Joint Operational Evaluation Board

Airbus A380-800
Report of the A380-800 Cabin Crew Subgroup

Issue 01
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EASA/JAA Joint Operational Evaluation Board – Airbus A380-800
Report of the A380-800 Cabin Crew Subgroup
Issue One

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Joint Operations Evaluation Board – Signature sheet

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GLOSSARY

AC	Advisory Circular (FAA)
AR	Airworthiness Related items
ACJ	Advisory Circular Joint
ACRM	Airbus Crew Resource Management
ADT	Aeroplane Differences Table
AFM	Aircraft Flight Manual
AMC	Acceptable Means of Compliance
CAR	Canadian Aviation Regulation
CAS	Cabin Attendant Seat
CBT	Computer Based Training
CCOM	Cabin Crew Operating Manual
CCSG	Cabin Crew Steering Group
CFR	Code of Federal Regulations
CRM	Crew Resource Management
EASA	European Aviation Safety Agency
ELF	Early Long Flight
ESG	Equipment Steering Group (JAA)
FAA	Federal Aviation Administration
FAP	Flight Attendant Panel
FAR	Federal Aviation Regulation
ICAO	International Civil Aviation Organisation
IEM	Interpretative Explanatory Material
JAA	Joint Aviation Authorities
JAR(s)	Joint Aviation Requirements
JAR-OPS 1	JAA Commercial Air Transportation (Aeroplanes)
JOEB	Joint Operational Evaluation Board

LDCRC	Lower Deck Crew Rest Compartment
MD	Main Deck
MIP	Manual Inflation Push Button
NAA	National Aviation Authority
SCCM	Senior Cabin Crew Member
SOP	Standard Operational Procedure
TC	Type Certification
TCCA	Transport Canada Civil Aviation
TGL	JAA Temporary Guidance Leaflet
UD	Upper Deck

Preamble

Airbus applied for A380-800 initial certification with a maximum passenger capacity of 853, with 538 passenger seats installed on the main deck and 315 passenger seats installed on the upper deck.

In September 2002, Airbus requested a Joint Operational Evaluation Board (JOEB) process for the evaluation of the A380-800 (passenger aeroplane) to cover the following areas of activities:

- MMEL development;
- Flight crew type rating assessment, training and operations;
- Cabin crew type rating assessment, training and operations; and
- A380-800 OIS (On board Information system), more commonly known as Electronic Flight Bag.
- Simulator evaluation.

As a consequence the following JOEB subgroups have been established:

- MMEL Subgroup;
- FCL&OPS Subgroup;
- Cabin Crew Subgroup; and
- EFB subgroup.
- JSET.

This report only covers the activities of the JOEB A380-800 Cabin Crew Subgroup.

The terms of reference for the JOEB A380-800 Cabin Crew Subgroup were to:

1. Review and confirm the design features of the A380-800 for compliance with the requirements of JAR-OPS 1, and address A380-800 specific cabin safety operational issues in cases where the JAR-OPS 1 requirements were not considered adequate for the A380-800.
2. Assess the manufacturer's cabin crew training programme for the JAR 25.803 evacuation test.
3. Assess the manufacturer's cabin crew training for subsequent line operations.
4. Review the manufacturer's Cabin Crew Operating Manual (CCOM) as part of the overall process.

An integrated team composed of representatives from JAA, EASA, FAA, and Transport Canada Civil Aviation, conducted the A380-800 Cabin Crew Joint Operational Evaluation. Although the JOEB A380-800 Cabin Crew Subgroup composition reflects an integrated team of experts representing several National Aviation Authorities, ***this JOEB Report is only applicable to operations under the jurisdiction of JAA and EASA.***

The JOEB A380-800 Cabin Crew Subgroup evaluation was conducted in accordance with the relevant parts of the JOEB Handbook – Part III – Cabin Crew Procedures Document, and with the relevant requirements of JAR-OPS 1.

Purpose and Applicability

This JOEB evaluation of the A380-800 was conducted up to the time of the issue of the A380-800 Type Certificate. Some additional work is to be conducted after Type Certification, and the report will be updated accordingly.

This report addresses the following:

- Establishes that the A380-800 is a new type, for cabin crew.
- Provides recommendations for the approval by the National Aviation Authorities, of cabin crew training (JAR-OPS 1.1010 – Conversion and Differences training), when operating on the A380-800.
- Provides information relative to the number and composition of cabin crew for the A380-800
- Provides recommendations in terms of specific cabin safety operational issues relevant to the A380-800.

Note 1: JAR-OPS 1 at Amendment 11 is the reference regulatory material that has been used for this process. In addition to the listed JAR-OPS 1 Section 1 paragraphs contained in this document, additional material contained in JAR-OPS 1 Section 2 (AMC and IEM) can be consulted.

Note 2: Any JAR-OPS 1 material included in this JOEB report or contained in the Appendices will not be amended to reflect any subsequent relevant changes to JAR-OPS 1 or European Regulations.

Executive Summary

Participating in the JOEB A380-800 Cabin Crew Subgroup were representatives from the Joint Aviation Authorities (JAA), including Central JAA, the European Aviation Safety Agency (EASA), the Federal Aviation Administration (FAA) and Transport Canada Civil Aviation (TCCA).

Additionally, observers from the Singapore Civil Aviation Authority and the Australian Aviation Authority also participated in some of the meetings. An industry adviser upon request from the JAA/EASA was also involved in the JOEB process.

Details of the JOEB A380-800 Cabin Crew Subgroup composition can be found at Page 4.

Although the JOEB A380-800 Cabin Crew Subgroup composition reflects an integrated team of experts representing several National Aviation Authorities, ***this JOEB Report is only applicable to operations under the jurisdiction of JAA and EASA.***

The JOEB A380-800 Cabin Crew Subgroup reported to the JOEB A380-800 Chairman.

The Cabin Crew subgroup reviewed the documentation and considered certification interface issues in liaison with the appropriate group of specialists. To ease the task, the Chairman of the JOEB A380-800 Cabin Crew Subgroup also participated as a member of the EASA A380-800 Certification Panel (Panel 8). Additionally, the EASA A380-800 Panel 8 Team Coordinator was also a member of the JOEB A380-800 Cabin Crew Subgroup. There was also liaison with JOEB A380-800 Chairman and A380-800 JOEB FCL-OPS on common issues such as ground operations.

JOEB A380-800 Cabin Crew Subgroup 'Authority only' meetings, and meetings between the A380-800 Cabin Crew Subgroup and Airbus were held between January 2004 and continued at regular intervals up to the time of A380-800's Type Certification (TC) in December 2006. Subsequent activity to finalise outstanding issues was conducted between Subgroup members by email.

As the evaluation of the Airbus A380-800 progressed, novel aspects in the design in respect of operational cabin safety became apparent and consequently new cabin concepts needed careful consideration.

Some of the relevant features of the A380-800 were not adequately covered by JAR-OPS 1, and together with other equivalent regulatory requirements (such as FAA and TCCA), were found to be inadequately addressed for an aeroplane of the size of the A380-800 with its novel characteristics.

It was therefore important that Airbus, the JAA and other Regulatory Authorities worked closely together in order to identify potential issues and to determine practicable solutions.

The outcome of discussions between the Authorities and Airbus are documented in this report. Specific A380-800 cabin safety operational issues have also been taken into account in the compilation of this JOEB report

JOINT OPERATIONAL EVALUATION BOARD– AIRBUS A380-800

REPORT OF THE JOEB A380-800 CABIN CREW SUBGROUP

ISSUE ONE

1 – A380-800 – New type for cabin crew

Airbus advised the JOEB that they considered the Airbus A380-800 to be a new aeroplane type and would not seek to make reductions in cabin crew training as a result of previous experience on other aeroplane types. Therefore, the JOEB Aeroplane Differences Table required by the JOEB Handbook – Part III, would not need to be addressed. The JOEB were in agreement with this approach. Therefore the Level 4 training and checking criterion was applied to this evaluation.

Definition of Level 4:

"Applicable to candidate aeroplanes having "full task" differences that cannot be adequately addressed by separate acquisition of a series of knowledge areas or skills and that requires an Aircraft Type Specific training course (as per JAR-OPS 1.1010 -Conversion and Differences training), or equivalent to attain the knowledge, skills or abilities to meet the training objectives. Where Level 4 training is assigned, a different type limitation is applicable to that aeroplane type or variant, for the purpose of JAR-OPS 1.1030 - Operation on more than one type or variant. Level 4 would always require hands-on training utilising either appropriate emergency evacuations procedures trainers or the aeroplane and appropriate aided instruction."

2- JAR-OPS 1 Subpart D – Operational Procedures - 1.285 Passenger briefing

JAR-OPS 1.285 states – Passenger briefing, states "Passengers are given a verbal briefing about safety matters. Parts or all of the briefing may be provided by an audio-visual presentation." JAR-OPS 1.285 also states: "Passengers are provided with a safety briefing card on which picture type instructions indicate the operation of emergency equipment and exits likely to be used by passengers." JAR-OPS 1.285 goes on to state that before take-off passengers are briefed on "The location of emergency exits."

Prior to take-off passengers are provided with a safety briefing that includes the location of emergency exits. In a pre-warned emergency such information is usually provided again to passengers as a reminder. Additionally, passengers are provided with a safety card that includes information consistent with that provided in the briefing.

The main issue for the A380-800 was to determine if passengers should be made aware of the location of the emergency exits on both decks irrespective of the deck that they are seated on for take-off and landing.

The JAR/FAR 25.803 certification criteria for the A380-800 regarding passenger evacuation, is that both decks can be effectively evacuated independently. However, it is recognised that in an evacuation some passengers from one deck may migrate to another deck via one or both of the two inter-connecting staircases.

The location of the cabin layouts on both passenger decks on the A380-800 is such that some passengers may be closer to an exit on another deck than the nearest exit on the same deck. This is particularly the case for passengers seated in the forward seat rows of the upper deck where the M1 Doors are closer to them than the U1 Doors. Given that it is possible that some passengers might use an exit on a different deck to where they are seated for take-off and landing, passengers travelling on the A380-800 should be briefed on the location of all the exits on both passenger decks. Passenger safety cards for the A380-800 should also reflect this criterion.

Additionally, consideration should be given to making passengers aware of which deck they are seated on.

If an operator permits passenger(s) to sit on a different deck for landing, a pre-arrival safety briefing should be given on the location of the exits on that deck.

Different National Aviation Authorities have their individual requirements and advisory information regarding passenger briefing and passenger safety cards. Such criteria will need to be taken into account by operators and by the National Aviation Authority in the development and acceptance of an individual operator's passenger briefing material for the Airbus A380-800.

A common passenger briefing and a common safety card for both decks have been developed by Airbus, and may be used as reference material by operators to develop their own briefing material. ***See Appendix A.***

JOEB conclusion: Operators should provide a common passenger briefing, and a common safety card for both decks so as to ensure that passengers are made aware of the location of all the exits on both decks of the A380-800.

Additionally, the JOEB was concerned that the control of up to 853 passengers in the post evacuation scenario has the potential to provide problems to cabin crew, flight crew and ground rescue personnel.

The 25.803 certification requirements only takes into account the evacuation of the aeroplane up until the time that passengers and crew have reached the bottom of the evacuation slides.

Operational requirements take into account the need for crowd control once the passengers have left the aeroplane.

Appendix 1 JAR-OPS 1.1010 (f) states: "Crowd control. An operator shall ensure that training is provided on the practical aspects of crowd control in various emergency situations, as applicable to the aeroplane type". Additionally, IEM to Appendix 1 to JAR-OPS 1.1005/1.1010/1.1015/1.1020 includes a reference that cabin crew training should include 'The marshalling of passengers away from the aeroplane".

During emergency evacuations, as well as during precautionary evacuations, some exits will be opened before other exits. There is a potential for aeroplanes with "off wing" evacuation slides and upper deck slides, for these slides to deploy on top of passengers who have already evacuated. Although not unique to the A380-800, this scenario is more likely in that there are two large decks and a greater number of evacuation slides in close proximity.

Forward of the A380-800 wing there are two main deck slides and one upper deck slide on each side of the aeroplane. Aft of the A380-800 wing there are three main decks slides (including one off-wing slide) and two upper deck slides on each side of the aeroplane.

The proximity of the following slides to each other might be an issue in terms of the timing of slide deployment:

U1 and M2
U2 and M3, and M4
U3 and M4, and M5

The issue of upper deck slide interaction with passengers on the ground was raised during the certification process, and then devolved to the JOEB for an operational solution.

Following discussion by the JOEB, Airbus proposed to include information in all pre-flight briefings that passengers should move rapidly away the bottom of the evacuation slides, considering that while it is not possible to exclude all risks as with other large transport category aeroplanes, the information in all pre-flight briefings to passengers, reduces the risk identified.

The JOEB accepts that if operators implement relevant information in both passenger briefings and safety cards, and if such information is complied with by passengers then the risk of passengers being struck by an upper deck slide is potentially mitigated.

As already stated, although it is not possible to entirely eradicate the risk of passengers being struck by an upper deck slide during an emergency evacuation, one solution is to ensure that both operators and cabin crew are made aware of the specific safety procedures to avoid this risk.

JOEB Conclusion: Operators and National Authorities should be aware of the issues of post-evacuation control of passengers. Operators should include in all pre-flight passenger briefings information that in an evacuation, passengers should move rapidly away from the bottom of the slides and away from the aeroplane. This information should be repeated in pre-planned ground evacuation scenarios. In an emergency evacuation, upper deck slides should be deployed as rapidly as possible. Cabin crew should be made aware of the above issues. Operators may wish to consider alternative cabin crew procedures and associated training.

3- JAR-OPS 1 Subpart K – Instruments and Equipment

The EASA Certification Panel 8 criteria was for cabin emergency equipment to be uniformly distributed throughout each deck and that each deck be treated independently in this respect. Regulations that specify quantities or arrangements of such provisions will be applied to each deck separately.

In addition to the emergency equipment required by certification criteria, the requirements of JAR-OPS 1 Subpart K were reviewed by the JOEB to determine if additional equipment was required, over and above the current requirements. ***Refer to Appendix B for rationale.***

The outcome is summarized in the table below and **is applicable to the A380-800 at maximum passenger seating capacity:**

A380-800 – Cabin Emergency Equipment

Equipment	JAR-OPS 1 Subpart K	JAA/EASA requirements for A380-800
First aid kits	**4**	**8 = 4 for each deck.**
Emergency medical kits	**1**	**2 = 1 for each deck.**
Hand fire extinguishers	**8**	**12 = 7 on the main deck and 5 on the upper deck.**
Crash axes or crowbars (See Note 1)	**2**	**3 = 1 on the flight deck and one on each passenger deck.**
Megaphones	**2 per deck.**	**4 = 2 for each deck.**
Survival packs	**1 for each slide-raft.**	**1 for each slide-raft.**

Note 1: A crash axe or a crowbar is only required to be carried on the upper deck when the maximum approved passenger seating is more than 200.

As already noted above, the above criteria are based on the A380-800 being delivered at maximum passenger seating capacity. Configurations with reduced passenger seating capacity *might,* at National Aviation Authority discretion, allow a reduction in the amount of cabin emergency equipment.

However, the amount of the cabin emergency equipment provided will need to be that required by the number of passenger seats installed on each deck.

At no time should the level of equipment on each deck be less than the current JAR-OPS 1 requirements.

Additionally the requirements of other non-JAA/EASA National Authorities might be more restrictive.

JOEB Conclusions: The JOEB conclusions in respect of A380-800 cabin emergency equipment are in Appendix B.

4- JAR-OPS Subpart O – Cabin Crew

4.1 JAR-OPS 1.990 Number and composition of cabin crew for the A380-800

JAR-OPS 1.990 States:

(a) An operator shall not operate an aeroplane with a maximum approved passenger seating configuration of more than 19, when carrying one or more passengers, unless at least one cabin crew member is included in the crew for the purpose of performing duties, specified in the Operations Manual, in the interests of the safety of passengers.

(b) When complying with sub-paragraph (a) above, an operator shall ensure that the minimum number of cabin crew is the greater of:

(1) One cabin crew member for every 50, or fraction of 50, passenger seats installed on the same deck of the aeroplane; or

(2) The number of cabin crew who actively participated in the aeroplane cabin during the relevant emergency evacuation demonstration, or who were assumed to have taken part in the relevant analysis, except that, if the maximum approved passenger seating configuration is less than the number evacuated during the demonstration by at least 50 seats, the number of cabin crew may be reduced by 1 for every whole multiple of 50 seats by which the maximum approved passenger seating configuration falls below the certificated maximum capacity.

Airbus applied for A380-800 initial type certification with 538 passenger seats on the main deck and 315 passenger seats on the upper deck. There are five pairs of Type 'A' exits on the main deck and three pairs of Type 'A' exits on the upper deck.

Based on the one per fifty criteria of JAR-OPS 1.990, the required cabin crew complement for the main deck will be 11 cabin crew members, and for the upper deck will be 7 cabin crew members. The number of required cabin crew will therefore exceed the number of Type 'A' exits by one cabin crew member for each deck of the A380-800.

The emergency evacuation demonstration for initial type certification of the A380-800 was conducted with 18 cabin crew members: 11 cabin crew members on the main deck and seven cabin crew members on the upper deck. Ten of the cabin crew members on the main deck had crew stations adjacent to the 10 Type A exits. The 11th cabin crew member on the main deck was seated adjacent to Door 1R which is also adjacent to the bottom of the forward stairwell. Six of the cabin crew on the upper deck had cabin crew stations adjacent to the six Type A exits. The 7th cabin crew member was stationed adjacent to top of the forward stairwell, which is not adjacent to a Type A exit.

For post-type certification, each individual operator's cabin configuration will be subject to a major modification process and ***the number of cabin crew seats will not be less than one cabin crew member seat per Type A exit***, i.e. ten cabin crew seats for the main deck and six cabin crew seats for the upper deck, as required by JAR/FAR 25.785 (h) (1).

The possible removal of cabin crew stations from the stairwell positions on either deck will also be subject to the major modification process which will need to address the issue of zonal density in the forward areas on each deck together with associated cabin crew evacuation procedures, as well as compliance with other applicable cabin safety requirements.

JOEB conclusion: Irrespective of any exit de-rating, for example the de-rating of a Type A exit to a Type I exit, the number of cabin crew for the A380-800 shall not be less than 10 cabin crew for the main deck and 6 cabin crew for the upper deck located 'adjacent' to each floor level exit.

The rationale for the above takes into account JAR-OPS 1.310 (b) which states: *"Cabin crew members. On all decks of the aeroplane that are occupied by passengers, required cabin crew members shall be seated at their assigned stations during critical phases of flight*". IEM OPS 1.310 (b) provides additional information.

4.2 JAR-OPS1.1000 Senior Cabin Crew Members for the A380-800

JAR-OPS 1.1000 - Senior Cabin Crew Members, states: "An operator shall nominate a senior cabin crew member whenever more than one cabin crew member is assigned."

On the A380-800, because of the large numbers of passengers on both the main deck and the upper deck, consideration should be given to each deck being under the supervision of a Senior Cabin Crew Member, ie one Senior Cabin Crew Member assigned to each deck. This would result in a minimum requirement for two Senior Cabin Crew Members.

For effective communication and co-ordination between the cabin crew and the flight crew, and vice versa, and for effective communication and co-ordination between cabin crew members on the main deck and the upper deck, further consideration should be given to ensuring that one of the two Senior Cabin Crew Members is *'in overall charge'* of the passenger compartments, ie the passenger cabins on both decks.

The Senior Cabin Crew Member *'in overall charge'* will have responsibility for all standard operational safety related duties, eg acceptance of pre-flight equipment serviceability checks, security checks, passenger headcount, door arming checks, cabin secure checks, etc. Additionally, the Senior Cabin Crew Member *'in overall charge'* will have responsibility for all emergency safety related duties, eg co-ordination of in-flight fire fighting, incidents involving disruptive passengers, medical emergencies, turbulence, decompression, preparation for an emergency landing or ditching, etc.

In order to avoid confusion or duplication in communicating information, the Senior Cabin Crew Member *'in overall charge'* would be the primary source of cabin related safety information for the flight crew and vice versa.

It is therefore essential that there is a Senior Cabin Crew Member *'in overall charge'* and that an A380-800 should not dispatch without the agreed minimum complement of Senior Cabin Crew Members.

All the above has been considered by Airbus, and cabin crew composition is clearly defined in the Airbus A380-800 CCOM as follows:

- The SCCM 'in overall charge' is defined as 'Chief Purser'.
- The other SCCM is defined as 'Purser'.

While some National Aviation Authorities require senior cabin crew training, others have no specific regulatory requirements.

JAR-OPS 1.1000(c) however does, and states *"Where required by JAR-OPS 1.990 to carry more than one cabin crew member, an operator shall not appoint a person to the post of senior cabin crew member unless that person has at least one year's experience as an operating cabin crew member and has completed an appropriate course".*

IEM OPS 1.1000(c) further outlines the training that should be included in senior cabin crew training, which includes:

1. Pre-flight briefing of the cabin crew;
2. Co-operation within the crew;
3. Review of operators' requirements and legal requirements;
4. Human factors and crew resource management, accident and incident report; and
5. Flight and duty time limitations and rest requirements.

JOEB conclusion: As the A380-800 has two separate main decks with a full cabin crew complement on each deck there should be a SCCM for each deck, one of whom should be in overall charge of both decks. The SCCM/Chief Purser should be located at the cabin crew station at Doors M1 for take-off and landing. It is essential that operators incorporate SCCM training for the operation of the A380-800.

4.3 JAR-OPS 1.1010 – Conversion and Differences training for A380-800

Airbus applied for a "generic" compliance to JAR-OPS 1.1010 for the proposed A380-800 type training course.

At **Appendix C** is a matrix that identifies all elements from JAR-OPS 1.1010 Conversion and Differences Training, that may be operator specific but that are nevertheless part of the Airbus A380-800 cabin crew training course.

This matrix identifies a number of items that were retained for the training of the cabin crew participating in the 25.803 evacuation test. The JOEB reviewed **Appendix C** and highlighted in red are those aspects of Appendix 1 to JAR-OPS 1.1010 and AMC OPC 1.1012 that were included in cabin crew training for the 25.803 test.

The JOEB decision that training for the cabin crew who participated in the 25.803 test, was required for only those items relevant to emergency evacuation procedures, was based on precedents established for the conduct of cabin crew training for previous manufacturer's 25.803 evacuation tests. Additional information on the training syllabus for the cabin crew participating in the 25.803 test is contained in **Appendix D.**

These elements represent the minimum core syllabus for cabin crew training, and in **Appendix C** is contained information relative to the training conducted for the A380-800 25.803 evacuation test.

In addition, the JOEB did consider the specifics of the A380-800 in relationship to JAR-OPS 1.1010 and additional information is provided in the following paragraphs:

Operation of doors and exits

Appendix 1 to JAR-OPS 1.1010 (c) states:

(c) Operation of doors and exits. An operator shall ensure that:

(1) Each cabin crew member operates and actually opens each type or variant of normal and emergency exits in the normal and emergency modes, including failure of power assist systems where fitted. This is to include the action and forces required to operate and deploy evacuation slides. This training shall be conducted in an aeroplane or representative training device; and

(2) The operation of all other exits, such as flight deck windows is demonstrated.

The A380-800 is fitted with 10 Type A exits on main deck (MD) and 6 Type A exits on the upper deck (UD).

On the A380-800, there is no difference in operation of the doors (exits) in normal and emergency modes between the UD doors and the MD doors. However due to the integration of the slides into the MD doors 1,2,4 and 5, these doors are slightly heavier than the UD doors and the M3 doors. In terms of cabin crew training, the difference in the weight of the doors will be of most relevance during an emergency evacuation, if there is a failure of the 'power assist' system(s).

Consequently, though the **training in technical operation** for UD and MD doors **is identical**, it is recommended to perform the training on an A380-800 door identical in weight and force to an MD 1,2,4 or 5 door.

JOEB conclusion: If training is conducted on a representative training device for the A380-800 main deck door (either 1,2,4 or 5), there is no need to conduct training on M3 or the upper deck doors as it complies with JAR-OPS 1.1010 (c) (1). Training in this case is valid for all doors on the A380-800. Compliance with JAR-OPS 1.1010 (c) (2) is achieved by including in the CBT description and demonstration via a video of the operation of the flight deck windows.

Evacuation slide training

Appendix 1 to JAR-OPS 1.1010 – Conversion and Differences training, paragraph (d), states "An operator shall ensure that each cabin crew member descends an evacuation slide from a height representative of the aeroplane main deck sill height" and that "The slide is fitted to an aeroplane or representative training device."

The JOEB Cabin Crew Subgroup carefully considered the requirements of JAR-OPS 1.1010 in respect of slide training. This currently **only** requires cabin crew to descend an evacuation slide from a height representative of the aeroplane ***main deck sill height.***

Following a detailed assessment of all parameters involved, and based on the fact that training for the evacuation test was achieved using a main deck slide only (none of the cabin crew completed an upper deck slide descent) the JOEB Cabin Crew subgroup members have come to the conclusion that cabin crew do not have to make a slide descent from the upper deck of the A380-800, as long as they have

made a descent of a representative main deck slide (A380-800 or similar: i.e. from a representative sill height and with dual lanes) and have completed all regulatory slide training requirements.

The detailed assessment mentioned above, included advice and feedback from:

- Human factors experts;
- Accident investigation reports;
- The cabin crew who participated in the 25.803 test and were located on the upper deck of the A380-800;

Airbus provided data of exit sill height. The JOEB considered that the difference between the main deck sill height and the upper deck sill height was not significant given the overall size of the A380-800.

The descent techniques and the skills required for cabin crew is identical for making a descent of both the main deck and the upper deck slides.

The training of the cabin crew who participated in the 25.803 test using only a main deck slide descent validated a positive transfer of learning for those cabin crew who made a descent of the upper deck slides during the test.

Taking the above criterion into account, the JOEB Cabin Crew Subgroup concluded that cabin crew operating on the A380-800, need not make a descent of an upper deck slide, ***provided that alternative regulatory training requirements in lieu of an upper deck slide are completed.***

JOEB conclusion: Cabin crew need NOT make a descent of an upper deck slide.

However, the following training should be included:

- ***Each cabin crew member should be provided with theoretical training on the use of A380-800 upper deck evacuation slides and how to make a slide descent. This should take into account any slide platforms associated with upper deck canted slides, as well as the evacuation commands and the actions that might be necessary to motivate and assist passengers down upper deck slides.***

- ***Each cabin crew member should view a video sequence of an evacuation from the upper deck of the A380-800. This video shall clearly show the slide descent procedures. The video shall also show:***

  - ✓ ***The inflation sequence, from both the inside and outside;***
  - ✓ ***The sound of the inflation;***
  - ✓ ***A deployed upper deck slide; and***
  - ✓ ***Slide platforms***
  - ✓

Each cabin crew member should stand at an open A380-800 Type A exit, being located at a height representative of an A380-800 exit sill height (either main deck or upper deck), and become familiar with the exit location and its environment, (i.e. the areas immediately adjacent to the exit), as per JAR-OPS 1.1012 - Familiarisation, and the associated AMC OPS 1.1012, paragraph 4.1 (m).

- ***Each cabin crew member should make a slide descent of an A380-800 main deck slide, or similar (i.e. from a representative sill height and with dual lanes).***

Safety equipment – slide-raft transportation

Appendix 1 to JAR-OPS 1.1010 (h) states: Safety equipment. An operator shall ensure that each cabin crew member is given realistic training on, and demonstration of, the location and use of safety equipment including life-rafts and slide-rafts.

Certification rules require that aeroplanes approved for 'ditching', must demonstrate the ability for rafts to be transported and deployed from alternative exits. For the A380-800 this is only possible at the main deck exits since the upper deck slides are located in external stowages rather than on the door.

Whilst some National Aviation Authorities have required training on slide/raft transportation and deployment, the majority of JAA states have not implemented a specific training requirement.

The Airbus A380-800 CCOM specifies the procedures for the main deck slides to be disconnected from one exit, and transported and deployed from an alternative exit. The transportation of slide-rafts for the A380-800 is designated as an Airworthiness Related item and as such is validated by the Airbus Office of Airworthiness.

In addition, a video is made available by Airbus on this issue during the computer-based training and can be used as training material if required by the various Airbus operators.

JOEB Conclusion: Whilst there is no specific JAR-OPS 1 training requirement for slide-raft transportation, if operators decide to include such training then they should consider incorporating the following into their JAR-OPS 1.1010 and JAR-OPS 1.1015 training:

An overview of the procedures - Video/DVD/CBT presentation, including CCOM material and the placarded instructions contained on the slide/raft packs.

Note: The procedure for slide-raft transportation is relatively complex involving many separate actions and may not be considered as a 'memory item' for cabin crew. Therefore, reference in the CCOM and associated training to the fact that there are placarded instructions on the slide/raft packs is considered important.

Crew Resource Management

Appendix 1 to JAR-OPS 1.1010 (k) Crew Resource Management. An operator shall ensure that:

> *(2) When a cabin crew member undertakes a conversion course on another aeroplane type, the training elements in Appendix 2 to JAR-OPS 1.1005/1.1010/1.1015 Table 1, Column (a) shall be covered to the level required in Column (d), Aeroplane Type Specific CRM.*
>
> *(3) The Operator's CRM Training and Aeroplane Type Specific CRM shall be conducted by a least one cabin crew CRM instructor.*

The JOEB advised Airbus that some elements of Crew Resource Management (CRM) training specific to the A380-800 was required and should reflect the content of Appendix 1 to JAR-OPS 1.1010 Conversion and Differences Training, (paragraph (k) (2) refers). Additionally, **Appendix E** contains information from Appendix 2 to JAR-OPS 1.1005/1.1010/1.1015.

The Airbus Crew Resource Management (ACRM) module for Cabin Crew specification was developed taking into consideration the latest changes to JAR-OPS 1.1010.

Nevertheless, Airbus stressed that as a manufacturer some of the elements are not covered as part of the ACRM as they are operator specific. The ACRM workshop is generic and will focus on principles applicable to any A380-800 configuration.

JOEB conclusion: Cabin crew operating on the A380-800 shall receive CRM training specific to the A380-800 and this should fully reflect the requirements of JAR-OPS 1.1010.

4.4 JAR-OPS 1.1012 Familiarisation training

AMC OPS 1.1012 states:

A cabin crew member assigned to operate on a subsequent aeroplane type with the same operator should either:

a. Participate in a familiarisation flight; or

b. Participate in an aeroplane visit to the aeroplane to be operated.

New training means using virtual reality technology are available and Airbus presented to the JOEB an "'A380-800 aircraft virtual visit". The Authorities are of the opinion that such training media are of very good value and that the time spent on any A380-800 aeroplane visit might be reduced, if an A380-800 Operator has integrated such a tool as part of its cabin crew conversion training to the A380-800.

4.5 JAR-OPS 1.1015 – Recurrent Training

No issues specific to A380-800 were identified by the JOEB.

4.6 JAR-OPS 1.1025 – Checking

No issues specific to A380-800 were identified by the JOEB.

4.7 JAR-OPS 1.1030 – Operation of more than one type or variant

The A380-800 is a new aeroplane type, meaning that cabin crew may operate on the A380-800 as well as two other aeroplane types as per JAR-OPS 1.1030. The A380-800 is not a variant of any other Airbus product.

4.8 Cabin Crew training and checking requirements when transferring to or from the A380-800

For cabin crew operating on the A380-800, the Conversion Training contained in JAR-OPS 1.1010 together with the associated Section 2 guidance material, is required, irrespective of previous experience on any other Airbus aeroplane type or variant.

When transferring from the A380-800 to another Airbus aeroplane type, cabin crew should complete Conversion Training as required by JAR-OPS 1.1010 and the associated Section 2 guidance material.

5- JAR-OPS Subpart P – Manuals, Logs and Records

JAR-OPS Subpart 'P' Manuals, Logs and Records, requires that Operations Manuals (OM) include information on normal, abnormal and emergency procedures, much of which will be specific to the aircraft type to be operated. Operations Manual procedures are applicable to both flight deck crew and cabin crew. Additional guidance for OM material for cabin crew is contained in JAA Temporary Guidance Leaflet (TGL) Number 3 - Guidance for Operators in Compiling Procedures and Training Programmes for Cabin Crew – Revision 1.

Airbus has established an A380-800 Cabin Crew Operating Manual (CCOM) for the A380-800.

The CCOM provides descriptive information of the A380-800 together with operating instructions (for normal and abnormal/emergency operations) and system fault management for those items of equipment controlled by the cabin crew. The CCOM will be systematically distributed to the individual A380-800 operator as part of the delivery package and will be customised for each individual aeroplane cabin configuration. The CCOM will be used by individual operators of the A380-800 as a basis for developing their own Operations Manual material.

The CCOM procedures that are marked "Airworthiness Related" provide procedures and limitations that are mandatory, in order to meet cabin safety airworthiness requirements. These procedures are validated by the Airbus Office of Airworthiness. Modifications to these procedures must be reviewed by the operator's National Aviation Authority, for acceptance.

The Airbus Office of Airworthiness will validate all procedures linked to Airworthiness.

The list of Airworthiness Related procedures as agreed by the EASA Certification Panel is:

Standard Operating Procedures (SOPs)

Direct view *(table of required CAS occupancy)*
Recommendations for use of Forward & Rear stairs *(complete procedure)*
Access to cockpit: *(complete procedure)*
Cockpit door opening from the cabin
Cockpit door opening from the cockpit
Privacy Module door operation

***Smoke and Fire Protection* (specific for A380)**

AFT Stairs smoke barrier installation *(complete procedure)*FWD Stairs smoke barrier installation *(complete procedure)*
LDCRC smoke procedure *(complete procedure)*

Emergency Cabin Evacuation

Cabin crew duties for evacuation
Cabin crew assigned areas *(table)*

Emergency passenger door operation *(information related to M3 barber pole, M1 extension and MIP)*
On ground evacuation *(information related to stairs area and MIP)*

Upper deck planned ditching *(complete procedure)*
Unplanned ditching *(information related to M3, MIP and stairs area)*

Additional Abnormal/Emergency procedures

Bomb on board *(complete procedure)*

Portability of Main Deck slide/rafts *(complete procedure)*

CCOM Review conducted by the JOEB

An example of the manufacturers Cabin Crew Operating Manual (CCOM) for the A380-800, an early draft was reviewed by the JOEB. It was not the remit or the responsibility of the JOEB to approve or validate the CCOM. Each operator's customised CCOM should be subject to the criteria applicable to each individual National Aviation Authority in terms of checking, and acceptance or approval, as applicable to their own regulatory requirements.

6- Additional A380-800 cabin safety operational considerations

Below are listed additional specific A380-800 cabin safety items for which information can be found in the Airbus CCOM and Airbus CBT. Operators should include the following items in their training and operational procedures:

Use of stairs

Aft trolley lift barrier

Smoke barriers

External viewing means – Fresnel lens

Placarding of required cabin crew seats: On the A380-800 the cabin crew seats required to meet the direct view requirements of 25.785 (h), are placarded that they should be occupied for take-off and landing. However, there are other seats adjacent to Type A exits that may not be so placarded, but from an operational perspective in order for the cabin crew to conduct an effective emergency evacuation, should also be occupied for take-off and landing.

JOEB conclusion: Operators and National Aviation Authorities should take into account the criteria in this report in respect of the number and location of required cabin crew seats, (see paragraph 4.1 of this report).

Location of assist spaces and view of the toe end of the evacuation slides: In some of the A380-800 assist spaces, it may not be easy for the cabin crew to see the toe end of the canted slides from some of the assist spaces. Some operators may have an Standard Operating Procedure whereby all the cabin crew having operated the exit, occupy the assist space at the hinge arm of the all doors, ie the forward of the two assist spaces that are required by 25.813 (b), to be located on each side of a Type 'A' exit. At the forward assist spaces at the Type 'A' exits that have forward canted slides, ie. M2L, M2R, U1L and U1R, it may be difficult to see the toe end of the slide when standing in the assist space.

JOEB conclusion: Operators and National Aviation Authorities should consider the importance of cabin crew identifying that they have a useable and safe slide before initiating an evacuation.

Cabin Crew Direct View: In order to meet the cabin crew direct view requirements of 25.785, some A380-800 cabin configurations may have to rely on cabin crew having a direct view responsibility of areas in the cabin that are not immediately adjacent to their own cabin crew stations. In some cases, cabin crew may have a direct view responsibility for an area in another cabin zone, ie separated by another pair of floor level exits. This is not a situation unique to the A380-800 since it exists on many currently certificated aeroplanes.

JOEB conclusion: Operators should review the content of their 'customised' Cabin Crew Operating Manuals in order to identify cabin crew direct view areas of responsibility, and determine if additional operational procedures and associated training need to be developed.

APPENDIX A – Passenger Briefing and Passenger Safety Card

SAFETY DEMONSTRATION
(Extracted from A380 CCOM§16-20)

Ladies and Gentlemen, (*Pause*)

In just a few moments, your cabin crewmembers will demonstrate the safety features of this Airbus A380 aircraft.

We would like to request your attention as we present these safety procedures.

If you have any questions, please ask a cabin crewmember at the end of this demonstration.

Note: (During this introduction, each cabin crewmember must get their demo kit and go to his/her briefing area).

Please take the safety instructions card out of the seat pocket to enable you to follow the safety procedures.
If you are seated at an exit row, you may be required to assist the cabin crew in an emergency.
If you are unable or do not want to assist the crew, please advise the cabin crew at the end of the announcements.

Exits are located on both sides of the cabin, each exit is clearly marked with an EXIT sign.
The cabin crew will now point out the exits nearest your seats,
(The cabin crew should point out the nearest exits)
In some cases your nearest exits may be behind you,
(The cabin crew should point to exits at the rear of the passenger cabins)
Please look around, and locate the exits nearest your seats.
Exit path lighting will guide you to the exits.
(The cabin crew should point out the location of the exit lighting)
If an evacuation is required, follow the instruction of the cabin crew.
Leave all your belongings behind and go to your nearest available exit.
When you reach the ground, run away from the aircraft.

Please, fasten and release your seat belt as shown.
When seated, please keep your seat belts fastened at all times.
If you need to leave your seat during the flight, we remind you to fasten your seat belt when you return to your seat.

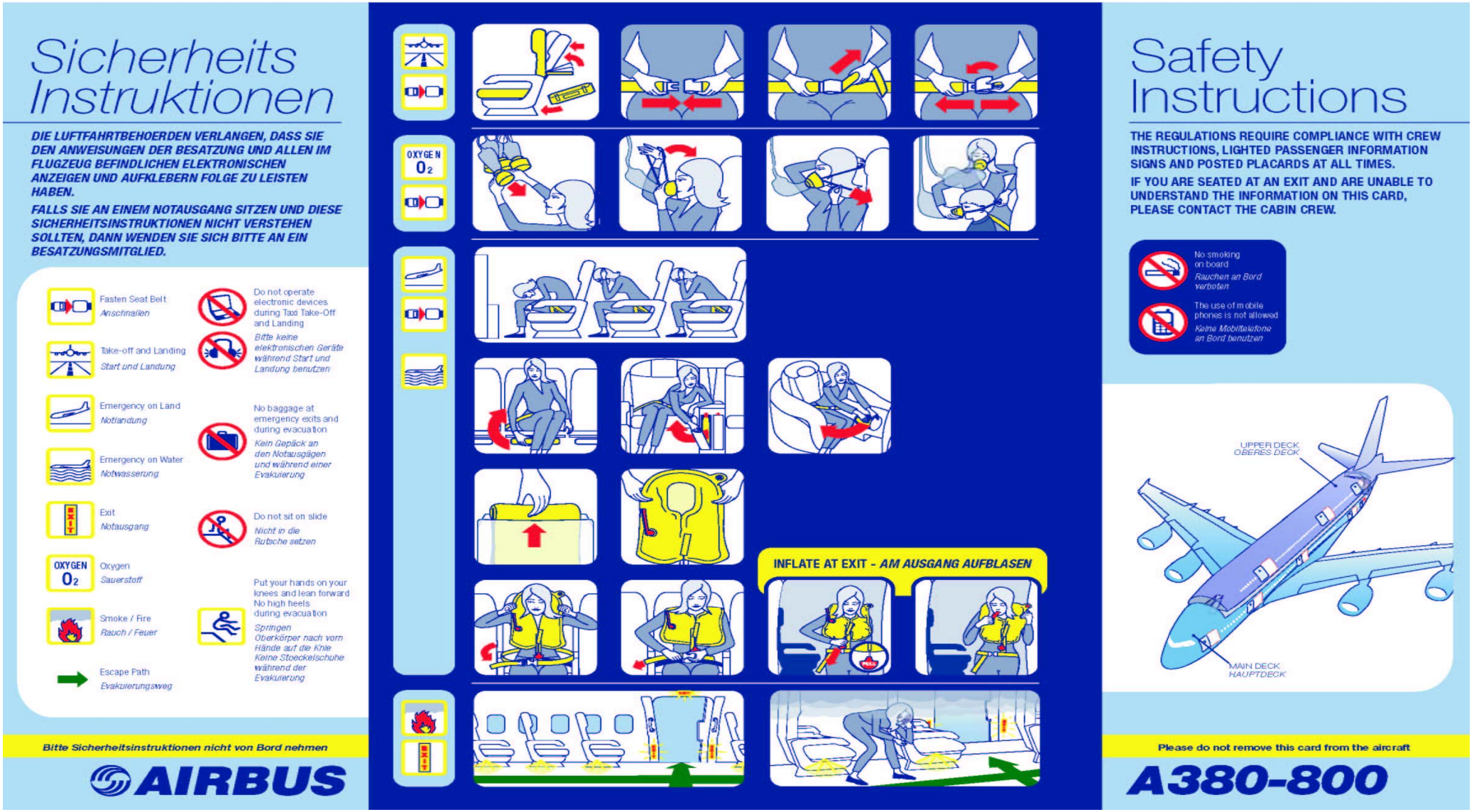
If needed, oxygen masks will drop in front of you from the overhead panel.
Place the mask over your nose and mouth, and adjust the mask over your face, if necessary, by tightening the straps.
Even if the bag does not inflate, oxygen is flowing into the mask.
For safety reasons, please secure your own mask before helping others.

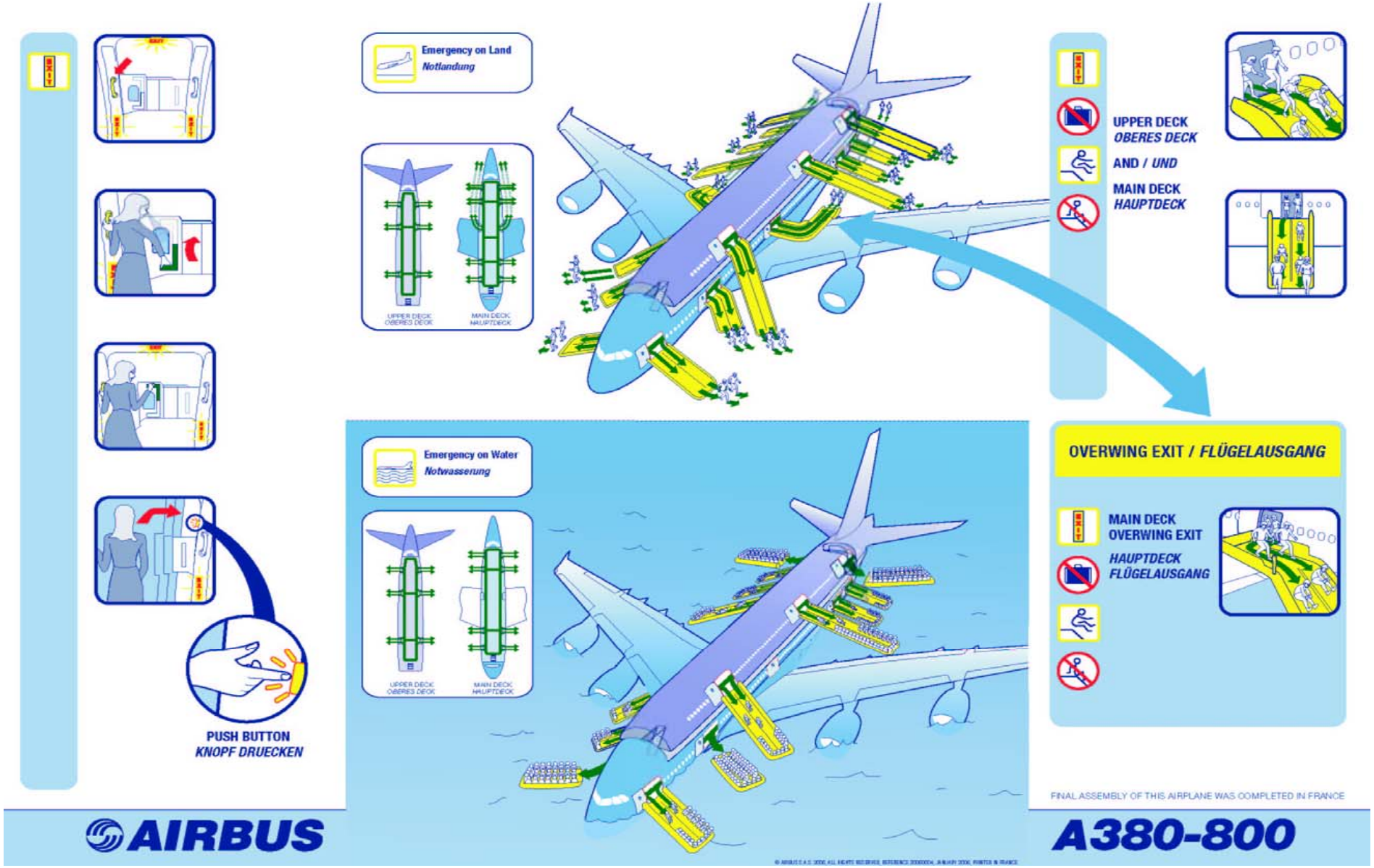
In preparation for takeoff, please ensure that:
- Your seat back is in fully upright position
- The table in front of you is folded back correctly
- Your seat belt is securely fastened

- All armrests, headrests, footrests, video screens are in stored position.

In the event of an emergency evacuation, you must leave ALL PERSONAL BELONGINGS BEHIND.

Note: Emphasize the entire sentence "ALL PERSONAL BELONGINGS BEHIND"


Sicherheits Instruktionen
DIE LUFTFAHRTBEHOERDEN VERLANGEN, DASS SIE DEN ANWEISUNGEN DER BESATZUNG UND ALLEN IM FLUGZEUG BEFINDLICHEN ELEKTRONISCHEN ANZEIGEN UND AUFKLEBERN FOLGE ZU LEISTEN HABEN.
FALLS SIE AN EINEM NOTAUSGANG SITZEN UND DIESE SICHERHEITSINSTRUKTIONEN NICHT VERSTEHEN SOLLTEN, DANN WENDEN SIE SICH BITTE AN EIN BESATZUNGSMITGLIED.
Fasten Seat Belt
Anschnallen
Take-off and Landing
Start und Landung
Emergency on Land
Notlandung
Emergency on Water
Notwasserung
Exit
Notausgang
OXYGEN O2
Oxygen
Sauerstoff
Smoke / Fire
Rauch / Feuer
Escape Path
Evakuierungsweg
Do not operate electronic devices during Taxi Take-Off and Landing
Bitte keine elektronischen Geräte während Start und Landung benutzen
No baggage at emergency exits and during evacuation
Kein Gepäck an den Notausgägen und während einer Evakuierung
Do not sit on slide
Nicht in die Rutsche setzen
Put your hands on your knees and lean forward No high heels during evacuation
Springen Oberkörper nach vorn Hände auf die Knie Keine Stoeckelschuhe während der Evakuierung
Bitte Sicherheitsinstruktionen nicht von Bord nehmen
AIRBUS
OXYGEN O2
INFLATE AT EXIT - AM AUSGANG AUFBLASEN
Safety Instructions
THE REGULATIONS REQUIRE COMPLIANCE WITH CREW INSTRUCTIONS, LIGHTED PASSENGER INFORMATION SIGNS AND POSTED PLACARDS AT ALL TIMES.
IF YOU ARE SEATED AT AN EXIT AND ARE UNABLE TO UNDERSTAND THE INFORMATION ON THIS CARD, PLEASE CONTACT THE CABIN CREW.
No smoking on board
Rauchen an Bord verboten
The use of mobile phones is not allowed
Keine Mobiltelefone an Bord benutzen
UPPER DECK
OBERES DECK
MAIN DECK
HAUPTDECK
Please do not remove this card from the aircraft
A380-800


Emergency on Land
Notlandung
UPPER DECK
OBERES DECK
MAIN DECK
HAUPTDECK
UPPER DECK
OBERES DECK
AND / UND
MAIN DECK
HAUPTDECK
Emergency on Water
Notwasserung
UPPER DECK
OBERES DECK
MAIN DECK
HAUPTDECK
OVERWING EXIT / FLÜGELAUSGANG
MAIN DECK
OVERWING EXIT
HAUPTDECK
FLÜGELAUSGANG
PUSH BUTTON
KNOPF DRUECKEN
FINAL ASSEMBLY OF THIS AIRPLANE WAS COMPLETED IN FRANCE
AIRBUS
A380-800

APPENDIX B – Cabin Emergency Equipment

The requirements in JAR-OPS 1 Subpart K, regarding some items of cabin emergency equipment, were not considered sufficient since the rule material did not take into account the size of the A380-800 and the number of passengers that could be carried on both the main deck and the upper deck.

The following JAR-OPS 1 requirements were reviewed for each deck, **for an A380-800 at maximum passenger seating capacity:**

First-Aid Kits - JAR-OPS 1.745

JAR-OPS 1.745 states: "An operator shall not operate an aeroplane unless it is equipped with first aid kits, readily accessible for use to the following scale: 300 and more = 4."

The JAR-OPS 1 requirement only goes up to 300 or more passenger seats installed whereby 4 first aid kits are required. Taking into account that first aid kits are normally taken off the aeroplane by the cabin crew in the event of a ground evacuation or a ditching, the carriage of such equipment needs to be based on the total number of passengers carried as well as the number of passengers carried on each deck. Therefore, an increase in the scale of this equipment is considered appropriate.

JOEB conclusion: Four first aid kits are required for each deck of the A380-800.

Emergency Medical Kit - JAR-OPS 1.755

JAR-OPS 1.755 states: "An operator shall not operate an aeroplane with a maximum approved passenger seating configuration of more than 30 seats unless it is equipped with an emergency medical kit if any point on the planned route is more than 60 minutes flying time (at normal cruising speed) from an aerodrome at which qualified medical assistance could be expected to be available."

The JAR-OPS 1 requirement is for only one emergency medical kit for aeroplanes above 30 passenger seats, irrespective of aeroplane size. Given the significantly larger number of passengers being carried on two separate decks of the A380-800, it was considered that only one emergency medical would not be sufficient.

JOEB conclusion: One emergency medical kit is required for each deck of the A380-800.

Hand fire extinguishers - JAR-OPS 1.790

JAR-OPS 1.790 states: "At least the following numbers of hand fire extinguishers must be conveniently located in the passengers compartment(s):

Maximum approved passenger seating configuration	***Number of extinguishers***
7 to 30	*1*
31 to 60	*2*
61 t0 200	*3*
201 to 300	*4*
301 to 400	*5*
401 to 500	*6*
501 to 600	*7*
601 or more	*8*

Note: In this respect the main deck and the upper deck of the A380 are both considered main decks.

The JAR-OPS 1 requirement only goes up to 601 or more passenger seats, and is based on the maximum approved passenger seating configuration. This requires 8 hand fire extinguishers for 601 or more passenger seats. The numbers in the table could be extended on the current criteria, ie 801 or more = 10 hand fire extinguishers.

Alternatively, the requirement could be related to each deck individually, ie: Main deck = 583 passengers = 7 extinguishers and upper deck = 315 passengers = 5 extinguishers.

Other compartments such as crew rest areas will be addressed separately.

JOEB conclusion: Seven hand fire extinguishers are required for the main deck of the A380-800 and 5 hand fire extinguishers are required for the upper deck.

Crash axes and crowbars – JAR-OPS 1.795

JAR-OPS 1.795 states: "An operator shall not operate an aeroplane with a maximum certificated take-off mass exceeding 5700 kg or having a maximum approved passenger seating configuration of more than 9 seats unless it is equipped with at least one crash axe or crowbar located on the flight deck. If the maximum approved passenger seating configuration is more than 200 an additional crash axe or crowbar must be carried and located in or near the most rearward galley area."

The requirement for the flight crash axe or crow bar is quite clear in that one is required to be carried in the passenger compartment and located in or near the most rearward galley area. The requirement for crash axes or crowbars to be carried in the cabin can be logically extended to one crash axe or crowbar on each passenger deck.

JOEB conclusion: One crash axe or crowbar is required for the flight deck and one crash axe or crowbar is required for each passenger deck of the A380-800.

Megaphones- JAR-OPS 1.810

JAR-OPS 1.810 states: "An operator shall not operate an aeroplane with a maximum approved passenger seating configuration of more than 60 and carrying one or more passengers unless it is equipped with portable battery-powered megaphones readily accessible for use by the crew members during an emergency evacuation to the following scales:

(1) For each passenger deck:

61 to 99 = 1
100 or more = 2."

The JAR-OPS 1 requirement only goes up to a passenger seating configuration of 100 or more passenger seats whereby 2 megaphones are required. However, the requirement is for each passenger deck so two megaphones for each deck are required.

JOEB conclusion: Two megaphones are required for each passenger deck of the A380-800.

APPENDIX C - A380-800 Type Training for Cabin Crew

Highlighted in red are those aspects of Appendix 1 to JAR-OPS 1.1010 and AMC OPC 1.1012 that were included in cabin crew training for the 25.803 test.

CONVERSION & DIFFERENCES TRAINING: APPENDIX 1 TO JAR-OPS 1.1010/IEM TO APPENDIX 1 TO JAR-OPS 1.010/1015/ IEM TO APPENDIX 1 TO JAR-OPS 1.1005/1.1020			**Operator Specific (OS) –AI Airbus Familiarization course**	
LOCATION/REMOVAL/USE EMERGENCY EQUIPMENT	APP 1	a2	**OS**	**AI**
EMERGENCY TRAINING RELATED TO AEROPLANE TYPE	"	a2	**OS**	**AI**
FIRE - EXTINGUISH FIRE — Practical	"	b1(i)	**OS**	
PBE IN SMOKE FILLED ENVIRONMENT - Practical	"	b1(ii)	**OS**	
OPERATION OF EXITS USED PAX EVACUATION – Practical in normal and emergency modes of operation (Proposed JAA NPA).	"	c1		**AI**
DEMONSTRATION ALL OTHER EXITS	"	c2		**AI**
SLIDE TRAINING — PRACTICAL – .	"	d1	**OS**	**AI**
RECOGNITION OF PLANNED/UNPLANNED EVACUATION	"	e1	**OS**	**AI**
RECOGNITION OF UNUSABLE EXITS	"	e1	**OS**	**AI**
RECOGNITION OF UNUSABLE EVAC EQUIPMENT	"	e1	**OS**	**AI**
INFLIGHT FIRE THEORY	"	e2(i)	**OS**	**AI**
SEVERE TURBULENCE	"	e2(ii)	**OS**	**AI**
SUDDEN DECOMPRESSION / DONNING OF O_2	"	e2(iii)	**OS**	**AI**
CROWD CONTROL APPLICABLE TO AEROPLANE TYPE	"	f	**OS**	**AI**
PILOT INCAPACITATION Pilots seat mechanism, Un/fastening seat harness, Use of pilot O_2 system, Use of checklist	"	g1/2/ 3/4	**OS**	**AI**
SAFETY EQUIPMENT - Demonstration/location/use	"		**OS**	
Slides	"	h1	**OS**	**AI**
LR/SR + equipment	"	h2	**OS**	
Life Jacket/infant life jacket/flotation cots	"	h3	**OS**	**AI**
Dropout O_2	"	h4	**OS**	**AI**
First Aid O_2	"	h5	**OS**	
Fire extinguishers	"	h6	**OS**	
Fire axe/crowbar	"	h7	**OS**	**AI**
Emergency lights and torches	"	h8S	**OS**	**AI**
Communication equipment /megaphone	"	h9	**OS**	**AI**
Survival packs and contents	"	h10	**OS**	**AI**
Pyrotechnics	"	h11	**OS**	**AI**
First Aid kits\emergency medical supplies	"	h12	**OS**	
Demonstration kits	n/a	n/a	**OS**	
Other cabin safety equipment –	"	h13	**OS**	
PAX BRIEFING / SAFETY DEMO - Normal and emergency	"	i	**OS**	

Aeroplane Visit: AMC OPS 1.1012			**Operator Specific (OS) or –AI Airbus Familiarization course**	
AEROPLANE EXTERIOR, INTERIOR AND SYSTEMS INCLUDING	"	4.1		
Interphone and public address systems	"	4.1a	**OS**	**AI**
Evacuation alarm systems	"	4.1b	**OS**	**AI**
Emergency lighting	"	4.1c	**OS**	**AI**
Smoke detection systems	"	4.1d	**OS**	**AI**
Safety/emergency equipment	"	4.1e	**OS**	**AI**
Flight deck	"	4.1f		**AI**
Cabin crew stations	"	4.1g	**OS**	**AI**
Toilet compartments	"	4.1h	**OS**	**AI**
Galleys, galley security and water shut-off	"	4.1i	**OS**	**AI**
Cargo areas if accessible from passenger compartment in-flight	"	4.1j	**OS**	**AI**
Circuit breaker panels located in the passenger compartment	"	4.1k	**OS**	**AI**
Crew rest areas	"	4.1l	**OS**	**AI**
Exit location and its environment	"	4.1m		**AI**

Appendix D – A380-800 Training Syllabus for the Evacuation Demonstration Test - JAR/FAR 25.803

Description of the A380-800 "baseline" Cabin Crew Training as determined by Airbus for the Full Scale Evacuation Demonstration (25.803).

In March 2006 Airbus conducted training for the cabin crew scheduled to participate in the A380-800 Full Scale Evacuation demonstration at the Airbus Training Centre in Toulouse.

The total time of the training was 14 hours spread over 3 days for logistical reasons. The theoretical part of the training took 8 hours and 10 minutes, and the practical part was performed within 5 hours and 50 minutes.

A written test was performed and successfully accomplished by all 41 trainees.

An aircraft visit was completed in Hamburg.

Representatives from the National Aviation Authorities were present during the entire training and aircraft visit.

Airbus training was conducted in agreement with Advisory Circular 25.803, entitled "Emergency Evacuation Demonstrations," dated November 13, 1989, and with FAR Part 121 and JAR-OPS 1 for operational requirements. This training will be considered the "baseline" training against which all operators' emergency training for cabin crew members, who will operate on the A380-800 aircraft, must be compared.

The Airbus training program was derived from the standard Airbus "A380-800 Type Training for cabin crew" to address only the topics that were relative for the A380-800 Full Scale Evacuation Demonstration. (Refer also to Appendix C.)

The evacuation actions and commands outlined in the training were typical of standard industry practice.

The topics were the following:

- Aircraft & Cabin presentation
- Doors & Slide/Rafts
- Communications
- Emergency equipment
- Standard Operating Procedures
- Emergency Procedures
- Crowd Control

A380-800 Aircraft & Cabin presentation

During this session a general aircraft presentation was provided describing the aircraft characteristics, the layout and configuration of the cabin.

- Description of the aircraft dimensions & performances
- Description of the location and sill height of the doors
- Description of the main deck and the upper deck cabin layout
- Description of the location of the emergency equipment
- Description, location and the operation of the cabin crew seats
- Description of the stairs, passenger seats and stowages.

A380-800 Door and slides/rafts

During this session the cabin crew member received information and practical training on how to safely operate the doors and the slide/rafts

- Description on the MD and UD doors
- Controls and indicating panels
- Door arming and disarming procedures
- Door operation in normal (electrical), manual and emergency mode.
- Where and how to check outside conditions
- Protective position and dedicated assist space
- Recognition of door failures and unusable exit and how to deal with this.
- Use and location of the FAP door page
- Description and location of the different slides/rafts
- Operation of the slides
- Deployment sequences of the different slides/rafts
- Operation of the Manual Inflation Push button (MIP) and when to use it.
- Recognition of unusable slide attitudes and failures.
- Slide monitoring during the entire evacuation and actions to take if slide becomes unusable.
- Commands when using UD, MD slide/rafts
- Slide descent techniques

A380-800 Communications/lights

During this training module the location and the use of the A380-800 communication and light systems was conducted.

- Location and use of the handset
- Description of the different options on the use of the interphone and PA system
- Interphone priorities
- Attendant Information Panel and Area Control Panel indications
- Cabin light description
- Cabin light controls, location and operation on the FAP
- Emergency light controls, location and operation

A380-800 Emergency Equipment

This training focused on the location, description of the following emergency equipment: fire extinguishers, torches, first aid kit, megaphone, demo kit and fixed oxygen.

A380-800 Standard Operating Procedures

During this topic information was given on pre-flight checks, boarding and door arming procedures with cross-checking and door arming. Topics also addressed during this session included the number and the positions of the cabin crew during the passenger safety briefing, how to perform the safety demonstration, how to secure the cabin and the cabin ready procedures.

A380-800 Emergency Procedures

Items addressed during this training session:

- Cabin crew locations and duties during an on ground evacuation
- Communication during the evacuation
- Re-direction of passengers and control of passenger flow to exits
- The use of crowd control techniques.

Basic evacuation principles

After the evacuation signal is received, each cabin crew has to:

- Unfasten seat belt and shoulder harness
- Stand up and shout, "EVACUATE, EVACUATE, SEATBELTS OFF"
- Check the outside conditions and hold on to the frame assist handle.

If exit operative

- Guard the exit while commanding passengers to stand back until the slide is safe to use.
- If automatic slide inflation fails, inflate manually by pushing MIP
- Hold on to the frame assist handle and stand in assist space
- Shout: "LEAVE EVERYTHING, COME THIS WAY"
- Continue verbal contact to approaching passengers to speed the evacuation. Shout: "HURRY, TWO BY TWO, RUN & JUMP".
- Passengers sitting down on the doorsill or hesitating to leave the aircraft must be firmly assisted out.
- When the passenger flow is depleted, call waiting passengers from another cabin section or nearby exit toward that exit. Both aisles should be used.
- When assigned area is clear and no problem on other exits occur leave the aircraft through the nearest available exit.

Note: Monitor the slide during the entire evacuation to make sure it remains safe to use.

If exit is inoperative

The cabin crew member must stand in front to block the exit and shout: "EXIT BLOCKED, GO THAT WAY"

- Redirect the passengers to the nearest available, usable exits
- When flow toward the usable exits is established, manage the passenger flow
- When the flow of evacuees decreases, direct passengers to proceed to usable exits to achieve a good dense flow of evacuees. Both aisles should be used if possible
- Assist other cabin crew members if necessary
- When assigned area is clear and no problem occurs at other exits leave the aircraft through the nearest available exit.

For M3 doors (exits) only

Due to the design of the slide (ramp slide) at the M3 doors, the evacuation flow rate may be slower compared to the other exits. The Cabin Crew member positioned at these doors should perform sequencing; this means in order to keep a constant flow on the ramp the cabin crew member should limit the number of passengers on the ramp.

Aft stairs handling

The cabin crew member seated at door M5L and the cabin crew member seated at door U3R are responsible for the aft stairs. Before leaving the aircraft they must visually check if stairs are empty (double check)

Forward stairs handling

The cabin crew member seated on the main deck by door M1R inboard (**M1S CC**) is responsible for the main deck forward cabin and forward stairs. The primary task is to handle the passenger management and the forward stairs.

- The cabin crew member must immediately move into the M1 cross-aisle in order to direct the passenger flow and to coordinate the evacuation with the other cabin crew member as situation dictates.
- The cabin crew member checks if her/his assigned area is clear and leaves the aircraft through the nearest, available usable exit.

The cabin crew member seated on the upper deck at the forward stairs (**US CC**) is responsible for the forward upper deck area and the forward stairs. The primary task is to handle the passenger management and the forward stairs.

- The cabin crew member guards the top of the stairs and directs the passengers to the upper deck exits, which are located behind them. When the forward area is clear, the cabin crew member coordinates evacuation with the other cabin crew members of the forward/mid cabin section. When the area is clear leave through the nearest, available exit.

A380-800 Crowd Control

During this session the cabin crew received information on crowd control techniques. Training on how to be loud, clear and assertive in their commands, on how to do things simultaneously and how to increase the speed of actions. Also attention was given to the stair management and the importance of knowing the cabin layout and configuration and what can be seen and heard when standing in their assist space.

- Actions and commands when a door is operative
- Actions and commands when a door is blocked
- Actions and commands at the M3 over wing exits

A380-800 Aircraft visit

An aircraft visit was conducted to familiarise the cabin crew with the aircraft layout, the location of the monuments and the cabin crew stations.

DAY	Objective + Duration	Location & Method	Training Media	JAR-OPS Ref
DAY 1				
Welcome <u>Aircraft Presentation</u> - Type of Aircraft - Dimensions - Cabin Doors Location - Sill Height Review & Questions	**To familiarise the cabin crew with the** general overview of the A380 aircraft. Review and Questions are done with the entire group.	Classroom Led and Observed by an Airbus Cabin Crew Instructor	CAT Handout: Power Point Slides	
<u>Cabin Presentation</u> - Main & Upper Deck Layout - Crew Station Location - Galley Location - Bulkhead/Monument Location - Lavatories Location - Stairs Location - Passenger Seats - Stowage Compartments - Location of Emer Equipment Review & Questions	To familiarise the cabin crew with the configuration layout A general overview of the entire layout and configuration of the cabin will be given so that the trainee will get a first impression of their aircraft. Review and Questions are done with the entire group	Classroom Led and Observed by an Airbus Cabin Crew Instructor	CAT Documentation: CCOM Virtual Aircraft	
<u>Mock-up Visit</u> - View of Slides Deployed - View of Interior of Mock-up	To familiarise the cabin crew with the mock-up used for practical training	CEET Led and Observed by an Airbus Cabin Crew Instructor		

Day	Objective/Duration	Location & Method	Training Media	JAR-OPS Ref
DAY 1 (cont'd)				
Doors - Location of the UD/MD Doors - Description - Controls and Indicators - Door Procedures - Normal Door Operation - Elec & Manual - Emergency Operation - Door Failures - Recognition of Unusable Exits Review & Questions	To provide the trainee with theoretical information regarding door controls, indicators, layout and all relevant items on how to operate the door safely under all circumstances. How to recognise an unusable exit and what to do in case this happens. How to react in case of door failures and commands that should be used. Review & Questions with entire group.	Classroom Led & Observed by an Airbus Cabin Crew Instructor	CAT Documentation: CCOM Door Videos	JAR-OPs 1.1010 Appendix 1 (a) 1 + (c) (1)
Slide & Slide Rafts - Location of the Slides - Location of Slide Rafts - Operation of Slides - Operation of Slide Rafts - Deployment Sequence - MIP - Slide Failures - Recognition of Unusable Slides Review & Questions	To provide the trainee with theoretical information on the location of the slides and slide rafts. Arming/Disarming procedures. The location and use of the manual inflation pushbutton (MIP). How to recognise what to do in case of slide failure, slide monitoring during evac., and actions to take if slide becomes unusable and commands to be used. Review & Questions with entire group.	Classroom Led & Observed by an Airbus Cabin Crew Instructor	CAT Documentation: CCOM Videos of Slide Inflations	JAR-OPs 1.1010 Appendix 1 (d) + (h) (2)

Day	Objective/Duration	Location & Method	Training Media	JAR-OPS Ref
Day 1 (cont'd)				
CIDS Handset - Description - Interphone - Indications - Interphone Priorities - Public Address - PA Indications - PA Priorities - AIP/ACP Review & Questions	To provide the trainee with theoretical information regarding the use and the location of the handset. How to make an interphone call and how to make a pax announcement. The trainee will be familiarised with all relevant items that are connected and provide information about the nature and location of calls and priorities. Review & Questions with entire group.	Classroom Led & Observed by an Airbus Cabin Crew Instructor	CAT Documentation: CCOM	JAR-OPs 1.1010 (h) (9)
Cabin Lighting - Cabin Lights Description - Cabin Light Controls - Cabin Light Location - Cabin Light Operation - Emergency Light Description - Emergency Light Location Review & Questions	To provide the trainee with descriptive information regarding the use and the location of the cabin lights. The controls on the FAP and how to use them. Description of the Emergency Lights **R**eview & Questions with entire group**.**	Classroom Led & Observed by an Airbus Cabin Crew Instructor	CAT Documentation: CCOM	JAR-OPs 1.1010 Appendix A (h) (9)

Day	Objective/Duration	Location & Method	Training Media	JAR-OPS Ref
Day 1 (cont'd)				
Emergency Equipment - Fire Extinguishers - Torches - First Aid Kits - Megaphone - Demo Kits - Drop-Down Oxygen Review & Questions	To provide the trainee with descriptive information regarding the emergency equipment. To provide the trainee with an overview of the emergency drop-down oxygen. Review & Questions with entire group	Classroom Led and Observed by an Airbus Cabin Crew Instructor	CAT Documentation: **CCOM**	JAR-OPs 1.1010 Appendix A (h)
DAY 2				
Standard Operating Procedures - Pre-flight Checklist - Slide Arming Procedure - Passenger Safety Briefing - Safety Demonstration - Cabin Secured - Cabin Ready Review & Questions	To familiarise the trainee with the pre-flight checklist, the safety briefing and demonstration to the passengers and the cabin ready procedure. To give information regarding the arming procedures and cross-checking. Review & Questions with entire group.	Classroom Led & Observed by an Airbus Cabin Crew Instructor	PowerPoint Presentation Handouts: Checklists Documentation: CCOM	JAR-OPs 1.1010 Appendix A (i) (j)

Day	Objective/Duration	Location & Method	Training Media	JAR-OPS Ref
Day 2 (cont'd)				
Doors - Location of the MD/UD Doors - Use of DSIP - Use of Door in Manual Mode - Emergency Operation - Door Failure Modes - Recognition of Unusable Exits - Cabin Crew Stations & Harness - Assist Space - FAP	To provide the trainee with practical training regarding door controls, indicators, layout and how to operate the doors safely in all modes of operation How to react in case of door failures and unusable exits. How to stand at assist space. Familiarisation with crew station, harness and FAP.	Practical Training Led by 2 Airbus Cabin Crew Instructors	CEET Documentation: CCOM	JAR-OPs 1.1010 Appendix 1 (a) 1 + (c) (1)
Slides & Slide Rafts - Location of Slides - Location of Slide Rafts - Arming/Disarming - MIP - Recognition of Slide Ready - Recognition of Unusable Slide - Slide Descent from MD - Slide Descent from M3	To provide the trainee with practical training on slides/slide rafts. How to Arm/Disarm slides - location of MIP. Slide deployment sequence and slide monitoring. Commands at MD, UD and M3 exits			JAR-OPs 1.1010 Appendix 1 (d) + (h) (2)

Day	Objective/Duration	Location & Method	Training Media	JAR-OPS Ref
Day 2 (cont'd)				
Doors & Slides/Rafts Review & Questions	To review the practical exercises undertaken by the trainees on the CEET and to address any issues or questions.	Classroom	Videos of Slide Operations and Evacuations	
Day 3				
Emergency Procedures - Cabin Crew Evacuation Duties - Communication - Passenger Management - Crowd Control - On Ground Evacuation	To familiarise the trainee with the on ground evacuation procedures, cabin crew positions and duties. How to re-direct pax and control the flow at all exits. Duties for cabin crew with operative and non-operative exits. Crowd control management at exits.	Classroom Led & Observed by an Airbus Cabin Crew Instructor	Power Point Presentation Handout: Checklists Documentation: CCOM Videos	JAR-OPs 1.1010 Appendix A (e) (f)
Review & Test	Trainees to complete written test	Classroom		JAR-OPs 1.1025

Day	Objective/Duration	Location & Method	Training Media	JAR-OPS Ref
Day 3 (cont'd)				
Crowd Control Exercise - Operating Doors (active exits) - Directing Evacuation - Doors Blocked/Redirecting - Commands at Operable Doors - Commands at Inoperable Doors - Checking Slides Ready - Sequencing Pax at M3	To provide cabin crew with practical exercises in crowd control techniques and commands at useable/blocked exits.	CEET Led by 2 Airbus Cabin Crew Instructors	CEET	JAR-OPS 1.1010 Appendix A (e) (f)
DAY 4				
Aircraft visit	To familiarise the trainee with the layout of the cabin, the location of the emergency equipment, the positions for the safety briefing, pre-flight and emergency checklists and cabin secured procedure	Aircraft MSN 007 Evac config Led by 2 Airbus Cabin Crew Instructors	AMC 1.1012§4	JAR-OPS 1.1012

Appendix E – Crew Resource Management Training

Appendix 2 to JAR-OPS 1.1005/1.1010/1.1015

1. The CRM training syllabi, together with CRM methodology and terminology, shall be included in the Operations Manual.

2. Table 1 indicates which elements of CRM shall be included in each type of training.

Table 1 CRM Training:

Training Elements (a)	Introductory CRM Course (b)	Operator's CRM Training (c)	Aeroplane Type Specific CRM (d)	Annual Recurrent CRM Training (e)	Senior Cabin Crew Course (f)
General Principles					
Human factors in aviation General instructions on CRM principles & objectives					
Human performance & limitations	In depth	Not required	Not required	Not required	Overview
From the perspective of the individual cabin crew member					
Personality awareness, human error & reliability, attitudes & behaviours, self-assessment					
Stress & stress management					
Fatigue & vigilance				Overview	
Assertiveness	In depth	Not required	Not required	(3 year cycle)	Not required
Situation awareness, information acquisition & processing					
From the perspective of the whole aeroplane crew					
Error prevention & detection					
Shared situation awareness, information acquisition & processing					
Workload management					
Effective communication & co-ordination between all crew members including the flight crew as well as inexperienced cabin crew members, cultural differences	Not required	In depth	Relevant to the type (s)	Overview (3 year cycle)	Reinforcement (relevant to the Senior cabin crew duties)
Leadership, co-operation, synergy, decision-making, delegation					
Individual & team responsibilities, decision making & actions					
Identification & management of the passenger human factors: crowd control, passenger stress, conflict management, medical factors					
Specifics related to aeroplane types (narrow/wide bodies, single/multi deck), flight crew & cabin crew composition & number of passengers		Not required	In depth		

From the perspective of the operator and the organisation					
Company safety culture, SOP's, organisational factors, factors linked to the type of operations	Not required	In depth	Relevant to the type(s)	Overview (3 year cycle)	Reinforcement (relevant to the Senior cabin crew duties)
Effective communication & co-ordination with other operational personnel & ground services					
Participation in cabin safety incident & accident reporting					
Case based studies (see note)		Required		Required	

***Note**: In Column (d), if relevant aeroplane type specific case based studies are not available, then case based studies relevant to the scale & scope of the operation shall be considered*