

EASA	COMMENT RESPONSE DOCUMENT
	Proposed Special Condition on Passenger sleeping compartments Applicable to A380 Issue 1

Commenter 1 : Boeing (Commercial Airplanes)

Comment # [1] – Special Condition – 4)d)

The planned passenger sleeping compartments appear to be very similar to remote crew rest compartments that are currently installed on many large transport airplanes. As such, we consider that their design/operational requirements should be equivalent and thus both types of compartments are ensured the same level of safety. However, we have identified several areas of the proposed special conditions that are inconsistent with the comparable current requirements for crew rests.

Comment :

It is suggested to re-word the requirement 4)d) to get the same requirement as the remote crew rest compartment special conditions. The proposed sleeping quarters design is similar to and no worse than crew rests with regard to stowage compartments provided. As such, the requirements levied for this new sleeping quarter design should be consistent with past requirements on similar designs (i.e., crew rests). Further, the phrase “suitability of the provided stowage” is not defined and could add to confusion.

“4) There must be appropriate placards, inside and outside (as appropriate) each entrance to the passenger sleeping compartment to indicate:

...

d) That the passenger sleeping compartment is limited to the stowage of the compartment occupants’ personal belongings. ~~as limited by the suitability of the provided stowage provisions and must not be used for any other stowage.~~

EASA position: Disagreement.

EASA answer: The wording that the commenter would like to delete was introduced to ensure that only personal belongings could be taken into the passenger sleeping compartment that could be stowed in one of the provided stowage compartments/provisions. Personal belongings that would not fit

into the provided stowage places would not be allowed in the passenger sleeping compartment. However, it is understood that the wording could be improved. For clarification the following change to the existing special condition will be introduced.

New in SC 4):

d) That the passenger sleeping compartment is limited to the stowage of the compartment occupants' personal belongings. And is further limited by the suitability of the provided stowage provisions

e) The passenger sleeping compartment must not be used for any other stowage.

Comment # [2] – Special Condition – 7)

Adding the procedure for the crew to be responsible for the configuration of the doors to the sleeping quarters is consistent with current requirements applied to doors on mini-suites (which is a similar situation to the passenger sleeping compartment).

Comment :

It is suggested to re-word the requirement 7, as follows :

*7) Cabin crew procedures must include monitoring the access to the sleeping compartment **and ensuring doors to the sleeping quarters (if provided) are in their proper configuration for taxi, takeoff, and landing.***

EASA position: Agreement

EASA answer: CRI will be amended accordingly

Comment # [3] – Special Condition – 8)

To clarify that the aspects of CS 25.785(f), such as the weight of the occupants and inertia forces, are applicable to substantiate the berths for in-flight occupancy.

Comment :

It is suggested re-wording the requirement 8, as follows:

*"8) For each occupant permitted in the passenger sleeping compartment, there must be an approved seat or berth, **designed to meet the requirements of CS 25.785(f)**, that must be able to withstand the maximum flight loads when occupied."*

EASA position: Agreement .

EASA answer: CRI will be amended accordingly

Comment # [4] – Special Condition – 9)

The suggested change would include the requirements that are consistent with current requirements applied to doors on mini-suites (which is a similar situation to the passenger sleeping compartment).

Comment :

It is suggested re-wording the requirement 9, as follows:

*“9) If doors will be installed, there must be a means to preclude anyone from being trapped inside the passenger sleeping compartment. **Jamming of the doors must be considered. The doors must be openable from the inside or outside with 11.3 kg/25lb or less, regardless of power failure conditions.** If a locking mechanism is installed, it must be capable of being unlocked from the outside without the aid of special tools. The lock must not prevent opening from the inside of the compartment at any time.”*

EASA position: Disagreement

EASA answer: The passenger sleeping compartment is limited to inflight use only. In this case other means of compliance than the proposed ones can be considered. The existing CRI text is aiming to introduce similar requirements as for other existing compartments that are accepted for inflight use only (e.g. Crew rest compartments or lavatories). The text proposed by the commenter is taken from a CRI related to the installation of “mini suites”. Mini suites would be allowed for single occupancy during all phases of flight. In the case of occupancy during taxi, takeoff and landing the crash case and the associated emergency evacuation need to be considered.

Comment # [5] – Special Condition – 13)

The suggested change would clarify the requirement.

Comment :

It is suggested re-wording the requirement 13, as follows:

*“13) At least one Attendant Call Button must be provided in the sleeping compartment. The location must be obvious and reachable for each occupant while lying on the bed. **The current level of software approval driving the attendant call function is sufficient.**”*

EASA position: Agreement

EASA answer: CRI will be amended with the following wording: The current level of software approval driving the attendant call function is considered to be sufficient

Comment # [6] – Special Condition – 14)

The suggested changes would clarify the requirement by separating (1) the required action to provide the seat belts from (2) the required action to indicate when seat belts should be fastened.

Comment :

It is suggested re-wording the requirement 14, by breaking the requirement into two separate requirements as follows,:

“[New requirement] Seat belt type restraints substantiated per CS 25.785 must be provided for each seat and berth. For berths, the seat belt must be compatible for the sleeping attitude during cruise conditions.”

“14) There must be a means, readily detectable by seated, lying or standing occupants of the passenger sleeping compartment, which indicates when seat belts should be fastened. In addition for those provided for seats, seat belt type restraints must also be provided for berths and must be compatible for the sleeping attitude during cruise conditions. There must be a placard requiring that the berth restraints be fastened whenever the berth is occupied. If compliance with any of the other requirements of these special conditions is predicated on a specific lying orientation, there must be a placard identifying this position.”

EASA position: Agreement

EASA answer: CRI will be amended accordingly

Comment # [7] – Special Condition – 14)

The suggested changes would clarify the requirement so that it is clear that only one set of emergency equipment is required for the attendant station that is located near all of the sleeping quarters, and not that one set of emergency equipment is required for each sleeping quarter. This is consistent with how fire extinguishers are distributed in cabin configurations where, for example, one water fire extinguisher is located near a complex of four lavatories. This is based on the idea that the likelihood of multiple fires in the same location requiring multiple extinguishers at the same time is very remote

Comment :

It is suggested re-wording the requirement 16, as follows,:

*“16) The following safety equipment must also be provided outside and close to **an attendant station near the** passenger sleeping compartment for cabin crew use...”*

EASA position: Noted.

EASA answer: EASA agrees with the comment provided. The wording of the SC 16) will be amended as following: “The following safety equipment must be readily accessible outside to the passenger sleeping compartment for cabin crew use:” Similar to other wordings in CS 25 this would imply that the equipment can be at a cabin crew station if close enough and can serve more than one sleeping compartment.

Comment # [8] – Special Condition – 18)b)

The requirement, as proposed, is similar to actions required for remote [i.e., on a deck separated from the passenger deck(s)] crew rest compartments; yet these designs might be sufficiently simple such that precise firefighting procedures may not be necessary. Adding our suggested text allows for simple designs to be approached in a simpler manner and aligns with current practices in the cabin.

Comment :

It is suggested re-wording the requirement 18)b), as follows,:

“18) Firefighting precautions:

...”

*b) The firefighting procedures must describe the methods to search the passenger sleeping compartment for fire sources(s). Training and procedures must be demonstrated by test and documented in the suitable manuals. **If the design is such that it is readily apparent by a cabin attendant stepping into the sleeping quarters where the fire source is located, then additional training, procedures, and manuals are not required.**”*

EASA position: Agreement

EASA answer: CRI will be amended accordingly

Comment # [9] – Special Condition – 18)d)

The suggested revision would provide a clear definition of “large” in order to avoid confusion. The 57 cubic feet, as indicated, is consistent with other crew rest special conditions.

Comment :

It is suggested re-wording the requirement 18)d), by breaking the requirement into two separate requirements as follows,:

“18) Firefighting precautions:

...

d) Large enclosed stowage compartments (i.e., those greater than 1.6 cubic meters/57 cubic feet) with subsequent impact on the crewmembers’ ability to effectively reach any part of the compartment with the contents of a hand fire extinguisher are not allowed within the sleeping compartment.”

EASA position: Agreement

EASA answer: CRI will be amended accordingly

Comment # [10] – Special Condition – 18)e)

The requirement, as proposed, is similar to actions required for remote [i.e., on a deck separated from the passenger deck(s)] crew rest compartments; yet these designs might be sufficiently simple such that precise firefighting procedures and demonstrations may not be necessary. Adding our suggested text allows for simple designs to be approached in a simpler manner and aligns with current practices in the cabin.

Comment :

It is suggested re-wording the requirement 18)e), as follows,:

“18) Firefighting precautions:

...

e) It must be demonstrated that the complete sleeping compartment fire detection and fire fighting procedure can be conducted effectively without causing a hazard to passengers due to excess quantities of smoke and / or extinguishing accumulating and remaining in other

occupied areas. *If the design is such that it is readily apparent by a cabin attendant stepping into the sleeping quarters where the fire source is located, then additional demonstrations are not required.*"

EASA position: Noted.

EASA answer: The proposed change by the commenter is repeating a wording that is already agreed to be incorporated into SC 18 b). It is not necessary to repeat it again. No change to the existing wording.

Comment # [11] – Special Condition – 19

The requirement for aural warning is consistent with current requirements for remote crew rest compartments when crowd awareness cannot be guaranteed; however, previously-issued special conditions for crew rests have not required that the volume and duration of the aural warning be justified. The proposed special condition would be a new requirement imposed on this design, when the design differences between the proposed passenger sleeping compartment and a remote crew rest are not so great that new requirements are warranted.

Comment :

It is suggested re-wording the requirement 19, as follows,:

"19. There must be a supplemental oxygen system equivalent to that provided for passenger cabins for each seat and berth in the sleeping compartment (automatic drop down system with means by which the oxygen masks can be manually deployed from the flight deck). The system must provide an aural warning. ~~The aural warning sound volume and duration must be justified as being certain to wake any sleeping occupant of the sleeping compartment.~~ Simultaneously with mask drop it must be automatically assured that the lighting level in the sleeping compartment will be sufficient for occupants to locate a deployed oxygen mask."

EASA position: Partially agreed.

EASA answer: Instead of deleting the above sentence EASA decided to add the requirement introduced for the installation of crew rest compartments as guidance to SC 19). The CRI is amended as follows: *"The aural warning sound volume and duration must be justified as being certain to wake any sleeping occupant of the sleeping compartment (similar to crew rest compartments this could be a continuously sound for a minimum of five minutes or until a reset push button is pressed by the cabin crew)."*

Comment # [12] – Special Condition – 22

The added procedure for checking on the individuals in the sleeping quarters does not precede what most OEM and airline procedures currently recommend for these abnormal situations; which (for example, in the case of a decompression) is for the cabin attendant to sit down and fasten their seat belt until such time as it is safe to move about the cabin.

Comment :

It is suggested re-wording the requirement 22, as follows,:

*“22) A means must be provided to allow the cabin crew to determine the actions and demeanour of the occupants of the compartment at any time throughout the flight. The effectiveness of this means must be demonstrated and must allow for all possible lighting conditions and location of the compartment occupants. In the case of an abnormal situation e.g. depressurization, severe turbulence, etc, the mandatory procedure must be that the cabin crew enter the compartment for the purpose of checking the actions and demeanour of the occupants. **The procedures should be clear that the cabin crew performs the check once it is safe to move about the cabin.**”*

EASA position: Agreement

EASA answer: CRI will be amended accordingly

Comment # [13] – Special Condition –

It suggested to add a requirement similar to that is required for mini-suite installations with doors. While the current design of the sleeping quarters may be such that intuitively this requirement is met, future designs may not be so intuitive.

Comment :

It should be shown that those installations do not create any evacuation concerns due to their installation locations.

It is suggested adding a new requirement as follows :

“Installation of the sleeping quarters must not introduce any additional obstructions or diversions to evacuating passengers, even from other parts of the cabin.”

EASA position: Agreement

EASA answer: CRI will be amended accordingly

Comment # [14] – Special Condition –

Clarify that stowage compartments must meet the existing certification specifications applicable to stowage compartments.

Comment :

It is suggested adding a new requirement as follows :

“Stowage compartments provided in the sleeping quarters must meet the requirements of CS 25.787(a) and (b), and CS 25.1541.”

EASA position: Noted.

EASA answer: The CRI is meant to introduce additional requirements that are applicable to the installation of passenger sleeping compartments. The two paragraphs mentioned are part of the certification basis of A380 and applicable to all interior installations. Therefore the addition of CS 25.787(a) and (b), and CS 25.1541 to this CRI will not provide additional information.

Commenter 2 : Airbus Corporate Jet Centre

Comment # [1] – Special Condition – 1) 2) 3)

“Passenger Sleeping Compartments” are commonly installed on “Executive or VIP interiors”, and all the considerations expressed in this Special Condition have been subject for years to Special conditions known as “doors between passenger compartments” and “Isolated Compartments”.

There are numerous of convertible aeroplanes currently operating commercially with convertible areas that can be used for sleeping and
1) occupied during Taxi, Take-off and Landing (TT&L) phases and with a separating door locked open for TTOL (maintenance action), or
2) occupied with more than 2 occupants during flight.

Comment :

It is suggested to reword this Special Condition to avoid contradictions with usual Special Conditions on Isolated Compartments.

EASA position: Noted

EASA answer: No change necessary as the SC 1), 2) and 3) of this CRI are fully in line with the above mentioned.

Comment # [2] – Special Condition – 10)

The requirement 10 seems to be practically impossible to demonstrate (especially if combination of failures shall be taken into account) unless EASA has specific ideas on the compliance demonstration expected from the applicant.

Comment :

It is suggested to add more details on the requirement and acceptable means of compliance.

EASA position: Noted

EASA answer: The wording of this requirement is taken from similar CRI's related to the installation of crew rest compartments. Also existing lavatory designs would be considered to be compliant with this requirement as they are presenting a similar situation of an inflight use only compartment that can temporary be occupied by passengers.

Comment # [3] – Special Condition – 11)

The propositions included in the draft NPA of RMT 0264 highlight the need for a sufficient level of lighting in two main cases:

- Need for crew to have sufficient visibility to fight a fire (light control / easily reachable flashlight...)
- Need for passenger to have sufficient visibility to grab O2 masks in case of cabin depressurization.

The event of main power system failure has been specifically discussed, and the group ended up in a proposition to not consider such event anymore for reasons of excessive costs when compared to the safety benefit.

Actually, such requirement would impose a separate electrical system architecture in order to react to the identified failure case without having at the same time the adverse effects of:

- increasing the loads on the emergency power supply units EPSUs (batteries), and
- adversely affect the safety objectives addressed by the vertical transverse cut analysis of 25.XXX (by adding emergency lights that will not directly participate to an emergency evacuation as the compartment is not occupied in TTOL and not traversed in emergency evacuation).

Comment :

It is suggested re-wording the requirement 11, as follows,:

- ~~“11) There must be a means *in the event of failure of the aircraft's main power system, or of the normal passenger sleeping compartment lighting system,* for *emergency* illumination to be *automatically easily* provided for the passenger sleeping compartment.~~
- ~~a) *This emergency illumination must be independent of the main lighting system.*~~
- ~~b) *The sources of general sleeping compartment illumination may be common to both the emergency and the main lighting systems if the power supply to the emergency lighting system is independent of the power supply to the main lighting system.*~~
- ~~c) *The illumination level must highlight the exit (in particular the door handle) compared to other areas of the compartment.*~~
- ~~ad) The illumination level must be sufficient for each occupant of the passenger sleeping compartment to locate a deployed oxygen mask.~~
- b) The illumination level must be sufficient for crew to fight fires. It is acceptable that the light source be from sources that are external to the passenger sleeping compartment, such that a flashlight or light from other cabin areas (corridor).”**

EASA position: Disagreement

EASA answer: The draft NPA of RMT 0264 prepared by the Executive Interior requirements (EIR) working group would not be applicable to this proposed interior design on an A380. The requirements related to firefighting are detailed in SC 18. No change to the wording of the CRI.

Comment # [4] – Special Condition – 18)

The EASA should be more specific regarding the assessment criteria for compliance demonstration.

The time for a cabin attendant react to the fire alarm, to don the fire-fighting equipment and to gain access to the sleeping compartment can be very much discussed, as well as the time for the compartment to become smoke-filled which could be very dependent on the kind of fire. At the end, a demonstration could be very theoretical and compliant situation could not really have impact on the level of safety expected.

Comment :

It is suggested to provide more information on the expected designs, or removing the requirement as there is no beneficial impact on safety.

EASA position: Noted

**EASA answer: SC 18) is reflecting what is established and used since several years for the installation of crew rest compartments. The amount of smoke that will be generated for smoke detection tests was intensively discussed and agreed with the applicant during the certification exercise of the aircraft. Also there is guidance material available in form of FAA AC-9A. The aim here is to require a similar level of safety as accepted for other installations like crew rest compartments on the same aircraft.
No change to the wording of the CRI.**

Comment # [5] – Special Condition – 20)

ACJC disagree with the Condition 20 because Appendix F part II is about the introduction of fire retardant feature to prevent seat cushions contributing to spreading fire or generation of smoke in a post-crash environment.

The fact that the concerned mattresses are in closed unoccupied compartment, and that there is a requirement for containing smoke in [other dedicated] Special Condition [], there will be no increase in the level of safety by this requirement. This requirement will result only in a mass penalty for applicants.

This comment is also in line with discussions held in preparation of the draft NPA for Executive Interior Accommodations.

Comment :

It is suggested re-wording the requirement 20, as follows,:

"20) ~~Materials~~, seat cushions and mattresses ~~are not required to must~~ comply with the requirements of ~~CS25.853, including~~ CS25.853(c) ~~in the case of mattresses~~."

EASA position: Disagreement.

EASA answer: *An inflight fire starting in a remote compartment could lead to a catastrophic fire event. It is therefore EASA's position that every element that has the potential to reduce the risk of a catastrophic fire should be considered. Introducing CS25.853 (c) to the mattress of the bed has this potential. No change to the wording of the CRI.*