Proposed Equivalent Safety Finding to CS 23.1545(b)(4) : Airspeed Indicator – ASI Flap Markings

Statement of Issue

The hereby presented Equivalent Level Of Safety (ELOS) to the EASA Certification Basis shall be subject to public consultation, in accordance with EASA Management Board decision 12/2007 dated 11 September 2007, 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."

Background

CS-23, all amendment level (as well as the except for some editorial differences identical US standard FAR-23) include a specific wording in respect to airspeed marking of the airspeed indicator

The relevant parts of CS 23, 23.1545(b)(4) at amendment 3 reads as follows.

> ***23.1545 Airspeed indicator.***
> *(b) The following markings must be made:*
> *(4)For the flap operating range, a white arc with the lower limit at V_{S0} at the maximum weight, and the upper limit at the flaps-extended speed V_{FE} established under CS 23.1511.*

With modern integrated avionics suite and glass cockpits the speed tape, as used in large aeroplanes and required by OPS rules, has been introduced also to the GA aeroplanes. With that in place, there is no possibility anymore to show a white arc as required.

The prescriptive regulation requiring the white arc was written having the old analog indications in mind. The intention behind the white arc is to indicate to the pilot a safe speed range for operation of the aeroplane with flaps extended, without overstressing the structure. In addition it shows the pilot in advance reaching a speed limit (either end of the white arc) when accelerating or decelerating.

Safety Equivalency Demonstration

Based on existing experience on different aircraft types the following ELOS applicable to non-analog airspeed indicating systems for flap speeds is acceptable to EASA:

For the flap operating range, instead of a white arc as required in CS 23.1545(b)(4), an unmistakeable white marking for the range between the lower limit at V_{S0} at the maximum weight, and the upper limit at the flaps-extended speed V_{FE} established under CS 23.1511, with the markings giving the pilot sufficiently in advance indication of reaching a speed limit for the operation with flaps extended, may be used.