

SUBJECT : **User Defined Approaches**

REQUIREMENTS incl. Amdt. : **CS 25.1301, 25.1302, 25.1309 and 25.1523 at Amendment 15**

ASSOCIATED IM/AMC¹ : Yes / No

ADVISORY MATERIAL : **N/A**

INTRODUCTORY NOTE:

The following Deviation has been classified as important and as such shall be subject to public consultation in accordance with EASA Management Board decision 12/2007 dated 11 September 2007, Article 3 (2.) 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."

IDENTIFICATION OF ISSUE:

In the certification activity of a new Flight Management System, the Applicant reported the presence of the User Defined Approach (UDA) function accessible to the crew. This feature allows to support operations on airfields for which no approved or published approach procedures are available.

Presence of this function within the FMS impairs compliance with the related CS 25 specifications CS 25.1301, 25.1302, 25.1309 and 25.1523.

The Applicant is not intending to perform neither a physical removal of the item (e.g. equipment, switches, antennas, etc.) not the inhibition of the function (e.g. SW pin-programming).

The Agency therefore intends to accept the proposal of the applicant to prohibit the use of this function for the certification of the FMS, hence requesting a Deviation to the requirements applicable to the UDA function.

Considering the above, the following Deviation is proposed:

¹ In case of SC, the associated Interpretative Material and/or Acceptable Means of Compliance may be published for awareness only and they are not subject to public consultation.

Deviation to CS 25.1301, 25.1302, 25.1309 and 25.1523 at Amendment 15²**User Defined Approaches**1. Deviation against CS 25.1301 (a)(1) and (a)(2) at Amendment 15

CS 25.1301(a)(1) and (a)(2), states:

(a) *Each item of installed equipment must –*

(1) *Be of a kind and design appropriate to its intended function;*

(2) *Be labelled as to its identification, function, or operating limitations, or any applicable combination of these factors.*

Compliance with CS 25.1301(a)(1) and (a)(2) does not need to be demonstrated for a prohibited UDA function.

2. Deviation against CS 25.1302 (a) (b) and (c) at Amendment 15

CS 25.1302(a)(b)(c), states:

a) *Flight deck controls must be installed to allow accomplishment of these tasks and information necessary to accomplish these tasks must be provided.*

(b) *Flight deck controls and information intended for flight crew use must:*

(1) *Be presented in a clear and unambiguous form, at resolution and precision appropriate to the task.*

(2) *Be accessible and usable by the flight crew in a manner consistent with the urgency, frequency, and duration of their tasks, and*

(3) *Enable flight crew awareness, if awareness is required for safe operation, of the effects on the aeroplane or systems resulting from flight crew actions.*

(c) *Operationally-relevant behaviour of the installed equipment must be:*

(1) *Predictable and unambiguous, and*

(2) *Designed to enable the flight crew to intervene in a manner appropriate to the task.*

A prohibited UDA function does not need to be evaluated against Human Factors compliance.

3. Deviation against CS 25.1309(a)(1) and (b) at Amendment 15

CS 25.1309(a)(1), states:

(a) *The aeroplane equipment and systems must be designed and installed so that:*

(1) *Those required for type certification or by operating rules, or whose improper functioning would reduce safety, perform as intended under the aeroplane operating and environmental conditions.*

Compliance with CS25.1309 (a)(1) and (b) for a prohibited UDA function does not need to be demonstrated.

² Note: The above amendment is used as the baseline for the Deviation used on the project that triggered this public consultation. Applicants may make use of the final Deviation at another amendment level if the text of the affected Certification Specifications is found identical.

4. Deviation against CS 25.1523 (a),(b) and (c) at Amendment 15

CS 25.1523(a)(b) and (c) states:

(a) The workload on individual crew members;

(b) The accessibility and ease of operation of necessary controls by the appropriate crew member; and

(c) The kind of operation authorised under CS

The applicant does not need to evaluate a prohibited UDA function against impact on crew workload.

Mitigating Factors

EASA has determined the following mitigating factors for the acceptance of the identified deviations in order to ensure compliance with the essential requirements of Annex II to Regulation (EU) 2018/1139:

- A. The applicant shall demonstrate that the UDA function does not give any risk to the safe flight of the aircraft by undertaking a Risk Assessment with regards of the presence of the UDA feature. This should show:
 - a. what testing and validation has been performed for the intended function of the UDA
 - b. what would the consequence on aircraft level be from an erroneously activated function
 - c. that the feedback to the crew is salient enough to ensure that an erroneously activation will be recognised
- B. The AFM shall be updated with limitations prohibiting the use of the UDA function.
- C. A salient placard shall be installed in the flight deck, restating the AFM limitation, in a location clearly visible for the crew.
- D. The Applicant will develop a training item to inform the crew that the UDA function is not certified and hence is not approved for use.
- E. The applicant will demonstrate that there is no impact of the UDA function on any other FMS function, by undertaking a comprehensive assessment, which includes a review of the software architecture and all relevant problem reports.
- F. The Applicant will identify the parts of the Safety and HF assessment relevant to the UDA inadvertent activation.

Fulfilment of those mitigation factors has been assessed to comply with the following Essential Requirements of Annex II of Regulation (EU) 2018/1139: point 1.3.2, point 1.3.3, point 1.3.4, point 1.3.5, point 2.1, point 2.1(a), point 2.1(b), point 2.1(e), point 2.3, point 2.3(c).