EASA REGULATORY IMPACT ASSESSMENT

EXTERNAL VIEWING MEANS

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AMENDMENT RECORD

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ABBREVIATIONS

ADB	Accident Database (of the CSRTG)
AMC	Acceptable Means of Compliance
ARFFS	Aircraft Rescue and Fire Fighting Service
ATSB	Australian Transport Safety Bureau
CCM	Cabin Crew Member
CS	Certification Specification
CSRTG	Cabin Safety Research Technical Group
EASA	European Aviation Safety Agency
EWIS	Electrical Wiring Interconnection System
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
NPA	Notice of Proposed Amendment
NTSB	National Transportation Safety Board (United States of America)
RIA	Regulatory Impact Assessment
SCCM	Senior Cabin Crew Member

1 PURPOSE AND INTENDED EFFECT

1.1 ISSUE WHICH THE NPA IS INTENDED TO ADDRESS

A study carried out for the EASA (Reference 1) involved a review of the current cabin safety threats and the degree to which they were addressed by CS-25 requirements. This study identified that issues related to "External Viewing Means" at Emergency Exits could be more effectively addressed by the requirements. Consideration has therefore been given to amending CS-25 in this respect. This Regulatory Impact Assessment (RIA) addresses the regulatory options available to the EASA to mitigate the threat and their potential impacts.

1.2 SCALE OF THE ISSUE

The EASA study (Reference 1) identified several accidents where the "External Viewing Means" was considered to be an issue regarding safe evacuation of occupants:

Toronto A340 July 2005
The Transportation Safety Board Canada (TSB) Accident Report (Reference 2) states:

> *"In this occurrence, the L3 cabin attendant did not use the viewing window to assess the exterior conditions because it was too small for her to clearly observe the conditions outside. She left the attendant station, went into the passenger seating area, looked out a cabin window, and saw the fire outside. She subsequently returned to the emergency exit, blocked it, and redirected passengers.*
>
> *The only thing visible to the L1 cabin crew through the viewing window was light. When the emergency exit was opened, it was usable.*
>
> *The R3 cabin attendant assessed the exterior conditions using the viewing window but did not see the fire below the exit or the wreckage in the slide deployment path. When the emergency exit door was opened, black smoke entered the cabin and the slide deflated when it contacted sharp pieces of wreckage.*
>
> *The R1 cabin attendant assessed the exterior conditions using the viewing window, but did not see that there was a creek outside until the exit was opened. When the slide deployed, the foot of it was very near the water. The cabin crew blocked the exit and redirected passengers.*
>
> *Although it was raining heavily, none of the cabin crew felt that their ability to visually assess the outside conditions was hampered by the rain." (ADB Ref. 20050802A)*

The TSB accident investigation report discussed the issue of viewing windows, citing a 1992 NTSB investigation into an accident on an L-1011 aircraft. The NTSB identified the risk to passenger safety created by cabin crew when they leave their emergency exit and enter the passenger seating area to assess exterior conditions.

The TSB Accident Report (Reference 2) states:

> *"In a 1992 investigation, the NTSB identified the risk to passenger safety created by cabin crew when they leave their emergency exit and enter the passenger seating area to assess exterior conditions. On 30 July 1992, during daylight hours, a Lockheed L-1011 was destroyed by fire after the crew executed a take-off followed by an immediate emergency landing at JFK. The cabin attendant responsible for exit L2 was unable to clearly see the conditions outside through the viewing window, and left her exit and moved to a passenger window to see the conditions outside. After assessing the conditions through the passenger window, she found it impossible to return to her exit because passengers blocked the aisle leading to it. Another cabin attendant assumed her position at the exit and, when told by the L2 cabin attendant that it was clear outside, opened the exit door, allowing passengers to escape from the burning aircraft.*
>
> *The NTSB examined a viewing window on another Lockheed L-1011 operated by the air carrier to determine why the cabin crew had been unable to clearly see the conditions outside through the viewing window. They found that several of the outside window panes were crazed or scratched to the extent that it was difficult to view the ground clearly. Some other window panes also had scratches or crazing that interfered with a clear view, especially when looking aft. Due to extensive fire damage, it could not be determined if the condition of the viewing windows on AFR358 contributed to the cabin attendant's difficulty in assessing the conditions outside the aircraft in this occurrence."*

Another problem with the current design of viewing windows is that, due to their location, some hazards may not be visible from the viewing window position:

Sydney B747 July 2003

The Australian Transport Safety Bureau (ATSB) Accident Report (Reference 3) states:

> *"The over-wing slide deployment did not directly hamper the ARFFS crew from fighting the fire in the right body landing gear. However, the close proximity of the slide to the wheel well may have presented a problem in the event of a more substantial fire, or if the fire had spread.*
>
> *The operator's evacuation procedures directed the cabin crew to look through the windows adjacent to their exit for signs of fire. If no fire was evident, they were to open the exit, deploy the slide and commence passenger evacuation.*
>
> *However, it was not possible to see the landing gear area from the over-wing exits or the adjacent windows. Therefore, during brake fires an accurate assessment of the extent of fire could not be obtained by viewing through the number- three left and right doors or adjacent windows and the potential to evacuate passengers into a fire hazard area existed." (ADB Ref. 20030702B)*

Following the investigation of this accident, the following safety recommendations were made by the ATSB:

> *Safety Recommendation R20050003*
> *The Australian Transport Safety Bureau recommends that Qantas Airways Ltd, review the adequacy of their procedures for the deployment of over-wing slides during known brake fire situations. This review should take into consideration the visual cues used and potential risk to passengers of evacuating within close proximity of a fire zone.*
>
> *Safety Recommendation R20050004*
> *The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority, review the adequacy of operator procedures for the deployment of over-wing slides during known brake fire situations. This review should take into consideration the visual cues used and potential risk to passengers of evacuating within close proximity of a fire zone.*

Stansted B737 February 2002

The inability to assess external hazards, by cabin crew, flight crew, or passengers, presents a danger to occupants during evacuation. Fire and rescue personnel might inform the flight crew regarding external hazards; however this is not always successful. This issue is illustrated by the following text contained within the AAIB Investigation report (Reference 4) into an occurrence at Stansted Airport, UK in February 2002:

> *"At approximately 1721:30 hrs, the commander ordered the passengers and crew to evacuate the aircraft. In accordance with Company Standard Operating Procedures, he left the decision as to which exits were to be used to the cabin crew. At that time 'Fire One' called the aircraft saying:*
>
> *"[Operator] FROM FIRE ONE, CAN YOU MAKE SURE YOU EVACUATE PORT SIDE"*
>
> *This was not acknowledged. The cabin crew opened the Type I exits at the front and rear of the cabin. The No 2 CCM found the forward right door (R1) difficult to open and sought the assistance of the SCCM after he had opened his door (L1). Likewise the No 3 CCM required help from a male positioning cabin crew member to open the rear right door (R2). Both the SCCM and the positioning crew member were each able to operate these doors unaided. Passengers opened the overwing exits. Four positioning cabin crew assisted the operating cabin crew during the evacuation. About 40 passengers evacuated onto the right side of the aircraft, including six onto the right wing. This placed them in the vicinity of the right engine and the area where the fire crews were directing their firefighting efforts. These six passengers were instructed by the fire crew to return inside the aircraft and seek an alternative exit. The passengers who evacuated on the left side used the doors. Members of the fire crew, cabin crew and airfield staff escorted the passengers away from the aircraft.*

The use of the over-wing slides during the evacuation, presented passengers with the potential hazard of being placed in close proximity to the fire source." (ADB Ref. 20020227B)

A similar problem was identified by the NTSB in a safety study of emergency evacuations of commercial airplanes (Reference 5) as follows:

Charlotte F100 November 1997

"The airplane landed normally, but then experienced a failure and separation of its right main landing gear. The first officer called the tower controller to report that the airplane had stopped on the runway and asked if there was any fire on the airplane. The tower responded, "No." Because of lack of fire, the captain ordered an evacuation through the R1 exit only. A flight attendant opened the door and inflated the slide. A passenger opened the overwing window exit at seat 12F prior to the evacuation notice but went forward after hearing the evacuation announcement. At the exit, the flight attendant was commanding, "Sit and slide." After 10–15 passengers evacuated, the first officer at the bottom of the slide noticed fire on the left main gear and ordered the right window exits to be used also. A passenger opened the overwing window exit at seat 11F. The flight attendants reported that many passengers attempted to take their belongings. There were no reported injuries. The only reported equipment problem was condensation that covered the viewer for assessing conditions outside the R1 door."

Although viewing windows are already installed on the exits on many aeroplanes in service, they are not required by CS-25. However, FAR 25.809 at amendment 25-116 requires an outside viewing means at emergency exits. This requirement is applicable to all type certificate applications made after November 26, 2004. The FAA did not require retrofit due to the technical difficulties and costs of modification.

The amended FAR Part 25 requirement (amendment 25-116) states:

Sec. 25.809 Emergency exit arrangement

(a) Each emergency exit, including each flightcrew emergency exit, must be a moveable door or hatch in the external walls of the fuselage, allowing an unobstructed opening to the outside. In addition, each emergency exit must have means to permit viewing of the conditions outside the exit when the exit is closed. The viewing means may be on or adjacent to the exit provided no obstructions exist between the exit and the viewing means. Means must also be provided to permit viewing of the likely areas of evacuee ground contact. The likely areas of evacuee ground contact must be viewable during all lighting conditions with the landing gear extended as well as in all conditions of landing gear collapse.

Unlike FAR Part 25, CS-25 does not require emergency exits to have outside viewing means. The current CS 25.809(a) reads:

(a) Each emergency exit, including a flight crew emergency exit, must be a movable door or hatch in the external walls of the fuselage, allowing unobstructed opening to the outside.

Several issues arise from both the in-service experience and the current regulations:

Passenger emergency exit viewing windows on current in-service aircraft have proven to be inadequate in certain accident scenarios. The evidence shows they may be susceptible to surface damage or condensation that reduces the ability of the cabin crew to see through them clearly. However, perhaps more importantly they may not provide a means for identifying all external threats to the escape path – in particular fires that are not located immediately outside of the exit and also in situations when there are inadequate external lighting levels (e.g. in darkness or conditions of smoke obscuration).

FAR 25.809 (a) is considered to be a good design objective. However, difficulties may arise in meeting the regulatory intent. The primary problem is in regards to finding a practical means of adequately illuminating the very large area onto which evacuee ground contact may occur (i.e. the various landing gear collapsed states result in revised fuselage attitudes which always move a fixed fuselage mounted spotlight beam in an adverse direction, i.e. away from the revised evacuee ground contact point).

1.3 BRIEF STATEMENT OF THE OBJECTIVES OF THE NPA

It is evident that a means of assessing the external conditions to determine whether an exit is safe to use is an important aspect in the safe evacuation of occupants. FAR 25.809 (a) requires that a viewing means is provided that permits viewing of the likely areas of ground contact during all lighting conditions. A similar requirement is not currently incorporated into CS-25 although many in-service aeroplanes are already equipped with viewing windows.

This Regulatory Impact Assessment considers options for amending CS-25 to add a requirement for external viewing means. Consideration is also given to:

1. Enhancing the levels of illumination required along the evacuee escape route to ensure that, for most of the accident scenarios likely to be encountered, the entire route is illuminated
2. Improving the acuity of the viewing means to ensure that the cabin or flight crew member is able to view the escape route without the need to move away from the emergency exit

2 OPTIONS

2.1 THE OPTIONS IDENTIFIED

Three regulatory options are considered in this Regulatory Impact Assessment:

Option 1 – Do Nothing

The "Do nothing" option means to make no changes to CS-25 to require external viewing means at emergency exits.

Option 2 – Amend CS-25 to reflect the current FAR 25.809 requirement regarding external viewing means at emergency exits

This option means to amend CS-25.809(a) to harmonise with FAR 25.809(a).

Compliance might be established by the use of viewing windows of the type installed in emergency exits on many current in-service aircraft or by the use of optical viewing devices. The viewing means would need to be optimised to maximise the area of ground viewable.

For passenger emergency exits, external lighting would be required with an illumination area sufficient to accommodate the likely locations of evacuee ground contact for all potential undercarriage collapse scenarios. The lighting source would probably need to be mounted in the fuselage. Depending on the length of the evacuation slide, the illuminated area may be relatively distant from the viewing window located at the exit, so it is therefore envisaged that the light intensity would need to be high, particularly on large aeroplanes. The light intensity would also need to be sufficient to overcome any loss in viewing capability caused by reflections of the cabin interior in the viewing window or by any loss of light that may be inherent in optical viewing devices. The resulting lighting system would require powerful external lamps. There may be potential for utilising the external emergency lighting system (required by CS 25.812), but it is likely that significant additional power would be necessary. The increased area of coverage could be provided by additional lamps or lamps with wider beams. The additional electrical power required for the lighting system, with attendant larger batteries, may result in a questionable cost/benefit balance.

There may be potential compliance difficulties on some aeroplanes caused by the wing blocking the view from an over-wing exit to the ground contact area.

For flight crew emergency exits, which generally utilise cockpit windows or roof mounted hatches, and often include an assist means comprising a rope, the ground contact area may be readily visible via the cockpit side windows. However, particularly on very large aircraft, visibility of the precise ground contact area may be difficult to achieve. As with passenger emergency exits, lighting of the ground contact area would be necessary.

The proposed amendments to CS-25 are as follows:

> ***CS 25. 809 Emergency exit arrangement***
>
> *(a) Each emergency exit, including each flightcrew emergency exit, must be a moveable door or hatch in the external walls of the fuselage, allowing an unobstructed opening to the outside. <u>In addition, each emergency exit must have means to permit viewing of the conditions outside the exit when the exit is closed. The viewing means may be on or adjacent to the exit provided no</u>*

obstructions exist between the exit and the viewing means. Means must also be provided to permit viewing of the likely areas of evacuee ground contact. The likely areas of evacuee ground contact must be viewable during all lighting conditions with the landing gear extended as well as in all conditions of landing gear collapse.

In addition to the text for the new requirement shown above, advisory material should be issued to address:

- The required illumination levels provided by the lighting system, taking into account the size of the aeroplane and length of the evacuation slides (if fitted).
- The field of view, location and level of acuity of the viewing means necessary in order for the outside conditions to be adequately assessed.
- Environmental effects likely to degrade the viewing acuity (e.g. scratching, crazing, condensation and internal reflections).

Option 3 – Carry out further research into external viewing means at emergency exits

Current external viewing means installed on aircraft may not always provide the cabin crew with the information required regarding the threat that might be posed to the occupant escape route; however these means are relatively inexpensive. Advances in technology may provide the desired levels of safety but may be prohibitively expensive. This option proposes research into current available technologies that may provide enhanced external viewing means that could be shown to be cost beneficial. The research that is needed for passenger and flight crew emergency exits is as follows:

1. Consideration of what is likely to constitute an evacuee escape route for aircraft of varying sizes and exit configurations. This should include the potential obstructions to the required viewing area both with the aircraft landing gear extended as well as in all conditions of landing gear collapse.
2. Identification of the possible options for external viewing means. These may be viewing windows or optical devices; however consideration should also be given to cameras that have the ability to view obstructions and fire threats that might be along or close to the likely evacuee escape route.
3. Consideration of issues highlighted by accident experience including degradation of viewing acuity caused by condensation or the effects of ageing including scratches and crazing.
4. The required light intensity levels and type/installation of illumination device(s) required to view the likely evacuee escape route. This may be dependent on the viewing means with optical devices possibly requiring higher levels of illumination.
5. Consideration of the required location of the viewing and illumination means taking into account any installation difficulties that might be involved in achieving the regulatory intent required by Option 2.
6. An assessment of the likely costs and potential improvements to safety of viewing means considered to be practical solutions.

2.2 THE PREFERRED OPTION SELECTED

After due consideration the Agency believes that **Option 3 – Carry out further research into external viewing means at emergency exits** is to be preferred.

3 SECTORS CONCERNED

The proposed regulatory change is to CS-25 and hence the aircraft affected will be those for which the application for a type certificate is made after the regulatory change considered in this RIA. All newly designed CS-25 aircraft will need to comply. The primary cost of the regulatory change will be borne by the aeroplane manufacturers. These costs will result from increases associated with the design, testing and manufacture of the required external viewing means. Aircraft operators will also be affected since the design solutions are likely to result in weight increases and additional maintenance. There will be a marginal cost to the EASA in their oversight of the manufacturer in showing compliance with the regulatory change and costs may also be incurred by the Agency if further research is carried out.

4 IMPACTS

Each option is considered separately in relation to regulatory change against the following impacts:

- Safety
- Economic
- Environmental
- Social
- Other aviation requirements outside of EASA scope
- Foreign comparable regulatory requirements

Equity and fairness issues are also addressed for each of the regulatory options.

4.1 OPTION 1 – DO NOTHING

4.1.1 Safety

Whilst many aircraft are equipped with external viewing means they are not required by regulation. The Do Nothing option will therefore mean that future aircraft designs may not have adequate viewing means at emergency exits. Whilst no determination has yet been made of the effects that this might have on occupant survival, the issues identified by accident investigating authorities, discussed in Section 1.2 of this RIA, will not be addressed, with a consequential adverse effect on occupant survival.

4.1.2 Economic

The Do Nothing option will result in the manufacturers and aircraft operators not bearing the costs associated with Option 2 and EASA not bearing the costs that might be associated with Option 3.

4.1.3 Environmental

There are no environmental issues associated with the Do Nothing option.

4.1.4 Social

There are no social impacts associated with the Do Nothing option.

4.1.5 Other aviation requirements outside EASA scope

There are no aviation requirements outside the EASA scope associated with this option.

4.1.6 Foreign comparable regulatory requirements

FAR 25.809(a) requires external viewing means at emergency exits. Adoption of the Do Nothing option will result in a lack of harmonisation between the EASA and FAA with regard to 25.809(a). Consequently, in the event of an aeroplane being newly type certificated to CS-25 requirements but not to FAR Part 25 requirements, viewing means at emergency exits will not be required. Whilst this may adversely affect the level of safety, this will not adversely affect the competitiveness of European industry.

4.1.7 Conclusions

Based on the rationales contained in Sections 4.2 and 4.3 and summarised in Section 5.1 regarding the alternative options it is concluded that this is not the preferred option.

4.2 OPTION 2 - AMEND CS-25 TO REFLECT THE CURRENT FAR 25.809 REQUIREMENT REGARDING EXTERNAL VIEWING MEANS

4.2.1 Safety

This option would introduce a requirement that increases the level of safety beyond what is currently afforded by CS-25 and would also provide harmonisation with the FAA requirements. However, some of the safety deficiencies identified by accident investigating authorities may not be fully addressed.

Compliance with the requirement may be achieved by installing viewing means similar to those that are often found on current in-service aircraft; however their design would need to be optimised to maximise the area of view. Also, significant additional exterior lighting will be required to allow viewing in all lighting conditions and this will require additional battery power on the aircraft.

There may be potential compliance difficulties on some aeroplanes, caused by the wing blocking the view from an over-wing exit to the ground contact area. Restricted view of the ground at cockpit emergency exits may also present compliance difficulties.

4.2.2 Economic

It is expected that to comply with Option 2, aeroplanes will need to be equipped with new and additional parts. This will add the following costs:-

(a) Manufacturers
Compliance with this requirement may not be straightforward and it is expected that significant research and development will be necessary to maximise performance whilst minimising economic impacts. These costs are expected to be high but may progressively reduce as more aeroplane types are certificated, since knowledge will be read across to new aeroplane designs. These development costs will be borne by the aeroplane manufacturers.

Parts will be required to be designed and tested. This is likely to be carried out by specialist suppliers and airframe manufacturers. The engineering cost of some parts may be amortised across more than one aeroplane type (e.g. high powered fuselage lamps with a suitable light beam). These costs will be borne by the aeroplane manufacturers and are expected to be minimal once amortised across many aeroplanes.

Material cost per aeroplane is expected to be minimal.

(b) Operators
Operators will incur marginal costs associated with increased maintenance due to additional parts.

The additional parts, including lamps, higher capacity batteries, EWIS and improvements to viewing windows or the addition of optical devices will increase aeroplane weight and thus there will be a fuel-weight penalty over existing designs. The additional weight will be roughly proportional to the number of emergency exits on an aeroplane, although it may be possible for lighting to be shared between a pair of adjacent over-wing exits. The exact weight increase is unknown at this stage, but it may be in the region of 1 to 2 kg per exit. It would appear that due to the additional electrical power required for the lighting system, with attendant larger batteries, there may be a questionable cost/benefit balance. Additional fuel costs due to aeroplane weight increase will be borne by the operators.

(c) EASA
There will be marginal costs incurred by EASA in their oversight of the manufacturer in showing compliance with the regulatory change.

4.2.3 Environmental

It is expected that to comply with Option 2, aeroplanes will need to be equipped with additional parts. Carbon dioxide emissions to the atmosphere will consequently increase, resulting from parts manufacture and increased fuel burn associated with increased aeroplane weight.

No other environmental impacts have been identified.

4.2.4 Social

There are no social impacts associated with this option.

4.2.5 Other aviation requirements outside EASA scope

There are no aviation requirements outside EASA scope associated with this option.

4.2.6 Foreign comparable regulatory requirements

FAR 25.809(a) requires external viewing means at emergency exits. Adoption of this option will result in harmonisation of the regulatory text between the EASA and FAA with regard to 25.809 (a). This would not adversely affect the competitiveness of European industry.

4.2.7 Conclusions

Based on the rationales contained in Sections 4.1 and 4.3 and summarised in Section 5.1 regarding the alternative options it is concluded that this is not the preferred option.

4.3 OPTION 3 – CARRY OUT FURTHER RESEARCH INTO EXTERNAL VIEWING MEANS AT EMERGENCY EXITS

4.3.1 Safety

The adoption of Option 3 will delay harmonisation between the EASA and FAA with regard to 25.809(a). This would adversely affect the level of safety if a new aeroplane design were to be certificated to CS-25 requirements and not to FAR Part 25 requirements.

4.3.2 Economic

It is unlikely that any research will be undertaken by organisations other than the world's primary Airworthiness Authorities – EASA, FAA and Transport Canada. Hence there will be an economic burden on these Authorities should this Option be adopted.

4.3.3 Environmental

This is not applicable to this research activity.

4.3.4 Social

There are no social issues associated with the research other than those that might relate to any testing that might be carried out (e.g. evacuation testing). It is expected that these will be accommodated by the procedures that will be put in place by the test facilities.

4.3.5 Other aviation requirements outside EASA scope

This is not applicable to this research activity.

4.3.6 Foreign comparable regulatory requirements

FAR 25.809(a) requires external viewing means at emergency exits. Adoption of this option will delay harmonisation between the EASA and FAA with regard to 25.809(a). Consequently, in the event of an aeroplane being newly type certificated to CS-25 requirements but not to FAR Part 25 requirements, viewing means at emergency exits will not be required. Whilst this may adversely affect the level of safety, this will not adversely affect the competitiveness of European industry.

4.3.7 Conclusions

Based on the rationales contained in Sections 4.1 and 4.2 and summarised in Section 5.1 regarding the alternative options it is concluded that Option 3 is the preferred option.

5 SUMMARY AND FINAL ASSESSMENT

5.1 COMPARISON OF THE POSITIVE AND NEGATIVE IMPACTS FOR EACH OPTION EVALUATED

Option 1 does not achieve the desired safety intent and would result in a lack of harmonisation with the FAA. Option 2 would introduce a new requirement and improve on the safety standard afforded by CS-25. However some of the safety deficiencies relating to external viewing means at emergency exits identified by accident investigating authorities may not be fully addressed. Compliance with this requirement may not be straightforward and it is expected that significant research and development will be necessary to maximise performance whilst minimising economic impacts. On this basis it is considered that further research is required, as defined for Option 3 in Section 2.1, prior to regulatory action being taken by the EASA.

5.2 A SUMMARY DESCRIBING WHO WOULD BE AFFECTED BY THESE IMPACTS AND ANALYSING ISSUES OF EQUITY AND FAIRNESS

5.2.1 The aeroplane manufacturers

Option 1 - Do Nothing
This option will have no impact on the aeroplane manufacturers.

Option 2 - Amend CS-25 to reflect the current FAR 25.809 requirement regarding External Viewing means
This option will result in an economic impact on aeroplane manufacturers, due mainly to increased engineering costs resulting from the research, design, development and installation of the required external viewing means. The costs incurred will be restricted to future type certificated aircraft.

Option 3 – Carry out further research into external viewing means at emergency exits
This option will have no impact on the aeroplane manufacturers.

5.2.2 The operators

Option 1 Do Nothing
This option will have no impact on the aircraft operator

Option 2 - Amend CS-25 to reflect the current FAR 25.809 requirement regarding External Viewing means
This option will result in an economic impact on aircraft operators due to the additional fuel burn associated with the weight of any external viewing means that might not have otherwise been installed on the aircraft. Operators will also incur marginal costs associated with increased maintenance due to additional parts.

Option 3 – Carry out further research into external viewing means at emergency exits
This option will have no impact on the aircraft operator

5.2.3 EASA

Option 1 - Do Nothing
This option will have no impact on the EASA.

Option 2 - Amend CS-25 to reflect the current FAR 25.809 requirement regarding External Viewing means
This option will result in a small economic impact on the EASA due to the rulemaking activity required and the subsequent oversight of the industry to ensure compliance with the proposed regulatory change.

Option 3 – Carry out further research into external viewing means at emergency exits
This option could have an economic impact on the EASA in contributing to the funding required for research. However, the level of commitment from EASA may be reduced by combining the research with any that may be undertaken by the FAA and Transport Canada.

5.2.4 Issues of equity and fairness

There are no issues of equity and fairness associated with any of the regulatory options considered in this Regulatory Impact Assessment.

5.3 FINAL ASSESSMENT AND RECOMMENDATION OF A PREFERRED OPTION

Based on the assessments made in this Regulatory Impact Assessment the preferred option is **Option 3 - Carry out further research into external viewing means at emergency exits.**

6 REFERENCES

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