Table 1: Assessment statement analysis

Question number	Notes and questions to assist with the assessment statement analysis
1.	Review the instructions for continued airworthiness. Review the drawing system. Inspect the aeroplane's configuration.
2.	Can crew members observe the COG installation? Check the area where the COG is installed. Isolated areas such as galleys, lavatories, crew rests, enclosed occupied compartments, and lower lobe lavatory complexes are potential areas of concern and require further evaluation. Are crew members close to the COG installation during their normal duties? Are there physical barriers between the crew members and the area being evaluated? Is there significant distance between the crew members and the area being observed? How accessible is the COG? Is the COG installation surrounded by curtains? Curtained areas are also considered potential areas of concern and may require further evaluation.
3.	Are there locks on doors/access panels to prevent access? Are there tamper-resistant fasteners on panels? Are alarms or some other active alerting tamper indication method part of the installation's design?
4.	Check if the COG can be compromised in place. Assess the vulnerability of the adjacent materials to contain the compromised device. Assess the ability of the compartment to contain the event. Check if the COG can be removed.

(b) Installation of tamper-resistant features

Tamper-resistant design features can be used, in whole or in part, to make a COG installation secure. There are different types of tamper-resistant design features, and their functionality largely depends on the installation. The principal benefit of tamper-resistance is to delay exploitation of the COG as a weapon. However, it is not likely that an existing COG installation that can be accessed from within the lavatory could be modified with tamper-resistant design features sufficient to prevent a successful attack. This is because typical measures of tamper-resistance, such as special tools and fasteners, could likely be overcome given enough time. These measures are normally used as one of several layers of security. Thus, the reliance on such measures is only one element of the security system.

(1) A tamper-resistant installation employs multiple elements, which may include:

(i) the COG's location;

(ii) the method of mounting;

(iii) physical protection (through shielding or mechanical isolation of key components); and

(iv) internal design.

(2) Eliminating access to the COG is the most straightforward way to make the COG tamper-resistant. Typically, this can be done by placing the COG in a location where significant disassembly of the cabin interior would be required to gain access. For example, the COG for a lavatory could be located so that the entire lavatory module

would have to be removed to access the COG. However, the installer should also consider the ramifications on maintenance when this approach is used.

(c) Installation of tamper-evident features

(1) For COGs that can be accessed from isolated compartments, such as lavatories, some form of active tamper-evidence (for example, an alert) would be needed in addition to the installation of tamper-resistant features. This is necessary so that the time to intervene and stop the attack is less than the time required to carry out the attack. In this case, passive tamper-evident features, such as a tamper-evident seal, are not effective because they provide an after-the-fact notification of tampering. The effectiveness of a tamper-evident system depends on intervention; it cannot be assumed that the alarm by itself would inhibit the attack.

(2) Once an alert is activated indicating that the COG is being tampered with, actions by crew members and other available, authorised responders are necessary to prevent catastrophic damage to the aeroplane. Therefore, there is a critical relationship between the tamper-evidence system and the training and capability of the crew to respond. To be most effective, crew training should be accomplished prior to the alarm feature being deployed into the fleet. The time needed to successfully respond to the alarm may be several minutes and depends on several factors. The time available to respond to a threat and intervention times are functions of not only the design features but also of many complex and human factor-dependent variables that are difficult to define. These variables include but are not limited to the individual capabilities and numbers of flight attendants/authorised responders relative to the terrorists/accomplices, as well as the extensiveness of the training received.

(3) In order to be effective, the alerting system must itself be resistant to tampering. Otherwise, the entire concept of using the early notification to crew could be nullified and the COG accessed without impediment.

(d) System safety considerations

The applicant should consult AMC 25.1309 for guidance on compliance with CS 25.1309.

(e) Hazard classification. Failure of tamper-resistant or tamper-evident features should be considered major.

(f) System performance when installed

A tamper-evidence system installed for compliance with CS 25.795(d) is intended to notify crew members that someone is trying to gain access to a COG. The system should provide aural and visual warnings to immediately notify crew members so that they can provide direct response in a timely manner. For example, visual indication should be provided so that crew members can identify which COG location is being tampered with while performing their normal duties. Aural alerts should be distinct from other alerts and clearly audible to the crew members expected to respond to the alert. If an alert is provided to the flight crew, the alert should be presented in accordance with CS 25.1322.

5. Areas that are immediately obvious

For COG installations located where any attempt to access would be immediately obvious, additional safety measures are not required. Immediately obvious areas include the main passenger cabin and other areas where occupants are always present. While some measure of tamper-resistance is encouraged for these locations, none is required to meet CS 25.795(d). Private compartments (such as a lavatory) or visually divided sections of larger cabin areas are assessed independently. The 'immediately obvious' criterion applies to the specific location of each COG installation, not simply the general area in which it is located. In addition, the installation should be evaluated under all conditions that may exist during a flight. So, for example, if tampering would be immediately obvious except when a curtain is pulled to provide privacy, the installation should be evaluated based on the curtain being arranged in a way that most conceals the installation. As with tamper-evident designs, crews should be made aware that tampering with any COG is a safety risk, and any necessary information should be incorporated into the training programmes.

[Amdt 25/17]

EMERGENCY PROVISIONS

CS 25.801 Ditching

ED Decision 2014/026/R

(a) If certification with ditching provisions is requested, the aeroplane must meet the requirements of this paragraph and CS 25.807(i), 25.1411 and 25.1415(a).

(b) Each practicable design measure, compatible with the general characteristics of the aeroplane, must be taken to minimise the probability that in an emergency landing on water, the behaviour of the aeroplane would cause immediate injury to the occupants or would make it impossible for them to escape.

(c) The probable behaviour of the aeroplane in a water landing must be investigated by model tests or by comparison with aeroplanes of similar configuration for which the ditching characteristics are known. Scoops, wing-flaps, projections, and any other factor likely to affect the hydrodynamic characteristics of the aeroplane, must be considered.

(d) It must be shown that, under reasonably probable water conditions, the flotation time and trim of the aeroplane will allow the occupants to leave the aeroplane and enter the life rafts required by CS 25.1415. If compliance with this provision is shown by buoyancy and trim computations, appropriate allowances must be made for probable structural damage and leakage. If the aeroplane has fuel tanks (with fuel jettisoning provisions) that can reasonably be expected to withstand a ditching without leakage, the jettisonable volume of fuel may be considered as buoyancy volume.

(e) Unless the effects of the collapse of external doors and windows are accounted for in the investigation of the probable behaviour of the aeroplane in a water landing (as prescribed in sub-paragraphs (c) and (d) of this paragraph), the external doors and windows must be designed to withstand the probable maximum local pressures.

[Amdt 25/15]

AMC 25.801 Ditching

ED Decision 2021/015/R

EASA accepts the relevant parts of Federal Aviation Administration (FAA) AC 25-17A 'Transport Airplane Cabin Interiors Crashworthiness Handbook', of 24 May 2016, as an acceptable means of compliance with CS 25.801(d).

Note: 'relevant parts' means the AC 25-17A parts that address the applicable Federal Aviation Regulation (FAR)/CS-25 paragraph(s).

[Amdt No: 25/27]

CS 25.803 Emergency evacuation

ED Decision 2003/2/RM

(See AMC 25.803)

(a) Each crew and passenger area must have emergency means to allow rapid evacuation in crash landings, with the landing gear extended as well as with the landing gear retracted, considering the possibility of the aeroplane being on fire.

(b) Reserved.

(c) For aeroplanes having a seating capacity of more than 44 passengers, it must be shown that the maximum seating capacity, including the number of crew members required by the operating rules for which certification is requested, can be evacuated from the aeroplane to the ground under simulated emergency conditions within 90 seconds. Compliance with this requirement must be shown by actual demonstration using the test criteria outlined in Appendix J of this CS-25 unless the Agency find that a combination of analysis and testing will provide data equivalent to that which would be obtained by actual demonstration.

AMC 25.803 Emergency evacuation

ED Decision 2020/024/R

The relevant parts of FAA Advisory Circular (AC) 25-17A Change 1, *Transport Airplane Cabin Interiors Crashworthiness Handbook*, dated 24.5.2016 and AC 25.803-1A *Emergency Evacuation Demonstrations*, dated 3.12.2012 are accepted by the Agency as providing acceptable means of compliance with CS 25.803.

Note: 'The relevant parts' means 'the parts of AC 25-17A Change 1 that address the applicable FAR/CS-25 paragraph'.

[Amdt 25/11]
[Amdt 25/12]
[Amdt 25/26]

CS 25.807 Emergency exits

ED Decision 2020/024/R

(See AMC 25.807)

(a) Type. For the purpose of this CS-25, the types of exits are defined as follows:

(1) Type I. This type is a floor level exit with a rectangular opening of not less than 61 cm (24 inches) wide by 121.9 cm (48 inches) high, with corner radii not greater than 20.3 cm (8 inches).

(2) Type II. This type is a rectangular opening of not less than 50.8 cm (20 inches) wide by 111.8 cm (44 inches) high, with corner radii not greater than 17.8 cm (7 inches). Type II exits must be floor-level exits unless located over the wing, in which case they must not have a step-up inside the aeroplane of more than 25.4 cm (10 inches) nor a step-down outside the aeroplane of more than 43.2 cm (17 inches).

(3) Type III. This type is a rectangular opening of not less than 50.8 cm (20 inches) wide by 91.4 cm (36 inches) high, with corner radii not greater than 17.8 cm (7 inches), and with a step-up inside the aeroplane of not more than 50.8 cm (20 inches). If the exit is located over the wing, the step-down outside the aeroplane may not exceed 68.6 cm (27 inches).

(4) Type IV. This type is a rectangular opening of not less than 48.3 cm (19 inches) wide by 66.0 cm (26 inches) high, with corner radii not greater than 16.0 cm (6.3 inches), located over the wing, with a step-up inside the aeroplane of not more than 73.7 cm (29 inches) and a step-down outside the aeroplane of not more than 91.4 cm (36 inches).

(5) Ventral. This type is an exit from the passenger compartment through the pressure shell and the bottom fuselage skin. The dimensions and physical configuration of this type of exit must allow at least the same rate of egress as a Type I exit with the aeroplane in the normal ground attitude, with landing gear extended.

(6) *Tail cone*. This type is an aft exit from the passenger compartment through the pressure shell and through an openable cone of the fuselage aft of the pressure shell. The means of opening the tail cone must be simple and obvious and must employ a single operation.

(7) *Type A.* This type is a floor-level exit with a rectangular opening of not less than 106.7 cm (42 inches) wide by 182.9 cm (72 inches) high, with corner radii not greater than 17.8 cm (7 inches).

(8) *Type B*. This type is a floor-level exit with a rectangular opening of not less than 81.3 cm (32 inches) wide by 182.9 cm (72 inches) high, with corner radii not greater than 15.3 cm (6 inches).

(9) *Type C*. This type is a floor-level exit with a rectangular opening of not less than 76.2 cm (30 inches) wide by 121.9 cm (48 inches) high, with corner radii not greater than 25.4 cm (10 inches).

(b) *Step down distance*. Step down distance, as used in this paragraph, means the actual distance between the bottom of the required opening and a usable foot hold, extending out from the fuselage, that is large enough to be effective without searching by sight or feel.

(c) *Over-sized exits*. Openings larger than those specified in this paragraph, whether or not of rectangular shape, may be used if the specified rectangular opening can be inscribed within the opening and the base of the inscribed rectangular opening meets the specified step-up and step-down heights.

(d) Asymmetry. Exits of an exit pair need not be diametrically opposite each other nor of the same size; however, the number of passenger seats permitted under subparagraph (g) of this paragraph is based on the smaller of the two exits.

(e) Uniformity. Exits must be distributed as uniformly as practical, taking into account passenger seat distribution. (See AMC 25.807(e))

(f) Location. (See AMC 25.807(f))

(1) Each required passenger emergency exit must be accessible to the passengers and located where it will afford the most effective means of passenger evacuation.

(2) If only one floor-level exit per side is prescribed, and the aeroplane does not have a tail cone or ventral emergency exit, the floor-level exits must be in the rearward part of the passenger compartment unless another location affords a more effective means of passenger evacuation.

(3) If more than one floor-level exit per side is prescribed, and the aeroplane does not have a combination cargo and passenger configuration, at least one floor-level exit must be located on each side near each end of the cabin.

(4) For an aeroplane that is required to have more than one passenger emergency exits for each side of the fuselage, no passenger emergency exit shall be more than 18.3 m (60 feet) from any adjacent passenger emergency exit on the same side of the same deck of the fuselage, as measured parallel to the aeroplane's longitudinal axis between the nearest edges.

(g) Type and number required. The maximum number of passenger seats permitted depends on the type and number of exits installed on each side of the fuselage. Except as further restricted in subparagraphs (g)(1) through (g)(9) of this paragraph, the maximum number of passenger seats permitted for each exit of a specific type installed on each side of the fuselage is as follows:

Type A	110
Type B	75
Type C	55
Type I	45
Type II	40
Type III	35
Type IV	9

(1) For a passenger seating configuration of 1 to 9 seats, there must be at least one Type IV or larger over-wing exit on each side of the fuselage or, if over-wing exits are not provided, at least one exit on each side that meets the minimum dimensions of a Type III exit.

(2) For a passenger seating configuration of more than 9 seats, each exit must be a Type III or larger exit.

(3) For a passenger seating configuration of 10 to 19 seats, there must be at least one Type III or larger exit on each side of the fuselage.

(4) For a passenger seating configuration of 20 to 40 seats, there must be at least two exits, one of which must be a Type II or larger exit, on each side of the fuselage.

(5) For a passenger seating configuration of 41 to 110 seats, there must be at least two exits, one of which must be a Type I or larger exit, on each side of the fuselage.

(6) For a passenger seating configuration of more than 110 seats, the emergency exits on each side of the fuselage must include at least two Type I or larger exits.

(7) The combined maximum number of passenger seats permitted for all Type III exits is 70, and the combined maximum number of passenger seats permitted for two Type III exits on each side of the fuselage that are separated by fewer than three passenger seat rows is 65.

(8) If a Type A, Type B, or Type C exit is installed, there must be at least two Type C or larger exits on each side of the fuselage.

(9) If a passenger ventral or tail cone exit is installed and that exit provides at least the same rate of egress as a Type III exit with the aeroplane in the most adverse exit opening condition that would result from the collapse of one or more legs of the landing gear, an increase in the passenger seating configuration is permitted as follows:

(i) For a ventral exit, 12 additional passenger seats.

(ii) For a tail cone exit incorporating a floor-level opening of not less than 50.8 cm (20 inches) wide by 152.4 cm (60 inches) high, with corner radii not greater than 17.8 cm (7 inches), in the pressure shell and incorporating an approved assisting means in accordance with CS 25.810(a), 25 additional passenger seats.

(iii) For a tail cone exit incorporating an opening in the pressure shell which is at least equivalent to a Type III emergency exit with respect to dimensions, step-up and step-down distance, and with the top of the opening not less than 142.2 cm (56 inches) from the passenger compartment floor, 15 additional passenger seats.

(h) Other exits. The following exits must also meet the applicable emergency exit requirements of CS 25.809 through 25.812, and must be readily accessible:

(1) Each emergency exit in the passenger compartment in excess of the minimum number of required emergency exits.

(2) Any other floor-level door or exit that is accessible from the passenger compartment and is as large or larger than a Type II exit, but less than 116.8 cm (46 inches) wide.

(3) Any other ventral or tail cone passenger exit.

(i) Ditching emergency exits for passengers. Whether or not ditching certification is requested, ditching emergency exits must be provided in accordance with the following conditions, unless the emergency exits required by subparagraph (g) of this paragraph already meet them:

(1) For aeroplanes that have a passenger seating configuration of nine seats or less, excluding pilot seats, one exit above the waterline in each side of the aeroplane, meeting at least the dimensions of a Type IV exit.

(2) For aeroplanes that have a passenger seating configuration of 10 seats or more, excluding pilot seats, one exit above the waterline in a side of the aeroplane, meeting at least the dimensions of a Type III exit for each unit (or part of a unit) of 35 passenger seats, but no less than two such exits in the passenger cabin, with one on each side of the aeroplane. The passenger seat/exit ratio may be increased through the use of larger exits, or other means, provided it is shown that the evacuation capability during ditching has been improved accordingly.

(3) If it is impractical to locate side exits above the waterline, the side exits must be replaced by an equal number of readily accessible overhead hatches of not less than the dimensions of a Type III exit, except that for aeroplanes with a passenger configuration of 35 seats or less, excluding pilot seats, the two required Type III side exits need to be replaced by only one overhead hatch.

(j) Flight crew emergency exits. For aeroplanes in which the proximity of passenger emergency exits to the flight crew area does not offer a convenient and readily accessible means of evacuation of the flight crew, and for all aeroplanes having a passenger seating capacity greater than 20, flight crew exits must be located in the flight crew area. Such exits must be of sufficient size and so located as to permit rapid evacuation by the crew. One exit must be provided on each side of the aeroplane; or, alternatively, a top hatch must be provided. Each exit must encompass an unobstructed rectangular opening of at least 48.3 cm by 50.8 cm (19 by 20 inches) unless satisfactory exit utility can be demonstrated by a typical crew member.

[Amdt 25/4]
[Amdt 25/5]
[Amdt 25/6]
[Amdt 25/12]
[Amdt 25/18]
[Amdt 25/19]
[Amdt 25/26]

AMC 25.807 Emergency exits

ED Decision 2020/024/R

The term 'unobstructed' should be interpreted as referring to the space between the adjacent wall(s) and/or seat(s), the seatback(s) being in the most adverse position, in vertical projection from floor - level to at least the prescribed minimum height of the exit.

The relevant parts of FAA Advisory Circular (AC) 25-17A Change 1, *Transport Airplane Cabin Interiors Crashworthiness Handbook*, dated 24.5.2016 are accepted by the Agency as providing acceptable means of compliance with CS 25.807.

Note: 'The relevant parts' means 'the parts of the AC 25-17A Change 1 that address the applicable FAR/CS-25 paragraph'.

[Amdt 25/12]
[Amdt 25/19]
[Amdt 25/26]

AMC 25.807(f) Passenger emergency exits

ED Decision 2012/008/R

The optimum fore and aft location of Types I, II and III exits should be agreed between the applicant and the Agency bearing in mind the relevant considerations, including –

a. The varying likelihood of damage to different parts of the fuselage in emergency landing conditions, and

b. The need to avoid the passengers having to evacuate the aeroplane where dangerous conditions (spilt fuel, hot engine parts, etc.) may exist.

[Amdt 25/11]
[Amdt 25/12]

AMC 25.807(e) Emergency Exits Uniformity

ED Decision 2017/015/R

FAA Advisory Circular 25.807-1 'Uniform Distribution of Exits', dated 08/13/90 is accepted by EASA as providing acceptable means of compliance with CS 25.807(e).

However, this Advisory Circular does not provide any guidance for those aeroplanes required to have no more than one pair of emergency exits. For those aeroplanes, ensuring that the seat-to-exit distance remains within acceptable limits as per the following criteria provides an acceptable means of compliance with CS 25.807(e).

Each passenger seat approved for use during taxiing, take-off or landing should be located such that:

(i) it is within 9.14 m (30 ft) from the nearest emergency exit on one side of the fuselage, and within 13.72 m (45 ft) from the nearest emergency exit on the other side of the fuselage; and

(ii) the occupant of that seat has the possibility to move to an emergency exit, on the left side, or the right side of the fuselage, whilst at all points along the way remaining within 9.14 m (30 ft) from an emergency exit on one side of the fuselage and within 13.72 m (45 ft) from an emergency exit on the other side of the fuselage.

When calculating the distance from a passenger seat, or from any point in the egress path of an occupant, to an emergency exit, this distance should be taken as the total longitudinal distance (i.e. as measured parallel to the aeroplane's longitudinal axis) that the escapee should cover in order to get to the emergency exit in question (i.e. the distance calculated should take into account all required changes in direction of movement but measured only longitudinally). For the distance from a passenger seat, as the starting point, the front edge of the seat bottom cushion at the centreline, with the seat in the taxiing, take off, and landing position is to be taken for seats installed at any orientation. The end point in each case is to be taken as the nearest edge of the emergency exit opening in the fuselage.

For aeroplanes with a passenger seating configuration of 19 or less, only one pair of emergency exits is required. However, such aeroplanes may have additional exits installed, which must then comply with CS 25.807(h) but not with the 18.3-m (60-feet) rule of CS 25.807(f)(4). The distance between each passenger seat and the nearest available emergency exit may be determined considering all available emergency exits, including the ones addressed by CS 25.807(h).

[Amdt 25/19]

CS 25.809 Emergency exit arrangement

ED Decision 2015/019/R

(See AMC 25.809)

(a) (1) 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.

(2) Each emergency exit, including a flight crew emergency exit, must have means to permit viewing of the conditions outside the exit when the exit is closed, in all ambient lighting conditions with the landing gears extended or in any condition of collapse. The viewing means may be on or adjacent to the exit provided no obstructions exist between the exit and the viewing means. (See AMC 25.809(a))

(3) For non-over-wing passenger emergency exits, a means must also be provided to permit viewing of the likely areas of evacuee ground contact when the exit is closed with the landing gears extended or in any condition of collapse. Furthermore, the likely areas of evacuee ground contact must be viewable with the exit closed during all ambient lighting conditions when all landing gears are extended.

(b) Each emergency exit must be openable from the inside and the outside except that sliding window emergency exits in the flight crew area need not be openable from the outside if other approved exits are convenient and readily accessible to the flight crew area. Inward opening doors may be used if there are means to prevent occupants from crowding against the door to an extent that would interfere with the opening of the door. Each emergency exit must be capable of being opened, when there is no fuselage deformation –

(1) With the aeroplane in the normal ground attitude and in each of the attitudes corresponding to collapse of one or more legs of the landing gear; and

(2) Within 10 seconds measured from the time when the opening means is actuated to the time when the exit is fully opened.

(3) Even though persons may be crowded against the door on the inside of the aeroplane.