Proposed Equivalent Safety Finding to JAR 25.815

Applicable to B737-700- VIP interior

Introductory note:

The hereby presented Equivalent Safety Finding has been classified as an important ESF and as such shall be subject to public consultation, in accordance with EASA Management Board decision 02/04 dated 30 March 2004, Article 3 (2.) of which states:

"2. Deviations from the applicable airworthiness codes, environmental protection certification specifications and/or acceptable means of compliance with Part 21, as well as important special conditions and equivalent safety findings, shall be submitted to the panel of experts and be subject to a public consultation of at least 3 weeks, except if they have been previously agreed and published in the Official Publication of the Agency. The final decision shall be published in the Official Publication of the Agency."

Statement of Issue

On a Boeing 737-700 IGW, a VIP cabin interior, for private use only, has been developed, reviewed and certified by EASA, under the EASA STC reference EASA.A.S.02752.
The initial intention, aircraft operations for private purposes only, has been extended to commercial use.
Consequently of this extension of the operational scope, compliance with JAR 25.815 (JAR 25 Change 13), requiring a certain width of the main aisle during all phases of flight, need to be addressed.

The proposed reduction of the minimum aisle width to 9 inches (“) between passenger seats in the main lounge forward of the Type III emergency exit pair in flight does not comply with this requirement considering the passenger seating capacity of 17.

The main aisle in the VIP seating area is reduced in two positions to 9” instead of 12” by the footrests of VIP seats, below 25” in height, and reduction to 9” instead of 20” in one position above 25” in height, where the backrest of the installed VIP seats have the potential to reduce the aisle to 9”.

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Design Proposal:

The proposed design reduces the aisle during flight in 3 consecutive rows of VIP seats.

- The two foremost rows consist of one each single seat left of the main aisle and two each single seats on the R/H side. Each L/H single seat can be rotated inboard so that the fully extended legrest would reduce the aisle width to slightly

more than 9 inches. In the rotated position, the sidewall prohibits reclining the backrest.

- The third seat row consists of one seat installed on the L/H side. It will reduce the aisle width when facing aft, tracked inboard and reclined, and when the R/H inboard seat in row 2 is in the same position, but forward facing at the same time. In this case there are only 9 inches left between the two more or less horizontally reclined backrests with free space above and underneath them. Rotation of these two seats is deactivated by design so that their backrests are parallel.

Justification:

All other cabin areas are fully compliant. It is particularly emphasized that the entire cabin is fully compliant during Taxi, Takeoff and Landing configuration.

The portion of the cabin where the in-flight aisle width can be reduced below the requirements of JAR 25.815 comprises only three rows of VIP seats. The reduced aisle width is compensated as follows:

- There is sufficient headroom to walk upright and there is wide open space above the seats. The absence of overhead bin stowage compartments in this portion of the cabin provides a larger headroom and wide open space above the seats what enables occupants to move more freely and quickly.

- Each seat that can reduce the aisle width below the requirements of JAR 25.815 can easily be moved away from the aisle by lifting the respective lever in the armrest.

- A main obstacle for moving along a typical 737 airliner aisle could be a trolley that can only be passed very slowly as it fills the entire width of the aisle. This can particularly be excluded in the case discussed here, because the reduced aisle width excludes the use of a trolley at the same time.

- Both features are typical of VIP cabins in 737-700 series airplanes and allow the fast and undisturbed passage between passenger seats. The level of safety is also equivalent to that found in compliant 737-700 aircraft.

- There are Type III overwing exits in excess of the required emergency exit configuration with respect to the seating arrangement for 17 passengers.

Safety Equivalency Demonstration:

The Equivalent Level of Safety Finding (ESF) that will allow seat positions to have the potential to reduce the minimum aisle width to 9” is substantiated by the following facts:

- It is acknowledged that when the seats are in the proper Taxi, Takeoff and Landing (TT&L) configuration the criteria of 12” (below 25” height) and 20” (above 25” height) are met.

- The reduced aisle width will only be allowed during flight. For the in-flight cases, it was demonstrated that all parts of the cabin are easy to access despite the reduced aisle width of 9".This is supported by the relatively large cabin diameter of B737 and the installed VIP interior.

- For commercial operation a cabin crew member will be required to ensure that the cabin layout is in the proper TT&L configuration. The passengers will be briefed prior to each flight.

- Appropriate placards are installed to mandate the TT&L position. The correct Taxi, Take-Off and Landing configuration is also provided in the associated STC AFM Supplement.

- For emergency evacuation, all regulations are met when the seats are in TT&L configuration.
  Nevertheless, because the aircraft is configured with twice as much exits than the minimum number required, in case of evacuation with seats not in TT&L configuration, only 6 passengers might be affected by a reduced aisle width. Such a case is comparable to the situation encountered by window seat passengers in a standard certified economy class seating configuration on B737 aircraft.