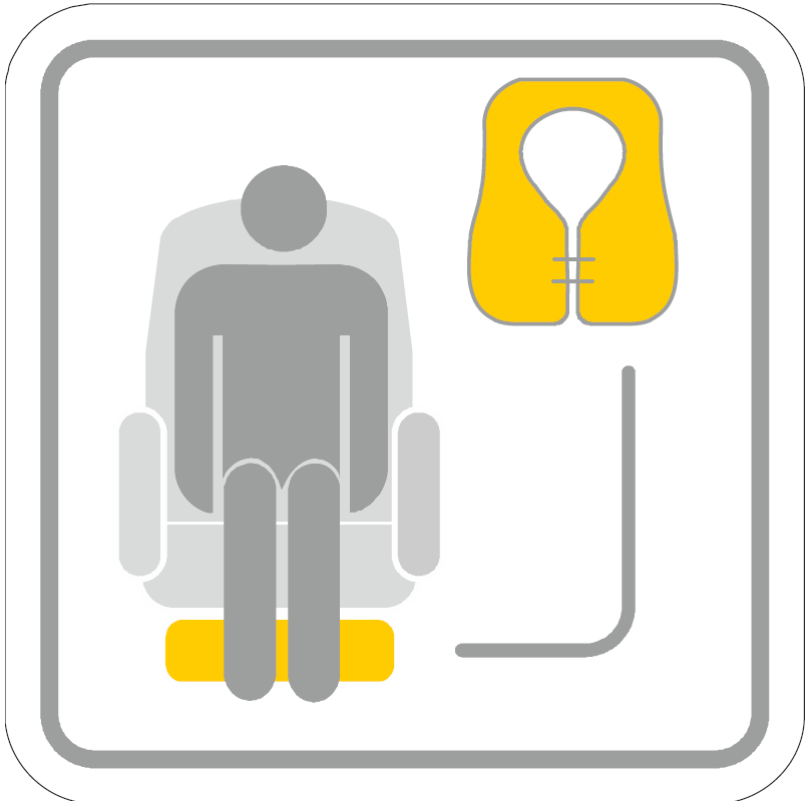
Cabin Pictograms

“Boeing” Pictogram examples

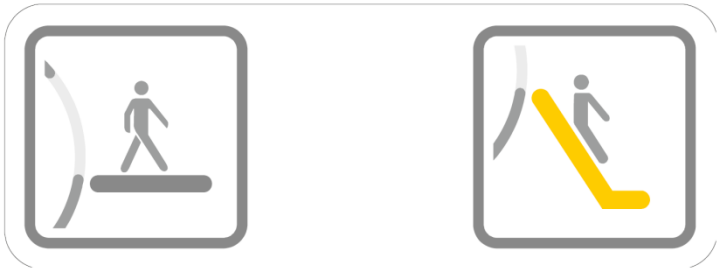


Cabin Pictograms

Airbus are also developing cabin pictograms

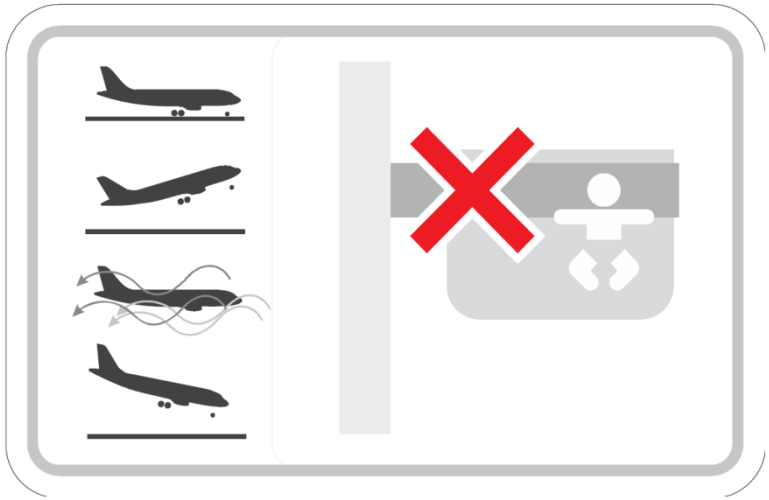


Cabin Pictograms



Intention is for pictograms to be fairly standardised between OEMs

Cabin Pictograms



There are still some challenges to be overcome!

Minimum number of cabin crew

SIB 2014-029

Peter Chittenden

Cabin Safety Expert, Certification

Betty Lecouturier

Air Operations Regulations Officer, Flight Standards

Minimum cabin crew: BACKGROUND (1)

As presented at the 1st workshop in October 2013,

- The new operational rule, ORO.CC.100, now applicable, indicates that **the minimum number of cabin crew should be at least that determined by the certification exercise**.

- Reduction (in normal circumstances) of that minimum number is not possible. A TC/STC holder may however elect to conduct, for a specific cabin configuration, a dedicated demonstration that will be subject to approval by EASA Certification.

- To EASA experience based on certification exercises conducted for existing aircraft, **acceptable control of emergency evacuation of twin aisle aeroplanes can only be assured with a minimum of one cabin crew member required at each floor level exit**.

Minimum cabin crew: BACKGROUND (2)

- **The minimum number determined by the certification exercise is either**:
  - that relating to the original type certification of the aircraft, **or**
  - a lower number applied for by the TC holder, or by another design organisation, and approved by EASA.

- **ORO.CC.100 (b)(2) -** *"if the number under (1) has not been established ...."* was added by the EASA Committee only for exceptional cases of very old aircraft for which the certification data would/could be incomplete or missing. In practice, the number of cabin crew is established for all aeroplanes currently operating in Europe.

- **In the case of particular operational circumstances**, the minimum cabin crew may need to be higher than that determined by certification.

Minimum cabin crew: UPDATE on SIB 2014-029 (1)

- SIB 2014-029 was issued by EASA in October 2014
- The SIB was issued to provide clarification on the application of ORO.CC.100.
- This was considered useful following several queries from airlines and national authorities.
- The SIB provided specific minimum cabin crew numbers for all twin aisle a/c types.

Minimum cabin crew: UPDATE on SIB 2014-029 (2)

- Negative reaction to the SIB was received and a meeting was held in December to discuss.
- It was argued by operators that the SIB was an inappropriate document for the intended purpose.
- The lack of adverse experience from actual evacuations was cited.
- In the case of one older a/c type it was claimed that substantiation for fewer than one CC per exit had been accepted by authorities as part of an airworthiness certification exercise.

Minimum cabin crew: UPDATE on SIB 2014-029 (3)

- EASA has decided to revise the SIB;
  - remove the discussion of Certification aspects
  - place this in a Certification Memorandum that will be referenced to in the SIB
  - Investigations still ongoing regarding the a/c type claimed to have substantiation for <1 CC/exit.
- Also, TCDSs will be revised to include the minimum cabin crew.

Minimum cabin crew: SAFETY DATA (1)

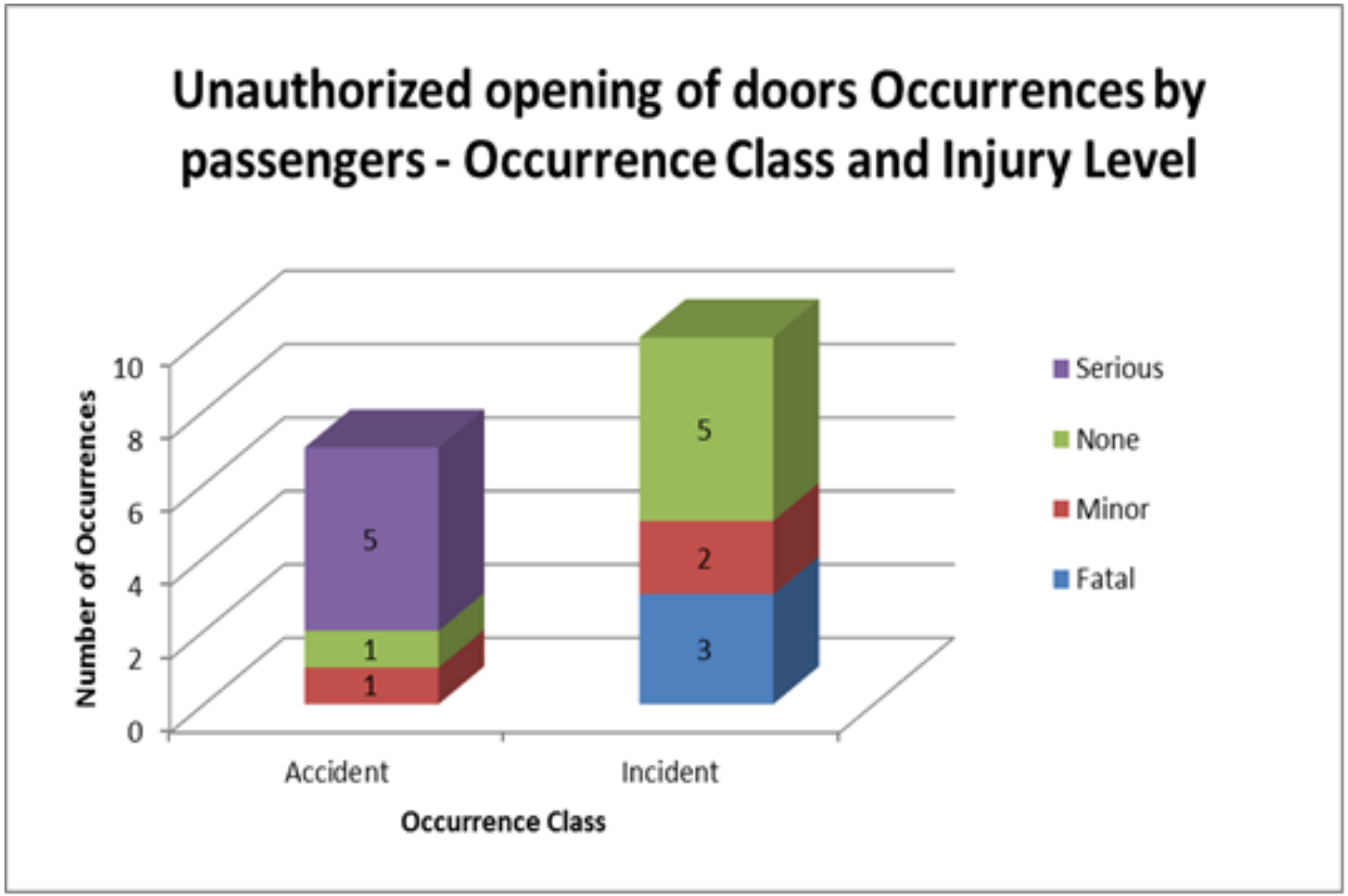
To answer questions from operators with regard to the information provided in SIB 2014-029, the following safety data from accident investigations can be referred to:

1. **Unauthorised opening of doors/exits by passengers (1983-2013):**
   - the majority of the 17 occurrences identified appears to be related to un-commanded evacuations following the perceived threat of fires by passengers. In those cases the cabin crew was unable to control the cabin.
   - In addition there are some cases where persons left the aircraft intentionally in flight and on the ground to either escape (e.g. jump out after hijacking), commit suicide or because of the need to escape from the aircraft after being locked up in it for a prolonged time.

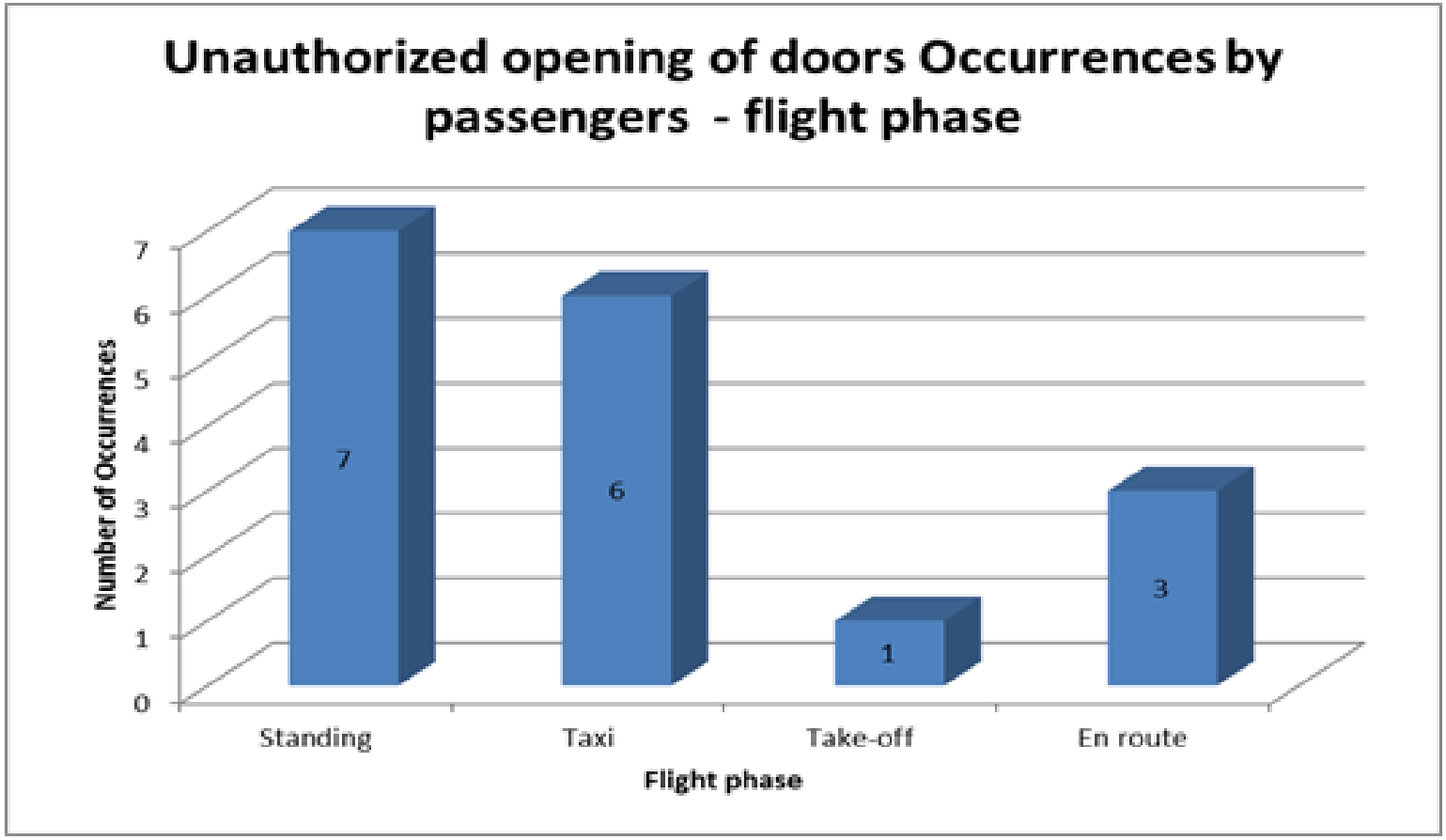
Minimum cabin crew: SAFETY DATA (1)

Operation Type	Number of Occurrences
Commercial Air Transport	15
General Aviation	2
Grand Total	**17**

Minimum cabin crew: SAFETY DATA (1)



Minimum cabin crew: SAFETY DATA (1)



Minimum cabin crew: SAFETY DATA (2)

2. Evacuations of twin aisle aeroplanes:

- 55 evacuations worldwide were reported between 2000 and 2014
- The number of operating cabin crew was reported in 21 cases, all of which providing at least one cabin crew member at each floor level exit
- From these 55 evacuations, 13 occurred with aeroplanes registered in EASA Member States
- In 12 of these 13 cases, the number of operating cabin crew was reported, all of which providing at least one cabin crew member at each floor level exit

Minimum cabin crew: SAFETY DATA (2)

2. Evacuations of twin aisle aeroplanes (EASA MS registered):

	Local Date	Aircraft Model	Aircraft Registration	State/Area of Occurrence	Cabin Crew
1	28/07/2013	777	F-GSQA	France	N/A
2	16/04/2012	A330	G-VSXY	United Kingdom	10
3	01/11/2011	767	SP-LPC	Poland	8
4	11/07/2009	747	G-CIVB	United States	15
5	11/06/2008	A330	OO-SFN	Ivory Coast	8
6	25/03/2008	747	TF-ARS	Bangladesh	15
7	04/02/2008	777	N772UA	France	10
8	17/01/2008	777	G-YMMM	United Kingdom	13
9	28/07/2007	A300	D-AIAT	Germany	12
10	02/08/2005	A340	F-GLZQ	Canada	10
11	19/11/2004	A340	EC-IZX	Portugal	12
12	16/07/2004	767	EI-CXO	Italy	8
13	11/08/2002	747	EC-DNP	United States	13

Minimum cabin crew: SAFETY DATA (2)

2. Evacuations of twin aisle aeroplanes:

- The safety data identified shows no occurrence where an evacuation of a twin aisle aeroplane was conducted with floor level exits being supervised by less than one cabin crew member per exit

- More detailed analysis of the related investigation reports remains to be completed to identify any other possibly important aspect relating to the conduct of the evacuations and/or to the injury or survivability rates

Minimum cabin crew: SAFETY DATA (2)

2. **Evacuations of twin aisle aeroplanes:**

- To date, EASA has not identified any evacuation of a twin aisle aeroplane where there was less than one cabin crew member per floor level exit

- Experience of evacuations of twin aisle aeroplanes is therefore limited to cases where each floor level exit was actually supervised by at least one cabin crew member

Minimum cabin crew: UPDATE on SIB 2014-029

- Once finalised, the draft revised version of SIB 2014-029 and the Certification Memo will be circulated for consultation of affected stakeholders

- Both documents will be published on EASA website as soon as possible

EASA
European Aviation Safety Agency

Q & A

Your safety is our mission.

An agency of the European Union

Child restraint systems

Sabine Meissner

Cabin Safety Expert, Certification

Child restraint systems

Current OPS rules:

- A seat is required for passenger who reached 2 birthday

Current rule as well:

- All loads must be restraint

Current practice: Infant belt is doing exactly this, and not more.

Child restraint systems

Todays practice of travellers:

Parents come to the airport by car with a child seat.

They stow their carry on board luggage on their lap.

In most cases they travel on safe unless something unexpected happens.

EASA strongly recommends Operators to allow CRS on board and some already follow

Child restraint systems

Child restrain systems are **significantly** safer!

Use of an approved CRS: (Approval makes it part of the aircraft design!)

ETSO or Supplemental Type Certificate

Approval covers:

- Restraint of the occupant
- Evacuation of the occupant
- Flammability
- Stowage of the item when not in use
- Damage to the seat

Child restraint systems

Content of ETSOC100: guarantees a minimum performance standard:

- Relies on seat belt
- No damage on seat
- No propagation to a fire
- Dynamic tested
- Inflatables are excluded

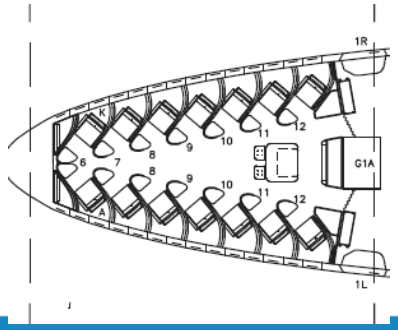
Child restraint systems

Problems of ETSOC100b:

Seats with inflatable lap belts are excluded

Unbuckling due to design of buckle mechanism

Only allowed for fwd facing seats



Child restraint systems

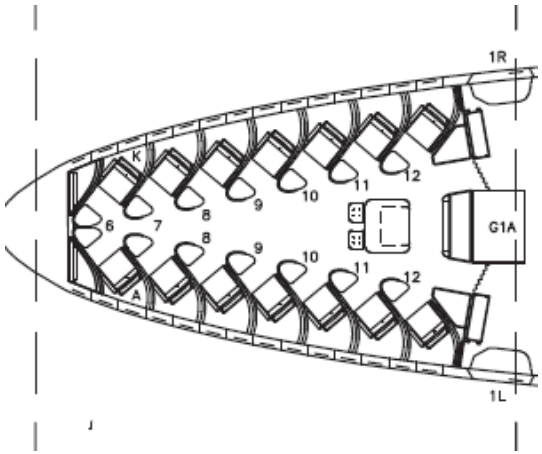
Approved CRS as STC:

- Airbag is deactivated during installation

Child restraint systems

Approved CRS as STC:

- Installation mandatory via cabin attended
- Article is permanently on Board and will fit the seats
- No head contact demonstrated during side impact



Child restraint systems

- Further issues appearing during certification progress:

Installation in the cabin:

Aisle seat? ➔ might hinder evacuation

Exit row? ➔ might hinder evacuation

Cross aisle? ➔ might hinder evacuation

Best way is window seat or centre seat of a twin aisle and

Having a parent accompanying.

Child restraint systems

These type of problems occur with all child restraints systems!

Cabin Crew should be aware of it!

Baby bassinettes

Sabine Meissner

Cabin Safety Expert, Certification

Baby bassinettes

Where to install?

Stowed for TToL: ➔ no problem during emergency evacuation

Restraint for turbulences ➔ better protection than lap held

What about emergencies in flight?

➔ always ensure a cross aisle on board

Baby bassinettes

Use also for TToL

EASA has been approached:

Baby bassinettes

Problem:

Babies are more than mass items!

They have needs!

They cry in turbulence and during pressure change!

They have parents who care!

Parents shall not unbuckle themselves during TToL or turbulences!

Cabin Crew should be around to prevent them!

MERU Travel chair

Sabine Meissner

Cabin Safety Expert, Certification

MERU Travel chair

Made For Kids, but it is not a CRS

- for children have limited movability
- For children who cannot control their movements
- For children who need support for sitting upright
- For parents who want to travel with them

MERU Travel chair

The seat:

- Suitable for disabled children who are unable to use an aircraft seat
- from 3-11 years up till 35kg

1. height adjustable head rest
2. adjustable shoulder support
3. adjustable chest support
4. hip support provided by Aircraft seat lap belt
5. optional pommel strap
6. height adjustable foot rest
7. non-slip foot rest
8. adjustable ankle huggers for foot support
9. soft and comfortable material
10. small pouch for toys and wipes

MERU Travel chair

Meru:

UK charity organisation

Hold a minor change approval supported by EASA

Allowed on several UK airlines

info@meru.org.uk