

Equivalent Safety Finding to CS 25.145, 25.147, 25.149, 25.161, 25.175, 25.177, 25.181, 25.201, 25.233, 25.237 at amendment 2.

1. Introductory note

The hereby presented equivalent safety finding 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".

2. Statement of issue

For a change installing winglets on Dassault Aviation Mystère Falcon 50 aeroplane, the applicant is requested to show compliance with the following requirements at CS 25 amendment 2: 25.145, 25.147, 25.149, 25.161, 25.175, 25.177, 25.181, 25.201, 25.233, 25.237.

Dassault Aviation Mystère Falcon 50 aeroplane was originally certified in accordance with VSMIN criteria (JAR 25 change 14 or prior JAR 25 changes), whereas current applicable EASA regulations (from JAR 25 change 15 and further JAR/CS changes/amendments) require VS1G criteria.

3. Applicant proposal

The applicant performs a back to back flight test comparison of VS1G between the modified and the unmodified aeroplane, and if no regression in VS1G is shown, then VSMIN, which is the reference stall speed of the unmodified aeroplane, will be kept as well as the reference stall speed of the modified aeroplane.

Therefore, for the modified aeroplane all the original reference velocities of the unmodified aeroplane that are based on VSMIN will be kept as well: JAR/CS 25 Subpart B, Performance, paragraphs 25.103 to 25.125.

With the certification strategy for the determination of the reference speeds, direct compliance with the above mentioned requirements 25.145, 25.147, 25.149, 25.161, 25.175, 25.177, 25.181, 25.201, 25.233, 25.237, at CS 25 amendment 2 is not achieved, as the relevant trim speeds are factorised in terms of VS1G.

4. Safety Equivalency Demonstration

The trim speeds being factorised in terms of VSMIN, considering the typical 0,94 factor between VSMIN and VS1G, this provides an equivalent level of safety than the direct compliance with the requirements

The details are summarized in the following table (the data in the third column is used in lieu of the corresponding data in the fourth column):

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Paragraph	Subject	Trim Airspeed ($V_{S_{MIN}}$ Basis), to be Used for Winglet Flight Test	Current Amdt. Trim Airspeed (V_{S10} Basis)
25.145(b)(1) – (4)	Longitudinal control.	$1.4 V_{S1}$	$1.3 V_{SR1}$
25.145(b)(1)		40 percent	30 percent
25.145(b)(6)		$1.4 V_{S1}$	$1.3 V_{SR1}$
		$1.1 V_{S1}$	V_{SW}
		$1.7 V_{S1}$	$1.6 V_{SR1}$
25.145 (c)		$1.2 V_{S1}$	$1.13 V_{SR1}$
25.147(a), (a)(2), (c), (d)	Directional and lateral control.	$1.4 V_{S1}$	$1.3 V_{SR1}$
25.149	Minimum control speed.	$1.2 V_S$	$1.13 V_{SR}$
25.161(b), (c)(1), (c)(2), (c)(3), (d)	Trim.	$1.4 V_{S1}$	$1.3 V_{SR1}$
25.175(a)(2), (b)(1), (b)(2), (b)(3), (c)(4)	Demonstration of static longitudinal stability.	$1.4 V_{S1}$	$1.3 V_{SR1}$
25.175(b)(2)(ii)		$V_{MO} + 1.4 V_{S1}/2$	$(V_{MO} + 1.3 V_{SR1})/2$
25.175(c)		$1.1 V_{S1}$ and $1.8 V_{S1}$	V_{SW} and $1.7 V_{SR1}$
25.175(d)		$1.1 V_{S0}$ and $1.8 V_{S0}$	V_{SW} and $1.7 V_{SR0}$
25.175(d)		$1.4 V_{S0}$	$1.3 V_{SR0}$
25.177	Static lateral-directional stability.	$1.2 V_{S1}$	$1.13 V_{SR1}$
25.181(a), (b)	Dynamic stability.	$1.2 V_S$	$1.13 V_{SR}$
25.201(a)(2)	Stall demonstration.	$1.6 V_{S1}$	$1.5 V_{SR1}$
25.233(a)	Directional stability and control.	$0.2 V_{S0}$	$0.2 V_{SR0}$
25.237(a), (b)(1) and (b)(2)	Wind velocities.	$0.2 V_{S0}$	$0.2 V_{SR0}$