



## COMMENT RESPONSE DOCUMENT

EASA SC No. SC-OVLA-div03-issue1 “IFR operation for VLA”  
 [Published on the 01-Sep-2014 and officially closed for comments on the 02-Oct-2014]

**Commenter 1 :CAA UK – date 03-Oct-2014**

### Comment # 1

**Paragraph No:** Whole proposal

**Comment:** As a general principle, these Special Conditions should recognise that any existing type-approved CS-VLA aeroplane has been assessed for suitability for flight by day/VMC only. Such assessments are likely to have resulted in an aircraft which may be acceptable while visibility is good, but which may well become unacceptable in IMC conditions. If extension of the operating envelope to night and/or IMC is required then compliance must be assessed in the most adverse combinations of conditions which can reasonably be expected in service and for which approval is sought.

Compliance of the type’s flight characteristics (controllability, manoeuvrability, trim, stability and stalling) should be re-assessed in these cases by qualified test pilot using the CS-23 Flight Test Guide material as this is the best and most proportionate source of guidance that is available. This should include the critical issue of pilot workload assessment in IFR conditions.

**Justification:** The basic CS-VLA code is intended for VFR conditions only and assessment of aeroplanes will have been made in that context.

**Proposed Text (if applicable):**

### **EASA response:**

#### **Accepted**

The comment is agreed. This is normally done at level of the individual project. No requirement or AMC is needed to cover this aspect, nevertheless in the “Statement of Issue”, the following text will be introduced:

*For aircraft that have been already approved for VFR (day or night), it might be necessary to reassess the compliance to some requirements considering the operating envelope of IFR.*

**Comment # 2**

**Paragraph No:** Whole proposal applicability – night operations

**Comment:** CS-VLA Amdt. 1 limits its scope to day only operations. Although the justification refers to the previous applicability to VFR-night conditions, it is not clear whether these SC are to include these provisions.

**Justification:** Consistency is required with the applicability of CS-VLA and these Special Conditions.

**Proposed Texts (if applicable):** If the SCs for night operations are to be included, then amend SCVLA.1 Applicability to clarify the scope of these SCs:-

*This airworthiness code is applicable to aeroplanes with a single engine (spark- or compression- ignition) having not more than two seats, with a Maximum Certificated Take-off Weight of not more than 750 kg and a stalling speed in the landing configuration of not more than 83 km/h (45 knots)(CAS), to be approved for **day and night conditions and** VFR and IFR. (See AMC VLA 1.)*

**EASA response:****Accepted**

Following text will be included in SCVLA.1: “..to be approved for day and night VFR and IFR..”

**Comment # 3**

**Paragraph No:** Applicability of the proposal (page 18).

**Comment:** CS-VLA Amdt. 1 limits its scope to non-icing and non-lightning conditions. Yet in these IFR operations Special Conditions, SCVLA.1323d) states “If certification for instrument flight rules or flight in icing conditions is requested...”. This is incorrect. However, SCVLA.1559 (Operating limitations placards) contains correctly revised wording for the placard:- "This aeroplane is classified as a very light aeroplane approved for day VFR only or day and night VFR or IFR, whichever is applicable, in **non-icing and non-lightning** conditions”. Therefore, SCVLA.1323(d) needs be corrected, to be consistent.

**Justification:** Consistency is required within the applicability of CS-VLA and Special Conditions.

**Proposed Texts (if applicable):**

Correct SCVLA.1323(d) as follows:-

*d) If certification for instrument flight rules ~~or flight in icing conditions~~ is requested, each airspeed system must have a heated pitot tube or an equivalent means of preventing malfunction due to icing.*

**EASA response:**

**Accepted**

Proposed correction will be included.

**Comment # 4**

**Paragraph No:** SCVLA.1351

**Comment:** Paragraph (g) states “It must be shown by analysis, tests or both, that the aeroplane ... with critical type fuel (from the standpoint of flameout and restart capability), ...”. Yet CSVLA.1 and SCVLA.1 booth maintain the applicability to aeroplanes with one spark- or compression-ignition engine.

**Justification:** Consistency is necessary with the applicability of the CS-VLA and Special Conditions.

**Proposed Text (if applicable):** Amend paragraph (g) as follows:-

*(g) It must be shown by analysis, tests or both, ... with critical type fuel (from the standpoint of ~~flameout and~~ restart capability), ...”*

**EASA response:**

**Accepted**

Proposed correction will be included.

**Commenter 2: AOPA – date 30-Sep-2014****Comment # 5****Justification.**

This has been provided on Page 1 in terms of providing more flexibility for VLA design and operational possibilities. The phrase “increasing the applicability of CS-VLA” is another way of saying that the airworthiness requirements set out in CS-23 are more relaxed, or less stringent. Technical development of VLAs is mentioned, as is application to VFR-night with no safety implications. However, there is no logical reason for the relaxation of airworthiness based on the VLA specification *per se* in the airworthiness code. It follows, therefore, that a similar relaxation to CS-23 is possible.

The same applies to the ‘strategic and tactical approach for lightning protection’ through the use of warning devices for weather avoidance. Whilst operationally feasible, this seems to be driven by a recognition of the use of advanced non-metallic materials in an innovative way for the aircraft structure, rather than the fact that a VLA is defined by the type of engine, number of seats, the MTOW and stalling speed. Should not such facility be extended to CS 23 aeroplanes? Why should innovation in the design of CS 23 aeroplanes be stifled by comparison?

The justification needs to be more carefully thought out.

**EASA response:****Noted**

This is a special condition for aeroplanes certified according to CS-VLA requirements. Rulemaking task RMT.0498 “reorganisation of CS-23” intends to cover aeroplane currently certified under CS-23 and CS-VLA. Comment will be forwarded to the rulemaking group.

**Comment # 6**

SC AMCVLA 181(c)

Figures for the period and damping of the phugoid dynamic flight mode appear here with, as far as I can discern, no equivalent in CS 23. Using an approximation found in the textbooks of period being roughly equal to one quarter of the trimmed airspeed in knots, the statement ‘near neutrally stable if the period is less than 15 sec’ equates to if the trimmed airspeed is less than 60 knots. For ‘motions with longer period’, this equates roughly to faster than 60 knots, but ‘the time to double amplitude should be greater than 55 sec’ seems to be a misquote from the textbooks, e.g. McCormick<sup>1</sup>, in which this figure is quoted for Level 3 on the Cooper-Harper Scale, covering the worst three pilot ratings (7 to 9), in other words, undesirable but flyable. Pilot ratings 1 to 3 represent the most desirable handling characteristics. Avoidance of an unstable phugoid within the speed range of the aircraft may be achieved by appropriate definition of the rearmost position of the c.g.

**EASA response:****Noted**

The guidance of the flight test guide of CS 23 has been used for SC AMCVLA 181(c). In fact at page 2-FTG-2-66, (paragraph 75a(2) related to CS 23.181 DYNAMIC STABILITY, states:

*“The long period or phugoid oscillation is characteristically lightly damped, sometimes even unstable. Mild levels of instability are acceptable as long as they do not significantly interfere with normal piloting tasks such as trimming to a desired speed, holding altitude, or glide slope tracking. Useful guidelines are that the oscillation should be near neutrally stable if the period is less than 15 sec., or, for motions with longer period, the time to double amplitude should be greater than 55 sec.”*

**Comment # 7**

SCVLA 1431

A VLA with only two seats cannot be operated on a multi-crew basis. If the seat other than the pilot's is occupied, it can only be either by an examiner, instructor, or passenger. This paragraph needs revision.

**EASA response:**

**Not accepted**

There is no requirement in the CS VLA code that prohibits a multi crew. While it is acknowledged that this is unlikely to happen, it is not forbidden.

**Commenter 3: DGAC – date 26-Sep-2014****Comment # 8**

Generic comment on "icing or non-icing conditions" : SCVLA.1 and 1525 do not exclude "icing condition" certification. But considering this aeroplane category, and that 23.929 and 23.1419 requirements are not included in this SC, we understand that is not EASA intend to authorise CSVLA in "icing condition". If it is the case, we suggest to delete "or in icing condition" wording in paragraphs 1323(d), 1325 (f), to modify CSVLA.1525 wording, and to add in SCVLA.1 clear limitation as "in non-icing condition"

**EASA response:****Accepted**

The requirements will be revised as suggested. In particular: SCVLA 1323 (d) will be corrected (see also Comment 3); SCVLA 1325 (a3) and (f) will be deleted. SCVLA 1525 will be corrected; SCVLA.1 will be corrected.

**Comment # 9**

SCVLA.1091 (b) is replaced by requirements issued from CS23.1091 (b) (1) & (2). Why CS23.1091 (b) (3), (4) & (5) have not been added ?

**EASA response:****Accepted**

The requirements will be added.

**Comment # 10**

SCVLA.1143 : Delete "for reciprocating single engine aeroplanes". It is the definition of a CSVLA aeroplane.

**EASA response:****Accepted**

Proposed correction will be included.

**Comment # 11**

SCVLA.1147 : Replace « Each » by « The » as « The manual engine mixture.... »

**EASA response:****Accepted**

Proposed correction will be included.

**Comment # 12**

SCVLA.1182 : Add an exception provision from SCVLA.1351(e) as provided by CS23.1182

**EASA response:****Accepted**

SCVLA.1182 will be added as follows:

SCVLA.1182:

*In addition to CS-VLA.1182 the following applies:*

*Components lines and fittings subject to the provision of CS-VLA.1351 (e) are excepted.*

See also comment 19

**Comment # 13**

SCVLA.1305 (b) (1) Delete « Each » as « For turbocharger installation..... »

**EASA response:****Accepted**

Proposed correction will be included.

**Comment # 14**

Generic comment on HIRF and lightning : We concur with the SC AMC VLA 867 and 954 about lightning. What about HIRF? Based on the NPA 2014-16, we think that we have to put effort to harmonize requirements and to put them more readable and obvious for the applicant. If SCVLA 1306 and 1308 requirements are created, a similar SC.AMC than for 867 & 954 can be developed with appendices G & K added. If it is agreed, paragraph 1309 (e): can be modified by deletion of "including radio frequency energy and the effects (both direct and indirect) of lightning strikes".

If paragraphs 1306 and 1308 are not added we suggest to create an AMC SCVLA.1309 to put reference to AC 23-1309, HIRF and lightning guidances.

**EASA response:****Accepted**

It is agreed that requirements should be harmonized and written in a more obvious way and in this regard it is acknowledged the effort of NPA 2014-16. On the other hand, being not yet in place the requirements 23.1306 and 23.1308, putting them in this SC could be misleading. The intent of the comment is nevertheless well received and the SC VLA.1309 (g) and SC AMC VLA.1309 (e) will be introduced to better address them.

See also comment 23.

**Comment # 15**

SCVLA.1325 (f) in relation with our first comment replace « For aeroplanes prohibited from flight under known icing conditions in accordance with SCVLA.1325, sub paragraph (b)(3) does not apply » by « « For aeroplanes prohibited from flight under known icing conditions in accordance with SCVLA.1525, sub paragraph (b)(3) does not apply »

**EASA response:****Accepted**

Proposed correction will be included. SCVLA.1325 (f) and (b3) will be deleted.

See also comments 8, 34, 35.

**Comment # 16**

SCVLA.1325 (d) : Delete « For unpressurised aeroplane » because it is not relevant in this category.

**EASA response:****Accepted**

Proposed correction will be included.

**Comment # 17**

SCVLA.1337 : In addition to the requirement of CSVLA.1337 the following applies (b) (6) There must be a means to indicate the amount of usable fuel in each tank when the aeroplane is on the ground (such as by a stick gauge). We suggest to add this requirement because fuel shortage is still a cause of engine stop and is more critical during IFR operations.

**EASA response:****Accepted**

Proposed correction will be included.

**Comment # 18**

AMC SCVLA.1351(a)(2) : Correct SpC by SC

**EASA response:****Accepted**

Proposed correction will be included.

**Comment # 19**

12- SCVLA.1359 (a) : refer to SCVLA.1182 and VLA.863

**EASA response:****Accepted**

The intent of the comment is met by the following action: SCVLA.1359 (a) will be modified as follows:

- a) *Components of the electrical system must meet the applicable fire protection requirements of SCVLA.1182 and CS VLA.863.*

See also comment 12.



**Comment # 20**

SCVLA.1559 : Replace §(b) by « b) A placard stating that this aeroplane is classified as a very light aeroplane and that specifies the kind of operations to which the operation of the aeroplane is limited or from which it is prohibited under SCVLA.1525. ». An AMC SCVLA.1559 could be created to provide an example of placard.

**EASA response:****Accepted**

Proposed correction will be included. The text will be

*“b) A placard stating 'This aeroplane is classified as a very light aeroplane (and that specifies the kind of operations to which the aeroplane is limited or from which it is prohibited under SCVLA.1525). All aerobatic manoeuvres including intentional spinning are prohibited. See Flight Manual for other limitations'.”*

**Comment # 21**

SCVLA.1585 : « (h) For each aeroplane showing compliance with SpC VLA 1353 (g)(2) or (g)(3) » replace by « (h) For each aeroplane showing compliance with CSVLA.1353 (g)(2) or (g)(3) »

**EASA response:****Accepted**

Proposed correction will be included.

**Commenter 4: B. Moitre – date 20-Sep-2014****Comment # 22****On the Justification :**

- The safety objective in terms of overall target while adopting the Spec. Condition should be better explained and supported with rationale.
- It is not agreed that lightning protection preventing catastrophic effect due to lightning could be pursued and effectively demonstrated by “ tactical and strategic approach “only. It is possible to get lightning day or night conditions ; for IFR operations equipment deserving essential or critical functions should in any case be protected.

**EASA response:****Partially Accepted**

The first point of the comment is accepted and the section “justification” will be revised to better explain the safety objective of the special condition: the following text will be added:

*“..This strategic/.tactical approach is deemed to provide the level of safety intended for CS-VLA aeroplanes.”*

The second point of the comment is not fully accepted. Although in fact the risk of a lightning strike cannot be completely excluded even also under VMC conditions and protection from direct and indirect effect of lightning will never be guaranteed 100% for small aeroplanes (lightning above the testing threshold can occur), it is believed that the presence on board of detect equipment will reduce and mitigate the risk to an accepted safety target in line with small CS-VLA aeroplanes. Furthermore, from the perspective of safety objective, it is believed that, by having aeroplanes capable of flying IFR - at more affordable prices - the number of IFR flights will increase and this will have a positive impact since:

- It will promote IFR licensing (and it will be easier to maintain it);
- This will increase pilot skills and awareness through more frequent use of IFR;
- A larger airspace will be available to pilots with expected positive impact on safety (e.g. more available airspace for weather avoidance).

**Comment # 23**

**EMI protection** required for cases where equipment EMI susceptible and critical for the safety of flight would be implemented. It seems appropriate to consider that for IFR conditions the EMI protection has to be considered particularly when extensive use of composite materials is made

**EASA response:****Accepted**

The comment is agreed and the SCVLA.1309(e) already addresses HIRF as requirement. Nevertheless, an AMC will be introduced that describes the approach to follow. See also comment 14.

**Comment # 24**

It is suggestible to clearly identify how the Special Condition has been conceived and to specify by reference to which CS 23 Amendment. Identification of the corresponding FAR 23 Amendment should also be inserted in order to facilitate /reduce the burden of validation exercise.

**EASA response:****Partially Accepted**

It is accepted to clarify the amendment of CS 23. The following text will be put in the justification: “CS-23 amendment 3 has been used as reference for the applicable requirements.”

It is not accepted to put a reference to a FAR 23 amendment since FAR 23 has not been used for this special condition. The FAA certification basis currently used for validation of European VLA aeroplanes is based on CS VLA (using the a “Special Class” of FAR 21.17(b).) and FAA material is available to define the FAA certification basis (for a VLA aeroplane in VFR day). See also comment 37.

**Comment # 25**

It is suggested to consider and address in the preamble the potential for already certified CS VLA aircraft limited to VFR Day for which the TCH intends to apply for extension to IFR ( elimination of the limitation ). This is seen as highly recommendable for reasons pertaining to the fair competition other than foreseen by Part 21 through application for Major Changes to Type Design.

**EASA response:****Accepted**

Although the final aim of the comment is not fully clear, by adding the following text in the “Justification” of the special condition, it is believed that the intent of the comment has been satisfied:

“..

*Aircraft already certified for VFR day or night operation will have the potential to extend their type of operations to IFR via a major change to the type design.*

*The reference for this special condition is the basic CS-VLA code amendment 1. Aircraft certified for DAY-VFR operation will have to apply this special condition in its full content. Aircraft certified for night-VFR operation which meet the standards set by the existing special condition SC-VFR Night VLA 01, may take some credit of the already shown compliance. This shall be assessed at individual project level.*

**Comment # 26**

**Language consistency** : the structure of the Special Condition should be as far as possible clear and consistent. Within the Proposed text a number of differentiating approaches are used. It would be suggestible to standardize the language. [ as examples in the text it can be found : a) *Replace .....by ..... ;* b) *in addition to CS VLA requirements the following applies.* At this last regard the usual sentence would be “ *Paragraph SC VLA .xx is added to read as follows* “ c) *Intead of ... the following applies .* The usual sentence proposed is : “ *Replace CS VLA xx with the following* “ ]

**EASA response:****Accepted**

Text has been reviewed/adjusted for consistency

**Comment # 27**

SC AMC VLA 954 : It is questioned how this AMC could help understanding the compliance finding since restrictions cannot by themselves prevent lightning encountering. Which suitable warning device could prevent a lightning strike from occurring ? It is not agreed that this approach could be consistent with an IFR clearance and associated expected safety objective leaving the ground for doing nothing while lightning protection issues are largely based on evidences /experiments proofed design options where needed

**EASA response:****Partially Accepted**

The presence on board of detect equipment, is not aimed to exclude the possibility of lightning strikes to hit the aeroplane, but to reduce their probability to a level which is commensurate to the level of safety expected for this category of aeroplane. See also response to comment 22  
Nevertheless, it is agreed that the content of SC AMC VLA 954 (And also SC AMC VLA 867) does not meet the definition/nature of AMC, hence it will be put as alternative requirement in SCVLA.867, SCVLA.953 and SCVLA.1309 and it will be clarified that when such an approach is followed, the design of the aeroplane is not protected from the catastrophic effects of lightning. This will also be explained in the "Justification" of the Special Condition.

**Comment # 28**

CS 23.1401 Anti-collision light system : Thought this paragraph should be added.

**EASA response:****Partially Accepted**

In case anti-collision lights are required by OPS rules, CS-VLA 1384 applies.

**Comment # 29**

CS 23.1529 : Improvement/additions to CS VLA 1529 to be added focused on essential/critical equipment, trouble shooting, maintenance practices etc. Should be revisited.

**EASA response:****Not Accepted**

Essential critical equipment are present also on aeroplane certified according to CS-VLA for VFR DAY operation. CS VLA 1529 is considered adequate for the scope.

**Comment # 30**

AMC 20-29 : Par 11 ( c ) of EASA AMC 20-29 should be considered ; appropriate specific reference to the mentioned AMC 20-29 paragraph or his

replica within SC AMC VLA is suggested to be provided consistent with previous comments 1 e 5 above.

**EASA response:**

**Partially Accepted**

The paragraph 11(c) of AMC 20-29 provides a useful guidance in case lightning protection is sought. In case the strategic/tactical approach is followed, AMC 20-29 is not needed. The AMC 20-29 will be mentioned in the justification chapter.

**Comment # 31**

A complete cross check with FAA AC 23-11 B is suggested.

**EASA response:**

**Partially Accepted**

It is acknowledged the useful guidance provided by AC 23-11B and a plausibility check has been made keeping in mind that, as far as IFR is concerned, such AC describes the process to obtain a FAA full part 23 TC (certification under 14 CFR part 23), for aeroplanes that have been already certified according to CS-VLA (or JAR-VLA), while the aim of this Special Condition is to allow IFR operations to CS VLA aeroplanes in Europe Airspace.

Regarding how and if this SC will be used in the FAA system, comment 37 shows the position of FAA with respect to this special Condition.

**Comment # 32**

In many parts of the Special Condition the language used offers potential for improvements.

**EASA response:**

**Accepted**

Text has been reviewed/adjusted.

**Comment # 33**

It would be advisable to underline text differentiating from CS 23 and to define in the preamble which CS amendment is used as baseline.

**EASA response:**

**Partially Accepted**

The amendment of CS-23 will be clarified (see also comment 24). The idea of highlighting the text differentiating from CS-23 is not deemed to be needed for a CS-VLA applicant. It is nevertheless acknowledge that this can be useful and thus it might be introduced as working tool in a later stage.

**Commenter 5: FOCA – date 20-Sep-2014****Comment # 34**

SCVLA.1559 seems to exclude flight in icing conditions. At the same time SCVLA.1323 and 1325 contain requirements for flight in icing conditions.

**EASA response:****Accepted**

Proposed correction will be included. See comments 3,8, 15, 35.

**Comment # 35**

It is proposed to change SCVLA.1325 (f)

FROM:

For aeroplanes prohibited from flight under known icing conditions in accordance with SCVLA.1325, sub-paragraph (b) (3) does not apply.

TO:

For aeroplanes prohibited from flight under instrument flight rules (IFR) or known icing conditions in accordance with CS 23.1525, subparagraph (b) (3) does not apply.

Note that this text is the same as in CS-23, whereas the current text in CS-VLA Special Condition is less conservative.

**EASA response:****Partially Accepted**

The intent of the comment is agreed. The following action will be taken: SCVLA.1325 (f) will be deleted.

**Comment # 36**

Although the intention is to prohibit flight in icing conditions, the hazards associated with an inadvertent icing encounter when flying in IMC exist. There are several ways to deal with them. However, since it is difficult to set hard requirements for this case, one option could be to make a direct reference in the SC indicating that the Applicant will have to consider measures to assess and mitigate the hazards associated with an inadvertent icing encounter when flying in IMC. A more detailed review is then possible in the context of each specific application taking into consideration the peculiarities of each design and the guidance provided by AC 23.1419-2D and AC 20-73A. As a minimum the AFM should include information and data that would make the pilot aware of conditions conducive to icing and allow to properly exit from an inadvertent encounter.

**EASA response:****Partially Accepted**

The CS 23 requirements for the protection of aeroplanes not certified for operation into known icing conditions, have been taken into account to develop this special condition. SCVLA.1323, SCVLA.1325 and SCVLA.1326, for example, provide an increased protection for the pitot static system. Other requirements from CS-VLA already addresses the hazards associated to ice at an acceptable level for IMC. The mentioned AC 20-73A, which provides guidance also for the certification of aeroplane not certified for operation into know icing conditions, has been checked, as far as applicable to this special condition. In particular, a positive cross check has been made with the requirements listed in table 2 of chp 6.1 The suggested AC 23.1419-2D is supposed to be used for Aircraft having ice protection system. This is not the case for aircraft that are not allowed to fly into known icing conditions.

**Commenter 6: FAA – date 08-Dec-2014****Comment # 37**

The current FAA published policy (ref. ACs 21.17-3 and 23-11) is to require a full certification to part 23 for night-VFR and IFR certification of EASA CS-VLA aircraft. However we have recently permitted type certification to EASA CS-VLA for night-VFR provided additional requirements are met. We do not intend to allow type certification to EASA CS-VLA for IFR certification.

**EASA response:****Noted**