European Aviation Safety Agency

Comment Response Document (CRD) on Consultation paper nr. 18 of 2 September 2003

CS-23 Certification Specifications for normal, utility, aerobatic and commuter category aeroplanes

Foreword to the Comment Response document (CRD)

To give a rapid overview of the CRD, the following keywords were used in responding to comments:

- "Carried": The proposed amendment is wholly transferred to the revised text.

- "Noted": The comment is acknowledged and where needed the text has been improved.

- "Deferred": The comment requires further assessment by the Agency under its future rulemaking programme.

- "Disagreed": The comment is not shared by the Agency.

General Comments

Para.

93 / CAA Sweden

Comment

With reference to the Consultation Papers concerning certification specifications (CS) mentioned above (CS VLR and CS 23), we would like to make the following comments.

Since the proposed certification specifications contain regulatory material which, essentially, is presented as being identical to the content of the corresponding JARs, we are in favour of the proposed material.

However, should the proposals not have the same content as those JARs, there must be a possibility to rediscuss such items.

Response

Noted.
Further review may be carried out by the Agency. However, it should ne noted that all technical texts have been published by the JAA in accordance with JAR-11 for the standard 3 month comment period. All interested parties had the opportunity to provide comments.

96 / CAA UK

Comment

Use of “at the option of the Applicant”

The words “at the option of the applicant” have been removed from some paragraphs but not others. As it had been understood that this phrase was to be deleted from the CSs is this as was intended? Specific examples where the phrase has been retained are given below.

23.45(f) there is reference to ‘by the applicant’.

23.45 (h)(3) the reference to the applicant needs has been retained.

23.149(f) In paragraph (f)(1) the words ‘at the option of the applicant’ have been retained.

23.69 (b) This section contains the text "...by the applicant..."

23.573 (b), reference to "the applicant" has been retained.

Response

Noted. In general terms, references to "applicants" in a CS are to be avoided. However, the examples given are not to be understood as procedural requirements and the use of "applicant" is acceptable.

96 / CAA UK

Comment

Use of “Paragraph” and “Section”

There appears to be inconsistency during the transposition in that the phrase “in this Section” has sometimes been replaced by “in this paragraph”, or has been removed completely. This can completely change the sense of the original text for example where the intent was for an applicant to comply with more than one paragraph within a section, this has been lost and could lead to an applicant not complying with all necessary paragraphs. Additionally this may confuse the reader especially as FAR 23 has the phrase "of this section". Examples of change or retention are given below.

CS 23.33 (c)(1) and (2) omits the phrase "of this paragraph". If this is the CS convention then there no comment. However this may confuse the read especially as FAR 23 has the phrase "of this section".

23.533 (a), It is noted that the word "paragraph" has been retained whereas other areas of CS 23 have adopted the term "section".

23.561 (a), It is noted that the word "paragraph" has been retained whereas other areas of CS 23 have adopted the term "section".

23.562 (d), It is noted that the word "paragraph" has been retained whereas other areas of CS 23 have adopted the term "section".

23.572 (b), It is noted that the word "paragraph" has been retained whereas other areas of CS 23 have adopted the term "section".

23.613 (e), It is noted that the word "paragraph" has been retained whereas other areas of CS 23 have adopted the term "section".

Response

Noted. Inconsistencies are recognised. At least for Book 1, inconsistencies will be corrected along the following lines:

- "Paragraph" should be used instead of "section"
- when read in conjunction with "subparagraph...", "of this paragraph" should be removed as it is redundant.

96 / CAA UK

General Comments

Para.

Comment

It is apparent that whilst much of the text produced during the transposition from JAR-23 to CS-23 is acceptable, there are a significant number of errors and inconsistencies and also some fundamental errors that must not be allowed into the final version of CS-23. It is therefore suggested that a further and more complete review of Books 1 and 2 and the FTG is undertaken.

Response

Noted. Detailed comments from the same commentor will be taken into account as providing explanation as to these unknown errors.

96 / CAA UK

Comment

With regard to the above referenced consultation, please find attached the UK CAA comments. For CS-23 there are a significant number of comments mainly referring to conversion of units and editorial suggestions. It is apparent that whilst much of the text produced during the transposition from JAR-23 to CS-23 is acceptable, there are a significant number of errors and inconsistencies and also some fundamental errors that must not be continued into the final version of CS-23. It is therefore suggested that a further and more complete review of Books 1 and 2 and the FTG is undertaken. It is hoped that these comments may be of use in finalising the text.

Response

Noted. Detailed comments from the same commentor will be taken into account as providing explanation as to these unknown errors.

96 / CAA UK

Comment

Use of SI units

Strict observance of the SI system of units in the certification specifications is not compatible with current western world airworthiness and operational practice, which necessitates that data scheduled in Flight Manuals and displayed on the corresponding flight deck instrumentation and placards using the following units. Commonly:

Airspeedknots
Wind speedknots
Distance (long)nautical miles
Altitudefeet
Elevationfeet
Heightfeet
Vertical speedft/min

are used and recognised in ICAO Annex 5 as acceptable non-SI alternative units. No dates have been agreed for the termination of their use, which use is widespread throughout Europe and much of the rest of the world, and is in compliance with ICAO Annex 5. Furthermore, given that CS 23.1581(c) requires that the Flight Manual units and flight deck instrumentation are consistent, it is illogical (and potentially unsafe) for these parameters to be expressed in dissimilar units in the flight requirements of Section B..

General Comments on Unit Conversions

As the conversion of JAR 23 to CS 23 has involved significant elements of rounding of converted figures a degree of disharmony with FAR 23 has been introduced, the result of this is that manufacturers will need to envelope both CS 23 and FAR 23 values to satisfy both sets of requirements. Although this does not usually introduce a significant design penalty, where the figure relates to a value that may be squared to generate a loading (such as airspeed) or raised to some other power, the change can become significant from a design perspective and call into question the wisdom of the exercise of conversion.

For the conversion of units from Imperial to Metric Units an inconsistent approach appears to have been taken. In a number of cases no attempt has been made to insert the metric equivalents, which is contrary to the approach described in the covering note to CS-23 contained in the Consultation Paper No. 18/2003-09-02 draft proposal on CS-23 by EASA, (in particular a number of figures and also several Appendices in Book1 have not been converted, e.g. Appendix A para A23.3 and the Figures A1, A2, A3, A5 and A6, Appendix D - para D23.1). It is suggested that a more considered approach to unit conversion involving the relevant technical specialists from the appropriate discipline be performed for subsequent revisions to the CS.

Where units have been converted in CS-23, CAA welcomes the principle that a metric value is stated and that the imperial units have been retained in brackets afterwards. Unfortunately it is noted that the accuracy of the metric value stated before the bracketed imperial value has on occasion been sacrificed in a non-conservative manner by the use of less significant figures or the use of insufficient decimal places.

In addition to the previous comment it is also observed that some paragraphs have not been converted at all, generally where different values within the paragraph interact and the dimensions at each step are unclear. If the intention is really to introduce SI units throughout these paragraphs will require some attention.

In addition to the previous comment it is also observed that some AMC paragraphs have not been converted at all, in the case of Book 2 this often has occurred where there are figures or tabulated data. If the intention is really to introduce correct SI units throughout the CS-23 Book 2, then these AMC paragraphs will require some further attention. Note that the SI base units are as follows :- meter (m), kilogram (kg), second (s), ampere (A), Kelvin (K), candela (cd) and mole (mol). In addition the supplementary SI units are radian (rad), and steradian (sr) , and a large list of derived SI units exists, that is based on multiple and quotient functions of the basic and supplementary SI units, (ref. Tables of Physical and Chemical Constants by G W C Kaye and T H Laby 14th Edition published by Longman - Section 1.1.1 refers).

General Comments

Para.

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
c.Not all units are converted;
d.correcting of mistakes.

With regard to these comments the following remarks can be made:
a.The comment is agreed in principle, however it should be noted that ICAO Annex 5 allows the use of these non-SI alternatives, but lists the SI units as the "primary units" (see table 3-4 of Annex 5). Therefore the conversion to SI units in these cases is still valid, bearing in mind that the non-SI alternative units, quoted between brackets, may continue to be used.
b.As explained under 2. above the units were converted using the "equivalent tolerance" principle, which is believed to be the right approach in general. It is however noted that some of the figures in the airworthiness codes serve only as an input to calculations and do not reflect an actual requirement to be met (e.g. CS 25.415(a)). In such case the figure has to be treated as a figure with no tolerance, and the conversion should be as accurate as possible.
From some of the comments it is also clear that people have used the figures with "old" units with a tolerance that was not reflected in the figure. There may have been a good reason to do so, but it may also have been for no good reason. It will be necessary to review all the figures to check if the tolerance as implied by the figure is sufficient for the purpose of the requirement.
c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula's and in graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

96 / CAA UK

Comment

Specific SI unit conversions

Throughout CS 23, the accurate conversion for 6000 lb is 2721.5537. It is therefore suggested that the existing metric conversion of 2721 kg should be retained in all cases.

Response

Noted.

96 / CAA UK

Comment

There are still occurrences of the term 'airplane' instead of 'aeroplane', particularly throughout Book 2. 'Aeroplane' is the proper term for English editions of EASA documentation.

There is occasional use of continental quotation marks throughout the CS code, as in, for example 23.1557(c)(1)((i)(A) ,,Avgas". (See for example CS 23.1557 Miscellaneous marking and placards). The English editions should use the correct notation, e.g. "Avgas".

Response

Deferred. This will be part of the Agency's drafting convention.

B1-SUB B- CS 23.25

Para. ***General***

96 / CAA UK

Comment

CS 23.25 This paragraph includes the new text from NPA 23-6, but it hasn't removed the text that is to be deleted by this NPA. Sub-paragraph (a)(2)(ii) should have been deleted, as it is rendered superfluous by (the new) sub-paragraph (2) text.

Response

Disagreed. In NPA-23-6 the subparagraph(a)(2)(ii) was inadvertently deleted. It should remain part of the paragraph and is not superfluous.

B1-SUB B- CS 23.45

Para. ***(h)***

96 / CAA UK

Comment

23.45(h) the word "applies" should be "apply".

Response

Carried.

B1-SUB B- CS 23.49

Para. ***(c)(2)***

96 / CAA UK

Comment

23.49 (c)(2) the formatting of paragraph needs to be adjusted.

Response

Noted. The neccesary adjustment will be made.

B1-SUB B- CS 23.51

Para. ***(c)***

96 / CAA UK

Comment

23.51 (c) the word “applies” should be “apply”.

Response

Carried.

Para. ***(c)(6)***

96 / CAA UK

Comment

23.51 (c) (6) misplaced comma at the beginning of the sub paragraph

23.51 In paragraph (c)(6) there is a superfluous comma at the beginning of the sentence.

Response

Noted. The neccesary changes will be made.

B1-SUB B- CS 23.67

Para. ***(a)(1)(V)***

96 / CAA UK

Comment

23.67(a)(1)(V), start of text should be moved to align with other sub paragraphs.

Response

Carried.

B1-SUB B- CS 23.75

Para. ***(c)***

96 / CAA UK

Comment

23.75 (c), Use of "...50-foot..." inconsistent with the rest of the document. Suggest the abbreviation "ft" is used.

Response

Carried.

B1-SUB B- CS 23.143

Para. ***(c)***

96 / CAA UK

Comment

23.143 (c), split of table from headers should be rectified.

Response

Carried.

B1-SUB B- CS 23.147

Para.

96 / CAA UK

Comment

23.147/149, the use of a symbol for the angular measurement of degrees could be confusing. It is recommended that the existing convention of the use of "degrees" is retained.

Response

Disagreed. The text is deemed clear.

B1-SUB B- CS 23.149

Para.

96 / CAA UK

Comment

23.147/149, the use of a symbol for the angular measurement of degrees could be confusing. It is recommended that the existing convention of the use of "degrees" is retained.

Response

Disagreed. The text is deemed clear.

Para. ***(f)***

96 / CAA UK

Comment

23.149(f) there is a missing 'force', i.e. "… The rudder control force may not exceed 667N (150 pounds force). ". (This applies to the JAR-23.149(f) text as well).

Response

Noted. Abbreviation "lbf" will be used for consistency.

B1-SUB C-CS 23.333

Para. ***(c)***

96 / CAA UK

Comment

23.333 (c), it is noted that the assumptions in paragraph (c) have been retained as non-SI units. It is noted that the successful use of some of the current formula in this paragraph is dependant upon use of Imperial Units.

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
c.Not all units are converted;
d.correcting of mistakes.

With regard to these comments the following remarks can be made:
a.The comment is agreed in principle, however it should be noted that ICAO Annex 5 allows the use of these non-SI alternatives, but lists the SI units as the "primary units" (see table 3-4 of Annex 5). Therefore the conversion to SI units in these cases is still valid, bearing in mind that the non-SI alternative units, quoted between brackets, may continue to be used.
b.As explained under 2. above the units were converted using the "equivalent tolerance" principle, which is believed to be the right approach in general. It is however noted that some of the figures in the airworthiness codes serve only as an input to calculations and do not reflect an actual requirement to be met (e.g. CS 25.415(a)). In such case the figure has to be treated as a figure with no tolerance, and the conversion should be as accurate as possible.
From some of the comments it is also clear that people have used the figures with "old" units with a tolerance that was not reflected in the figure. There may have been a good reason to do so, but it may also have been for no good reason. It will be necessary to review all the figures to check if the tolerance as implied by the figure is sufficient for the purpose of the requirement.
c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula's and in graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

B1-SUB C-CS 23.337

Para.

96 / CAA UK

Comment

23.337, It is noted that the successful use of some of the current formulae in this section is dependant upon use of Imperial Units.

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
c.Not all units are converted;
d.correcting of mistakes.

With regard to these comments the following remarks can be made:
a.The comment is agreed in principle, however it should be noted that ICAO Annex 5 allows the use of these non-SI alternatives, but lists the SI units as the "primary units" (see table 3-4 of Annex 5). Therefore the conversion to SI units in these cases is still valid, bearing in mind that the non-SI alternative units, quoted between brackets, may continue to be used.
b.As explained under 2. above the units were converted using the "equivalent tolerance" principle, which is believed to be the right approach in general. It is however noted that some of the figures in the airworthiness codes serve only as an input to calculations and do not reflect an actual requirement to be met (e.g. CS 25.415(a)). In such case the figure has to be treated as a figure with no tolerance, and the conversion should be as accurate as possible.
From some of the comments it is also clear that people have used the figures with "old" units with a tolerance that was not reflected in the figure. There may have been a good reason to do so, but it may also have been for no good reason. It will be necessary to review all the figures to check if the tolerance as implied by the figure is sufficient for the purpose of the requirement.
c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula's and in graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

B1-SUB C-CS 23.345

Para. ***(a)(2)***

96 / CAA UK

Comment

23.345 (a)(2) and 23.425(a)(2) - use of 7.6 m per second cf. 25 feet per second - note that 7.62 m/s would be a more accurate value and consistent with the value stated in CS-25.345(b)(2).

Response

Carried.

B1-SUB C-CS 23.343

Para. ***(c)(1)(i)***

96 / CAA UK

Comment

23.343(c) (1) (i), missing word this sub paragraph should read "...90 percent of the

Response

Carried.

97 / Cessna, USA

Comment

CS 23.343 (c)(1)(i) Design Fuel Loads is missing the percentage value. No percentage value is specified.
Current text:
(i) percent of the manoeuvring load factors defined in CS 23.337, and

Proposed text:
(i) 90 percent of the manoeuvring load factors defined in CS 23.337, and

90% currently is specified in both 14 CFR Part 23 and NPA 23-6.

Response

Carried.

B1-SUB C-CS 23.369

Para.

96 / CAA UK

Comment

23.369, It is noted that the existing formula that necessitates the use of Imperial Units has been retained.

Response

Noted.

B1-SUB C-CS 23.393

Para. ***(b)***

96 / CAA UK

Comment

23.393 (b), It is noted that the successful use of the formula in this sub paragraph is dependant on the use of Imperial Units.

Response

Noted.

B1-SUB C-CS 23.395

Para.

96 / CAA UK

Comment

23.395 refers to a wheel torque of 222 D Newton metre cf. 50 D in lbf, where D is the wheel diameter specified in metre and inch units respectively, but 222.5 D Nm would be a more accurate conversion

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
c.Not all units are converted;
d.correcting of mistakes.

With regard to these comments the following remarks can be made:
a.The comment is agreed in principle, however it should be noted that ICAO Annex 5 allows the use of these non-SI alternatives, but lists the SI units as the "primary units" (see table 3-4 of Annex 5). Therefore the conversion to SI units in these cases is still valid, bearing in mind that the non-SI alternative units, quoted between brackets, may continue to be used.
b.As explained under 2. above the units were converted using the "equivalent tolerance" principle, which is believed to be the right approach in general. It is however noted that some of the figures in the airworthiness codes serve only as an input to calculations and do not reflect an actual requirement to be met (e.g. CS 25.415(a)). In such case the figure has to be treated as a figure with no tolerance, and the conversion should be as accurate as possible.
From some of the comments it is also clear that people have used the figures with "old" units with a tolerance that was not reflected in the figure. There may have been a good reason to do so, but it may also have been for no good reason. It will be necessary to review all the figures to check if the tolerance as implied by the figure is sufficient for the purpose of the requirement.
c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula's and in graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

B1-SUB C-CS 23.397

Para. ***(b)***

96 / CAA UK

Comment

23.397 (b), Table containing the limit pilot forces, missing right hand bracket for equivalent Imperial Units.

Response

Carried.

B1-SUB C-CS 23.415

Para. ***(a)***

96 / CAA UK

Comment

23.415 (a), It is noted that the successful use of the formula in this sub paragraph is dependant on the use of Imperial Units.

Response

Noted.

Para. ***(c)***

96 / CAA UK

Comment

23.415(c) - 65 knots has been converted as 120 km/h, which would be better stated as 33.46 m/s.

Response

Disagreed. The ICAO Annex 5 primary unit for windspeed is km/h.

B1-SUB C-CS 23.421

Para.

96 / CAA UK

Comment

Title immediately above 23.421, Underlining denoted differences from FAR text in JAR-23 and should be deleted for CS 23?

Response

Carried.

B1-SUB C-CS 23.425

Para. ***(a)(2)***

96 / CAA UK

Comment

23.345 (a)(2) and 23.425(a)(2) - use of 7.6 m per second cf. 25 feet per second - note that 7.62 m/s would be a more accurate value and consistent with the value stated in CS-25.345(b)(2).

Response

Carried.

B1-SUB C-CS 23.423

Para.

96 / CAA UK

Comment

23.423 It is noted that the successful use of the formula in this sub paragraph is dependant on the use of Imperial Units.

Response

Noted.

B1-SUB C-CS 23.445

Para. ***(a)***

97 / Cessna, USA

Comment

CS 23.455 Ailerons contains a subparagraph (a), however there is no subparagraph (b).
Subparagraph (b) was previously Reserved, and was deleted in the CS draft version. Deleting (b) should eliminate the need for a paragraph labeled "(a)". Subparagraph (a) is referenced throughout CS 23.455.

Current text: (a) The ailerons must be designed for the loads to which they are subjected -

Proposed text: The ailerons must be designed for the loads to which they are subjected -

Response

Comment misplaced. See comment in 23.455.

B1-SUB C-CS 23.455

Para. *a*

97 / Cessna, USA

Comment

CS 23.455 Ailerons contains a subparagraph (a), however there is no subparagraph (b).
Subparagraph (b) was previously Reserved, and was deleted in the CS draft version. Deleting (b) should eliminate the need for a paragraph labeled "(a)". Subparagraph (a) is referenced throughout CS 23.455.

Current text: (a) The ailerons must be designed for the loads to which they are subjected -

Proposed text: The ailerons must be designed for the loads to which they are subjected -

Response

Noted. The numbering is retained to be consistent with FAR 23.

B1-SUB C-CS 23.473

Para. *(c)*

96 / CAA UK

Comment

23.473 (c), underscoring should be deleted "...requirements of CS 23.67...".

Response

Carried.

Para. *(d)*

96 / CAA UK

Comment

23.473 (d), It is noted that the successful use of the formula in this sub paragraph is dependant on the use of Imperial Units. The boundary of the descent velocity, 3.0 m/s cf. 10 ft/s, where 3.048 m/s would be a more precise conversion. Here the metric velocity quoted is 1.6% less than the imperial value - this could lead to an error / shortfall in drop energy of 3.2%. Similarly the 2.1 m/s (7 ft/s) would be more accurately defined as 2.134 m/s - again an underestimation by 1.6% on velocity or 3.2% on energy.

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
c.Not all units are converted;
d.correcting of mistakes.

With regard to these comments the following remarks can be made:
a.The comment is agreed in principle, however it should be noted that ICAO Annex 5 allows the use of these non-SI alternatives, but lists the SI units as the “primary units” (see table 3-4 of Annex 5). Therefore the conversion to SI units in these cases is still valid, bearing in mind that the non-SI alternative units, quoted between brackets, may continue to be used.
b.As explained under 2. above the units were converted using the “equivalent tolerance” principle, which is believed to be the right approach in general. It is however noted that some of the figures in the airworthiness codes serve only as an input to calculations and do not reflect an actual requirement to be met (e.g. CS 25.415(a)). In such case the figure has to be treated as a figure with no tolerance, and the conversion should be as accurate as possible.
From some of the comments it is also clear that people have used the figures with “old” units with a tolerance that was not reflected in the figure. There may have been a good reason to do so, but it may also have been for no good reason. It will be necessary to review all the figures to check if the tolerance as implied by the figure is sufficient for the purpose of the requirement.
c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula's and in graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

B1-SUB C-CS 23.511

Para.

96 / CAA UK

Comment

23.511 has been printed at the top of page 1-C-18 with a gap at the top of column 1.

Response

Carried.

B1-SUB C-CS 23.525

Para. ***(b)***

96 / CAA UK

Comment

23.525 (b), underscoring at the end of this sub paragraph should be deleted.

Response

Carried.

B1-SUB C-CS 23.531

Para.

96 / CAA UK

Comment

23.531, It is noted that the successful use of the formula in this sub paragraph is dependant on the use of Imperial Units.

Response

Noted.

B1-SUB C-CS 23.535

Para.

96 / CAA UK

Comment

23.535, It is noted that the successful use of the formula in this sub paragraph is dependant on the use of Imperial Units

Response

Noted.

B1-SUB C-CS 23.562

Para. ***(b)(1)***

96 / CAA UK

Comment

23.562(b)(1) - 9.4 m/s (31 ft/s) should be 9.449 m/s etc., - whilst this is 0.5% error in velocity it results in a 1 % shortfall error in energy terms.

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
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b.As explained under 2. above the units were converted using the “equivalent tolerance” principle, which is believed to be the right approach in general. It is however noted that some of the figures in the airworthiness codes serve only as an input to calculations and do not reflect an actual requirement to be met (e.g. CS 25.415(a)). In such case the figure has to be treated as a figure with no tolerance, and the conversion should be as accurate as possible.
From some of the comments it is also clear that people have used the figures with “old” units with a tolerance that was not reflected in the figure. There may have been a good reason to do so, but it may also have been for no good reason. It will be necessary to review all the figures to check if the tolerance as implied by the figure is sufficient for the purpose of the requirement.
c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula's and in graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

B1-SUB C-CS 23.571

Para.

96 / CAA UK

Comment

23.571 Lead in sentence uses the term "acrobatic" and should be amended to "aerobatic" for consistency with the rest of CS 23.

Response

Carried.

B1-SUB C-CS 23.572

Para.

96 / CAA UK

Comment

23.572 Lead in sentence uses the term "acrobatic" and should be amended to "aerobatic" for consistency with the rest of CS 23.

Response

Carried.

B1-SUB C-CS 23.573

Para.

96 / CAA UK

Comment

23.573, This text has not been left and right justified.

Response

Noted. This will be corrected.

Para. ***(a)(5)(i)***

96 / CAA UK

Comment

23.573 (a)(5)(i) the word "disbands" should be replaced with "disbonds".

Response

Carried.

B1-SUB D-CS 23.625

Para.

96 / CAA UK

Comment

23.625, the word “applies” should be replaced with “apply”. The marginal line should be deleted at the top of column 2.

Response

Carried.

B1-SUB D-CS 23.675

Para.

96 / CAA UK

Comment

23.675 page 1-D-6 top of column 1 text “CS23.683 (continued)” should be “CS 23.675 (continued)”.

Response

Noted. The CS 23...(continued) statement is deleted throughout the document.

B1-SUB D-CS 23.672

Para.

96 / CAA UK

Comment

23.672 the marginal line should be deleted at the top of column 2. Top of column 2 text “CS 23.677(d) (continued)” should be “CS 23 672 (continued)”

Response

Noted. The CS 23...(continued) statement is deleted throughout the document.

B1-SUB D-CS 23.725

Para.

96 / CAA UK

Comment

23.725 top of column 2, the marginal line should be deleted.

Response

Carried.

B1-SUB D-CS 23.725

Para. ***(b)***

96 / CAA UK

Comment

23.725 (b), (d) and (e) it is noted that the change from We to Me and W to M introduces disharmony with FAR 23. The case for parameters within the legend is also inconsistent with the equation.

Response

Deferred. The use of the words; mass, weight, force, reaction and associated units should be checked for correct meanings in the physics sense.

Para. ***(d)***

96 / CAA UK

Comment

23.725 (b), (d) and (e) it is noted that the change from We to Me and W to M introduces disharmony with FAR 23. The case for parameters within the legend is also inconsistent with the equation.

Response

Deferred. The use of the words; mass, weight, force, reaction and associated units should be checked for correct meanings in the physics sense.

Para. ***(e)***

96 / CAA UK

Comment

23.725 (b), (d) and (e) it is noted that the change from We to Me and W to M introduces disharmony with FAR 23. The case for parameters within the legend is also inconsistent with the equation.

Response

Deferred. The use of the words; mass, weight, force, reaction and associated units should be checked for correct meanings in the physics sense.

B1-SUB D-CS 23.726

Para.

96 / CAA UK

Comment

23.726 page 1-D-10 top of column 1 “CS 23.726(a) (continued)” should be “CS 726 (continued)” and the marginal line should be deleted.

Response

Noted. The CS 23...(continued) statement is deleted throughout the document.

B1-SUB D-CS 23.727

Para.

96 / CAA UK

Comment

23.727 It is noted that the change from We to ME and W to M introduces a disharmony with FAR 23.

Response

Noted. Effective mass is used in 727(b) which makes the acronyms Me and M more appropriate. See also comment on CS 23.725.

B1-SUB D-CS 23.729

Para.

96 / CAA UK

Comment

23.729 Top of column 2 “CS 23.729 (c)(continued)” should be “CS 23.729 (continued)”

Response

Noted. The CS 23...(continued) statement is deleted throughout the document.

B1-SUB D-CS 23.733

Para.

96 / CAA UK

Comment

23.733 it is noted that the change from W to Mg introduces a disharmony with FAR 23.

Response

Deferred. The use of the words; mass, weight, force, reaction and associated units should be checked for correct meanings in the physics sense.

B1-SUB D-CS 23.735

Para.

96 / CAA UK

Comment

23.735 page 1-D12 top of column 1 the marginal line should be deleted.

Response

Carried.

Para. ***(a)(2)***

96 / CAA UK

Comment

23.735(a)(2) and (e)(2) the conversion to SI units is incorrect. The conversion also introduces a disharmony with FAR 23.

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
c.Not all units are converted;
d.correcting of mistakes.

With regard to these comments the following remarks can be made:
a.The comment is agreed in principle, however it should be noted that ICAO Annex 5 allows the use of these non-SI alternatives, but lists the SI units as the "primary units" (see table 3-4 of Annex 5). Therefore the conversion to SI units in these cases is still valid, bearing in mind that the non-SI alternative units, quoted between brackets, may continue to be used.
b.As explained under 2. above the units were converted using the "equivalent tolerance" principle, which is believed to be the right approach in general. It is however noted that some of the figures in the airworthiness codes serve only as an input to calculations and do not reflect an actual requirement to be met (e.g. CS 25.415(a)). In such case the figure has to be treated as a figure with no tolerance, and the conversion should be as accurate as possible.
From some of the comments it is also clear that people have used the figures with "old" units with a tolerance that was not reflected in the figure. There may have been a good reason to do so, but it may also have been for no good reason. It will be necessary to review all the figures to check if the tolerance as implied by the figure is sufficient for the purpose of the requirement.
c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula's and in graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

Para. ***(e)(2)***

96 / CAA UK

Comment

23.735(a)(2) and (e)(2) the conversion to SI units is incorrect. The conversion also introduces a disharmony with FAR 23.

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
c.Not all units are converted;
d.correcting of mistakes.

With regard to these comments the following remarks can be made:
a.The comment is agreed in principle, however it should be noted that ICAO Annex 5 allows the use of these non-SI alternatives, but lists the SI units as the "primary units" (see table 3-4 of Annex 5). Therefore the conversion to SI units in these cases is still valid, bearing in mind that the non-SI alternative units, quoted between brackets, may continue to be used.
b.As explained under 2. above the units were converted using the "equivalent tolerance" principle, which is believed to be the right approach in general. It is however noted that some of the figures in the airworthiness codes serve only as an input to calculations and do not reflect an actual requirement to be met (e.g. CS 25.415(a)). In such case the figure has to be treated as a figure with no tolerance, and the conversion should be as accurate as possible.
From some of the comments it is also clear that people have used the figures with "old" units with a tolerance that was not reflected in the figure. There may have been a good reason to do so, but it may also have been for no good reason. It will be necessary to review all the figures to check if the tolerance as implied by the figure is sufficient for the purpose of the requirement.
c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula's and in graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

B1-SUB D-CS 23.775

Para.

96 / CAA UK

Comment

23.775 - the 2 lb bird has been converted as 0.9 kg, which is a round down from the more accurate value of 0.91 kg that was the conversion contained in JAR 23.775.

Response

Carried.

Para. ***(h)***

96 / CAA UK

Comment

23.775(h) the word “applies” should be changed to “apply”.

Response

B1-SUB D-CS 23.777

Para. ***Page 1-D-14***

96 / CAA UK

Comment

23.777 page 1-D-14 the marginal line at the top of column 1 should be deleted.

Response

Carried.

B1-SUB D-CS 23.779

Para. ***Page 1-D-15***

96 / CAA UK

Comment

23.779 page 1-D-15 top of column 2 the marginal line should be deleted.

Response

Carried.

B1-SUB D-CS 23.783

Para. ***(f)***

96 / CAA UK

Comment

23.783(f) the word “In “ is missing from start of the sentence. Text should read “ In addition, for commuter ……..”

Response

Carried.

B1-SUB D-CS 23.785

Para.

96 / CAA UK

Comment

Page 1-D-17 column 2 marginal line should be deleted.

Page 1-D-18 column 1 the marginal line should be deleted.

Response

Carried.

B1-SUB D-CS 23.805

Para. ***(c)(2)***

96 / CAA UK

Comment

23.805(c)(2) has been incorrectly converted. This change introduces a disharmony with FAR 23.

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
c.Not all units are converted;
d.correcting of mistakes.

With regard to these comments the following remarks can be made:
a.The comment is agreed in principle, however it should be noted that ICAO Annex 5 allows the use of these non-SI alternatives, but lists the SI units as the "primary units" (see table 3-4 of Annex 5). Therefore the conversion to SI units in these cases is still valid, bearing in mind that the non-SI alternative units, quoted between brackets, may continue to be used.
b.As explained under 2. above the units were converted using the "equivalent tolerance" principle, which is believed to be the right approach in general. It is however noted that some of the figures in the airworthiness codes serve only as an input to calculations and do not reflect an actual requirement to be met (e.g. CS 25.415(a)). In such case the figure has to be treated as a figure with no tolerance, and the conversion should be as accurate as possible.
From some of the comments it is also clear that people have used the figures with "old" units with a tolerance that was not reflected in the figure. There may have been a good reason to do so, but it may also have been for no good reason. It will be necessary to review all the figures to check if the tolerance as implied by the figure is sufficient for the purpose of the requirement.
c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula's and in graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

B1-SUB D-CS 23.812

Para.

96 / CAA UK

Comment

23.812 the text of this requirement has not been left and right justified.

Response

Carried.

B1-SUB D-CS 23.813

Para.

96 / CAA UK

Comment

23.813 the text of this requirement has not been left and right justified.

Response

Carried.

B1-SUB D-CS 23.815

Para.

96 / CAA UK

Comment

23.815 the split of headers from the rest of the table should be rectified.

Response

Carried.

B1-SUB D-CS 23.851

Para. ***Page 1-D-24***

96 / CAA UK

Comment

23.851 page 1-D-24 top of column 1 " CS.843 (b) (Continued)" should read "CS23.851(c) (Continued)". Marginal line should also be deleted.

Response

Noted. The CS 23...(continued) statement is deleted throughout the document.

B1-SUB D-CS 23.853

Para. ***Page 1-D-25***

96 / CAA UK

Comment

23.853 page 1-D-25 top of column 2 marginal line should be deleted.

Response

Carried.

B1-SUB E-CS 23.929

Para.

96 / CAA UK

Comment

23.929 the reference to AMC material is missing.

Response

Noted. There is no AMC 23.929.

B1-SUB E-CS 23.933

Para.

96 / CAA UK

Comment

23.933 the reference to AMC material is missing.

Response

Noted. There is no AMC 23.933.

B1-SUB E-CS 23.953

Para.

96 / CAA UK

Comment

23.953 Number for paragraph (a) is not required.

Response

Noted. Numbering retained to be consistent with FAR 23.

B1-SUB E-CS 23.943

Para.

96 / CAA UK

Comment

23.943 the reference to AMC material is missing.

Response

Noted. There is no AMC 23. 943.

B1-SUB E-CS 23.955

Para. ***(f)(2)***

96 / CAA UK

Comment

23.955(f)(2) formatting of 3rd line needs adjustment following the deletion of some text.

Response

Carried.

Para. ***(f)(2)(i)***

96 / CAA UK

Comment

23.955(f)(2)(i) the words " of this section" have been deleted and the sentence is now unclear, i.e. for the purposes of what?

Response

Noted. Wording improved to read:" For the purposes of this paragraph...".

B1-SUB E-CS 23.991

Para.

96 / CAA UK

Comment

23.991 the word “applies” should be changed to “apply”.

Response

Carried.

B1-SUB E-CS 23.993

Para.

96 / CAA UK

Comment

23.993 the split of the title from the rest of this paragraph should be rectified.

Response

Carried.

B1-SUB E-CS 23.1019

Para. ***(a)(5)***

97 / Cessna, USA

Comment

CS 23.1019(a)(5) Oil strainer or filter references a paragraph 23.1309(u) that does not exist.

CS 23.1019(a)(5) Current Text: ...the warning system required in CS 23.1305(u).
CS 23.1019(a)(5) Proposed text: ...the warning system required in CS 23.1305(c)(9).

Response

Carried.

B1-SUB E-CS 23.1041

Para.

96 / CAA UK

Comment

23.1041 the reference to the AMC material is missing.

Response

Noted. There is no AMC 23.1041.

B1-SUB E-CS 23.1043

Para.

96 / CAA UK

Comment

23.1043 the reference to the AMC material is missing. The word “applies” should be changed to “apply”.

Response

Carried.

B1-SUB E-CS 23.1045

Para.

96 / CAA UK

Comment

23.1045 the reference to AMC material is missing.

Response

Noted. There is reference to AMC 23.1045 (b). There is no longer an AMC 23.1045 (a).

B1-SUB E-CS 23.1047

Para.

96 / CAA UK

Comment

23.1047 the reference to AMC material is missing.

Response

Noted. There is no AMC 23.1047.

B1-SUB E-CS 23.1093

Para. ***(a)(1)***

97 / Cessna, USA

Comment

CS 23.1093 (a)(1) and (a)(5) have inconsistent temperature requirements. 50ºC is not equal to 90ºF. The draft CS spec proposed changing 50ºC to 32ºC, however this was not incorporated into the final CS spec.

CS 23.1093 (a)(1) and (a)(5) Current text: ...50ºC (90ºF)...

CS 23.1093 (a)(1) and (a)(5) Proposed text: ...32ºC (90ºF)...

Response

Disagreed. It is a temperature rise.

Para. ***(a)(3)(i)***

97 / Cessna, USA

Comment

CS 23.1093 (a)(3)(i) Induction System Icing Protection has inconsistent temperature requirements. 56ºC is not equal to 100ºF.
The original JARs incorrectly specified both 56ºC and 100ºF. The draft CS spec proposed changing 56ºC to 38ºC, however this was not incorporated into the final CS spec.

CS 23.1093 (a)(3)(i) Current text: 56ºC (100ºF); or

CS 23.1093 (a)(3)(i) Proposed text: 38ºC (100ºF); or

Response

Disagreed. It is a temperature rise.

Para. ***(a)(5)***

97 / Cessna, USA

Comment

CS 23.1093 (a)(1) and (a)(5) have inconsistent temperature requirements. 50ºC is not equal to 90ºF. The draft CS spec proposed changing 50ºC to 32ºC, however this was not incorporated into the final CS spec.

CS 23.1093 (a)(1) and (a)(5) Current text: ...50ºC (90ºF)...

CS 23.1093 (a)(1) and (a)(5) Proposed text: ...32ºC (90ºF)...

Response

Disagreed. It is a temperature rise.

B1-SUB E-CS 23.1097

Para. ***(b)***

97 / Cessna, USA

Comment

Same temperature comment as Item 4 for CS 23.1097(b) Carburettor De-icing Fluid System Capacity regarding inconsistent temperature requirements. The proposed correction in the draft CS spec was not incorporated into the final spec.

Response

Deferred. Consistency between CS 23.1093 (a)(6), 1097 (b) and 1105 (b)(1) must be checked in relation to heat rise and preheat.

B1-SUB E-CS 23.1105

Para. ***(b)(1)***

97 / Cessna, USA

Comment

Same temperature comment as Item 4 for CS 23.1105(b)(1) Induction System Screens regarding inconsistent temperature requirements. The proposed correction in the draft CS spec was not incorporated into the final spec.

Response

Deferred. Consistency between CS 23.1093 (a)(6), 1097 (b) and 1105 (b)(1) must be checked in relation to heat rise and preheat.

B1-SUB E-CS 23.1189

Para.

96 / CAA UK

Comment

23.1189 the word “applies” should be changed to “apply”.

Response

Carried.

B1-SUB E-CS 23.1199

Para.

96 / CAA UK

Comment

23.1199 the word “applies” should be changed to “apply”.

Response

Carried.

B1-SUB E-CS 23.1201

Para.

96 / CAA UK

Comment

23.1201 the word “applies” should be changed to “apply”.

Response

Carried.

B1-SUB F-CS 23.1303

Para.

96 / CAA UK

Comment

23.1303 reference to AMC material is missing.

Response

Noted. There is no AMC to CS 23.1303.

B1-SUB F-CS 23.1305

Para.

96 / CAA UK

Comment

23.1305 text has not been left and right justified.

Response

Carried.

B1-SUB F-CS 23.1321

Para. ***(d)(4)***

97 / Cessna, USA

Comment

CS 23.1321(d)(4) Arrangement and Visibility references CS 23.1303(a)(3), which does not exist in the CS spec. Based on the original JAR regulations, the reference was to JAR 23.1303 (a)(3) the non-stabilised magnetic direction indicator. The corresponding paragraph to this in the CS is 23.1303(c).

CS 23.1321 (d)(4) Current text: ...magnetic direction indicator required by CS 23.1303 (a) (3), ...

CS 23.1321 (d)(4) Proposed text: ...magnetic direction indicator required by CS 23.1303 (c), ...

Response

Carried.

B1-SUB F-CS 23.1323

Para.

96 / CAA UK

Comment

23.1323 the reference to AMC material is missing.

Response

Noted. There is no AMC to CS 23.1323.

B1-SUB F-CS 23.1331

Para.

96 / CAA UK

Comment

23.1331 the title should be "Instruments using a power source" in accordance with NPA 23-6

Response

Carried.

B1-SUB F-CS 23.1393

Para.

96 / CAA UK

Comment

23.1393 the split of the title block from the rest of the table should be rectified.

Response

Carried.

B1-SUB F-CS 23.1447

Para.

96 / CAA UK

Comment

23.1447 page 1-F-19 top of column 1 "CS23.1445(a)(continued)" should be "CS 23.1447 (b) (continued)"

Response

Noted. The CS 23...(continued) statement is deleted throughout the document.

B1-SUB F-CS 23.1450

Para.

96 / CAA UK

Comment

23.1450 the words " of this section" have been deleted and the sentence is now unclear, i.e. for the purpose of what?

Page 1-F-19 top of column 2 "CS 23.1447 (continued)" should be "CS 23.1450 (continued)"

Response

Noted. Text now reads:
"For the purpose of this paragraph..."

Noted. The CS 23...(continued) statement is deleted throughout the document.

B1-SUB G-CS 23.1521

Para.

96 / CAA UK

Comment

23.1521(e) the [] should be deleted from this paragraph

Response

Carried.

B1-SUB G-CS 23.1581

Para.

96 / CAA UK

Comment

23.1581 the reference to AMC material is missing.

Response

Noted. There is no AMC to CS 23.1581.

B1-SUB G-CS 23.1587

Para. ***(d)(3)***

96 / CAA UK

Comment

23.1587(d)(3) the reference to the applicant should be removed.

Response

Noted. In general terms, references to "applicant" are not recommended. However, in this case, such reference cannot be understood as a procedural requirement and is deemed acceptable.

Appendices-A23.1

Para.

96 / CAA UK

Comment

Appendix A to CS-23 - note that A23.1(c) notes that "unless otherwise stated the nomenclature and symbols of this Appendix are the same as the corresponding nomenclature and symbols in CS-23". However one should note that some inconsistency of units can exist between the symbols in the Appendix and those in the main body of the text, e.g. CS-23 Appendix A para A23.3 contains equations for VFmin, VAmin, VCmin, VDmin , that require the continued use of Imperial units for wing loading W/S in units of lb/ft2 - the main text in CS-23 is CS 23.335 and when computing design speeds also requires units of lb/ft2 for W/S, however units of N/m2 are required later in CS-23 when calculating the W/S to be used under CS 23.341.

Response

Noted. The imperial units have been retained in between brackets and may continue to be used in the equations until further notice.

Appendices-A23.3

Para.

96 / CAA UK

Comment

A23.3 in the definition of nflap, Vf should be VF.

Response

Carried.

Appendices-A23.11

Para. ***(c)(2)***

96 / CAA UK

Comment

A23.11(c)(2) the word "acrobatic" should be replaced with "aerobatic" for consistency with the rest of CS 23.

Response

Carried (!).

Appendices-C23.1

Para.

96 / CAA UK

Comment

Appendix C - the diagrams of Basic Landing Conditions are missing and should be re-instated.

Response

Carried. PC

Appendices-D23.1

Para.

96 / CAA UK

Comment

Appendix D it is noted that the formulae have not been converted to SI units.

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
c.Not all units are converted;
d.correcting of mistakes.

With regard to these comments the following remarks can be made:
a.The comment is agreed in principle, however it should be noted that ICAO Annex 5 allows the use of these non-SI alternatives, but lists the SI units as the "primary units" (see table 3-4 of Annex 5). Therefore the conversion to SI units in these cases is still valid, bearing in mind that the non-SI alternative units, quoted between brackets, may continue to be used.
b.As explained under 2. above the units were converted using the "equivalent tolerance" principle, which is believed to be the right approach in general. It is however noted that some of the figures in the airworthiness codes serve only as an input to calculations and do not reflect an actual requirement to be met (e.g. CS 25.415(a)). In such case the figure has to be treated as a figure with no tolerance, and the conversion should be as accurate as possible.
From some of the comments it is also clear that people have used the figures with "old" units with a tolerance that was not reflected in the figure. There may have been a good reason to do so, but it may also have been for no good reason. It will be necessary to review all the figures to check if the tolerance as implied by the figure is sufficient for the purpose of the requirement.
c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula's and in graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

Appendices-G23.1

Para.

96 / CAA UK

Comment

G23.1 paragraph c is missing.

Response

Noted. An equivalent provision to paragraph (c) is to be found in Part 21.

Other

Para. ***23.1353***

96 / CAA UK

Comment

23.1353 the reference to AMC material is missing.

Response

Noted. There is no AMC to CS 23.1353.

Other

Para. *23.1529*

96 / CAA UK

Comment

23.1529 It is noted that the second paragraph of this requirement has been deleted.

Response

Noted. It is in Part 21.

Para. *23.1583(c)(5)*

96 / CAA UK

Comment

23.1583 (c)(5) the reference to the applicant should be removed.

Response

Noted. In general terms, references to "applicant" are not recommended. However, when used, such reference cannot be understood as being a procedural requirement and is deemed acceptable.

Para. *23.1583(c)(5)(i)*

96 / CAA UK

Comment

23.1583 (c)(5)(i) the reference to the applicant should be removed.

Response

Noted. In general terms, references to "applicant" are not recommended. However, when used, such reference cannot be understood as being a procedural requirement and is deemed acceptable.

Para. *23.335*

96 / CAA UK

Comment

23.335, It is noted that the successful use of some of the current formulae in this section is dependant upon use of Imperial Units.

Response

Noted.

Para. *23.459*

96 / CAA UK

Comment

23.459, The existing text of JAR/FAR 23 contains the following text "...such as slots and spoilers..." that it is believed should be amended to read "...such as slats and spoilers...".

Response

Carried.

Para. *23.533*

96 / CAA UK

Comment

23.533, It is noted that the successful use of the formula in this sub paragraph is dependant on the use of Imperial Units.

Response

Noted.

Para. *23.574*

96 / CAA UK

Comment

23.574, This text has not been left and right justified.

Response

Noted. This is now corrected.

Other

Para. *23.59*

96 / CAA UK

Comment

23.59, lead in sentence has a duplicate word that should be deleted "...determination of the the take-off run..."

Response

Carried.

Para. *23.679*

96 / CAA UK

Comment

23.679 page 1-D-6 top of column 2 text “CS23.689 (b) (continued)” should be deleted.

Response

Noted. The CS 23...(continued) statement is deleted throughout the document.

Para. *23.723*

96 / CAA UK

Comment

23.723 page 1-D-9 top of column 1 text “CS23.721 (continued)” should be deleted.

Response

Noted. The CS 23...(continued) statement is deleted throughout the document.

Para. *23.903(d)(2)*

96 / CAA UK

Comment

23.903(d)(2) the word “applies” should be changed to “apply”.

Response

Carried.

Para. *23.953*

97 / Cessna, USA

Comment

CS 23.953 Fuel System Independence contains subparagraph (a), however there is no subparagraph (b). See Item 2 above.

Response

Noted. Numbering is kept for consistency with FAR 23.

General Comments

Para.

93 / CAA Sweden

Comment

With reference to the Consultation Papers concerning certification specifications (CS) mentioned above (CS VLR and CS 23 would like to make the following comments.

Since the proposed certification specifications contain regulatory material which, essentially, is presented as being identica the content of the corresponding JARs, we are in favour of the proposed material.

However, should the proposals not have the same content as those JARs, there must be a possibility to rediscuss such iter

Response

Noted.
Further review may be carried out by the Agency. However, it should ne noted that all technical texts have been published b the JAA in accordance with JAR-11 for the standard 3 month comment period. All interested parties had the opportunity to provide comments.

96 / CAA UK

Comment

With regard to the above referenced consultation, please find attached the UK CAA comments. For CS-23 there are a signif number of comments mainly referring to conversion of units and editorial suggestions. It is apparent that whilst much of the produced during the transposition from JAR-23 to CS-23 is acceptable, there are a significant number of errors and inconsistencies and also some fundamental errors that must not be continued into the final version of CS-23. It is therefor suggested that a further and more complete review of Books 1 and 2 and the FTG is undertaken. It is hoped that these comments may be of use in finalising the text.

Response

Noted. Detailed comments from the same commentor will be taken into account as providing explanation as to these unkno errors.

96 / CAA UK

Comment

Use of SI units

Strict observance of the SI system of units in the certification specifications is not compatible with current western world airworthiness and operational practice, which necessitates that data scheduled in Flight Manuals and displayed on the corresponding flight deck instrumentation and placards using the following units. Commonly:

Airspeedknots
Wind speedknots
Distance (long)nautical miles
Altitudefeet
Elevationfeet
Heightfeet
Vertical speedft/min

are used and recognised in ICAO Annex 5 as acceptable non-SI alternative units. No dates have been agreed for the termination of their use, which use is widespread throughout Europe and much of the rest of the world, and is in compliance with ICAO Annex 5. Furthermore, given that CS 23.1581(c) requires that the Flight Manual units and flight deck instrumentation are consistent, it is illogical (and potentially unsafe) for these parameters to be expressed in dissimilar uni the flight requirements of Section B..

General Comments on Unit Conversions

As the conversion of JAR 23 to CS 23 has involved significant elements of rounding of converted figures a degree of dishar with FAR 23 has been introduced, the result of this is that manufacturers will need to envelope both CS 23 and FAR 23 valu satisfy both sets of requirements. Although this does not usually introduce a significant design penalty, where the figure rel to a value that may be squared to generate a loading (such as airspeed) or raised to some other power, the change can bec significant from a design perspective and call into question the wisdom of the exercise of conversion.

For the conversion of units from Imperial to Metric Units an inconsistent approach appears to have been taken. In a number cases no attempt has been made to insert the metric equivalents, which is contrary to the approach described in the coveri note to CS-23 contained in the Consultation Paper No. 18/2003-09-02 draft proposal on CS-23 by EASA, (in particular a r of figures and also several Appendices in Book1 have not been converted, e.g. Appendix A para A23.3 and the Figures A1, A3, A5 and A6, Appendix D - para D23.1). It is suggested that a more considered approach to unit conversion involving th relevant technical specialists from the appropriate discipline be performed for subsequent revisions to the CS.

Where units have been converted in CS-23, CAA welcomes the principle that a metric value is stated and that the imperial have been retained in brackets afterwards. Unfortunately it is noted that the accuracy of the metric value stated before the bracketed imperial value has on occasion been sacrificed in a non-conservative manner by the use of less significant figure the use of insufficient decimal places.

In addition to the previous comment it is also observed that some paragraphs have not been converted at all, generally whe different values within the paragraph interact and the dimensions at each step are unclear. If the intention is really to introd SI units throughout these paragraphs will require some attention.

In addition to the previous comment it is also observed that some AMC paragraphs have not been converted at all, in the c

General Comments

Para.

of Book 2 this often has occurred where there are figures or tabulated data. If the intention is really to introduce correct SI units throughout the CS-23 Book 2, then these AMC paragraphs will require some further attention. Note that the SI base u are as follows :- meter (m), kilogram (kg), second (s), ampere (A), Kelvin (K), candela (cd) and mole (mol). In addition the supplementary SI units are radian (rad), and steradian (sr) , and a large list of derived SI units exists, that is based on mul and quotient functions of the basic and supplementary SI units, (ref. Tables of Physical and Chemical Constants by G W C and T H Laby 14th Edition published by Longman - Section 1.1.1 refers).

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
c.Not all units are converted;
d.correcting of mistakes.

With regard to these comments the following remarks can be made:
a.The comment is agreed in principle, however it should be noted that ICAO Annex 5 allows the use of these non-SI alternatives, but lists the SI units as the "primary units" (see table 3-4 of Annex 5). Therefore the conversion to SI units in these cases is still valid, bearing in mind that the non-SI alternative units, quoted between brackets, may continue to be us
b.As explained under 2. above the units were converted using the "equivalent tolerance" principle, which is believed to be th right approach in general. It is however noted that some of the figures in the airworthiness codes serve only as an input to calculations and do not reflect an actual requirement to be met (e.g. CS 25.415(a)). In such case the figure has to be treate a figure with no tolerance, and the conversion should be as accurate as possible.
From some of the comments it is also clear that people have used the figures with "old" units with a tolerance that was not reflected in the figure. There may have been a good reason to do so, but it may also have been for no good reason. It will be necessary to review all the figures to check if the tolerance as implied by the figure is sufficient for the purpose of the requirement.
c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula's and i graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

96 / CAA UK

Comment

Specific SI unit conversions

Throughout CS 23, the accurate conversion for 6000 lb is 2721.5537. It is therefore suggested that the existing metric conversion of 2721 kg should be retained in all cases.

Response

Noted.

96 / CAA UK

Comment

It is apparent that whilst much of the text produced during the transposition from JAR-23 to CS-23 is acceptable, there are significant number of errors and inconsistencies and also some fundamental errors that must not be allowed into the final version of CS-23. It is therefore suggested that a further and more complete review of Books 1 and 2 and the FTG is undertaken.

Response

Noted.

B2-AMC 23.371(a)

Para.

96 / CAA UK

Comment

AMC 23. 371(a) – the propeller diameter has not been converted to SI units.

Response

Noted. Conversion made.

B2-AMC 23.573(a)(1)

Para.

96 / CAA UK

Comment

AMC 23.573(a)(1) and (3) – it is noted that an additional paragraph has been added to this section without prior NPA actio

Response

Disagreed. The existing footnote is relevant.

B2-PARAGRAPH23.25

Para. *(6)*

96 / CAA UK

Comment

FTG Paragraph 23.25(6) the word “acrobatic” should be “aerobatic” for consistency with the rest of CS 23.

Response

Carried (!).

B2-PARAGRAPH23.49

Para. *(a)(5)(ii)*

96 / CAA UK

Comment

FTG Paragraph 23.49(a)(5)(ii) it is noted that this equation has not been converted to SI units.

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
c.Not all units are converted;
d.correcting of mistakes.

With regard to these comments the following remarks can be made:
a.The comment is agreed in principle, however it should be noted that ICAO Annex 5 allows the use of these non-SI alternatives, but lists the SI units as the “primary units” (see table 3-4 of Annex 5). Therefore the conversion to SI units in these cases is still valid, bearing in mind that the non-SI alternative units, quoted between brackets, may continue to be us
b.As explained under 2. above the units were converted using the “equivalent tolerance” principle, which is believed to be th right approach in general. It is however noted that some of the figures in the airworthiness codes serve only as an input to calculations and do not reflect an actual requirement to be met (e.g. CS 25.415(a)). In such case the figure has to be treate a figure with no tolerance, and the conversion should be as accurate as possible.
From some of the comments it is also clear that people have used the figures with “old” units with a tolerance that was not reflected in the figure. There may have been a good reason to do so, but it may also have been for no good reason. It will be necessary to review all the figures to check if the tolerance as implied by the figure is sufficient for the purpose of the requirement.
c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula’s and i graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

Para. *(a)(6)*

96 / CAA UK

Comment

FTG Paragraph 23.49(a)(6) it is noted that the graph has not been converted to SI units.

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
c.Not all units are converted;
d.correcting of mistakes.

With regard to these comments the following remarks can be made:
a.The comment is agreed in principle, however it should be noted that ICAO Annex 5 allows the use of these non-SI alternatives, but lists the SI units as the “primary units” (see table 3-4 of Annex 5). Therefore the conversion to SI units in these cases is still valid, bearing in mind that the non-SI alternative units, quoted between brackets, may continue to be us
b.As explained under 2. above the units were converted using the “equivalent tolerance” principle, which is believed to be th right approach in general. It is however noted that some of the figures in the airworthiness codes serve only as an input to calculations and do not reflect an actual requirement to be met (e.g. CS 25.415(a)). In such case the figure has to be treate a figure with no tolerance, and the conversion should be as accurate as possible.
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c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula’s and i graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

B2-PARAGRAPH23.49

Para. *(b)(2)(i)*

96 / CAA UK

Comment

FTG Paragraph 23.49(b)(2)(i) it is noted that the speed reductions referenced in this paragraph have not been converted to units.

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
c.Not all units are converted;
d.correcting of mistakes.

With regard to these comments the following remarks can be made:
a.The comment is agreed in principle, however it should be noted that ICAO Annex 5 allows the use of these non-SI alternatives, but lists the SI units as the "primary units" (see table 3-4 of Annex 5). Therefore the conversion to SI units in these cases is still valid, bearing in mind that the non-SI alternative units, quoted between brackets, may continue to be us
b.As explained under 2. above the units were converted using the "equivalent tolerance" principle, which is believed to be th right approach in general. It is however noted that some of the figures in the airworthiness codes serve only as an input to calculations and do not reflect an actual requirement to be met (e.g. CS 25.415(a)). In such case the figure has to be treate a figure with no tolerance, and the conversion should be as accurate as possible.
From some of the comments it is also clear that people have used the figures with "old" units with a tolerance that was not reflected in the figure. There may have been a good reason to do so, but it may also have been for no good reason. It will be necessary to review all the figures to check if the tolerance as implied by the figure is sufficient for the purpose of the requirement.
c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula's and i graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

B2-PARAGRAPH23.51

Para. *(c)(1)*

96 / CAA UK

Comment

FTG Paragraph 23.51(c)(1) "15 meter" should be "15m" for consistency with the rest of CS 23.

Response

Carried.

B2-PARAGRAPH23.53

Para. *(b)(5)*

96 / CAA UK

Comment

FTG Paragraph 23.53(b)(5) and (6) it is noted that the equations in these paragraphs have not been converted to SI units.

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
c.Not all units are converted;
d.correcting of mistakes.

With regard to these comments the following remarks can be made:
a.The comment is agreed in principle, however it should be noted that ICAO Annex 5 allows the use of these non-SI alternatives, but lists the SI units as the "primary units" (see table 3-4 of Annex 5). Therefore the conversion to SI units in these cases is still valid, bearing in mind that the non-SI alternative units, quoted between brackets, may continue to be us
b.As explained under 2. above the units were converted using the "equivalent tolerance" principle, which is believed to be th right approach in general. It is however noted that some of the figures in the airworthiness codes serve only as an input to calculations and do not reflect an actual requirement to be met (e.g. CS 25.415(a)). In such case the figure has to be treate a figure with no tolerance, and the conversion should be as accurate as possible.
From some of the comments it is also clear that people have used the figures with "old" units with a tolerance that was not reflected in the figure. There may have been a good reason to do so, but it may also have been for no good reason. It will be necessary to review all the figures to check if the tolerance as implied by the figure is sufficient for the purpose of the requirement.
c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula's and i graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

B2-PARAGRAPH23.53

Para. ***(b)(6)***

96 / CAA UK

Comment

FTG Paragraph 23.53(b)(5) and (6) it is noted that the equations in these paragraphs have not been converted to SI units.

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
c.Not all units are converted;
d.correcting of mistakes.

With regard to these comments the following remarks can be made:
a.The comment is agreed in principle, however it should be noted that ICAO Annex 5 allows the use of these non-SI alternatives, but lists the SI units as the "primary units" (see table 3-4 of Annex 5). Therefore the conversion to SI units in these cases is still valid, bearing in mind that the non-SI alternative units, quoted between brackets, may continue to be us
b.As explained under 2. above the units were converted using the "equivalent tolerance" principle, which is believed to be th right approach in general. It is however noted that some of the figures in the airworthiness codes serve only as an input to calculations and do not reflect an actual requirement to be met (e.g. CS 25.415(a)). In such case the figure has to be treat a figure with no tolerance, and the conversion should be as accurate as possible.
From some of the comments it is also clear that people have used the figures with "old" units with a tolerance that was not reflected in the figure. There may have been a good reason to do so, but it may also have been for no good reason. It will be necessary to review all the figures to check if the tolerance as implied by the figure is sufficient for the purpose of the requirement.
c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula's and i graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

B2-PARAGRAPH23.55

Para. ***(b)(11)(ii)***

96 / CAA UK

Comment

FTG Paragraph 23.55 (b)(11)(ii) the SI conversion for 10 knots has not been included.

Response

Noted. Conversion made.

B2-PARAGRAPH23.61

Para.

96 / CAA UK

Comment

FTG Paragraph 23.61 page 2-FTG-2-34 "Chapter 2 Paragraph CS 23.59 (continued)" should be "Chapter 2 Paragraph 23. (continued)".

Response

Carried.

96 / CAA UK

Comment

FTG Paragraph 23.61 the diagram for Figure 24-1 is missing from this paragraph.

FTG Paragraph 23.61 Figure 24-2 the "=" is missing from "122m (400ft)"

Response

Noted. This has now been corrected.

B2-PARAGRAPH23.65

Para. ***(a)(1)***

96 / CAA UK

Comment

FTG Paragraph 23.65(a)(1) word "10000" should be "10000ft" and SI conversion included.

Response

Carried.

B2-PARAGRAPH23.65

Para. *(b)(3)*

96 / CAA UK

Comment

FTG Paragraph 23.65(b)(3) reference to 5, 10 and 15 knots in this paragraph have not been converted to SI units.

Response

Noted. This is now corrected.

Para. *(b)(4)*

96 / CAA UK

Comment

FTG Paragraph 23.65(b)(4) and (7) it is noted that the graphs in these paragraphs have not been converted to SI units

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
c.Not all units are converted;
d.correcting of mistakes.

With regard to these comments the following remarks can be made:
a.The comment is agreed in principle, however it should be noted that ICAO Annex 5 allows the use of these non-SI alternatives, but lists the SI units as the "primary units" (see table 3-4 of Annex 5). Therefore the conversion to SI units in these cases is still valid, bearing in mind that the non-SI alternative units, quoted between brackets, may continue to be us
b.As explained under 2. above the units were converted using the "equivalent tolerance" principle, which is believed to be th right approach in general. It is however noted that some of the figures in the airworthiness codes serve only as an input to calculations and do not reflect an actual requirement to be met (e.g. CS 25.415(a)). In such case the figure has to be treate a figure with no tolerance, and the conversion should be as accurate as possible.
From some of the comments it is also clear that people have used the figures with "old" units with a tolerance that was not reflected in the figure. There may have been a good reason to do so, but it may also have been for no good reason. It will be necessary to review all the figures to check if the tolerance as implied by the figure is sufficient for the purpose of the requirement.
c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula's and i graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

Para. *(b)(7)*

96 / CAA UK

Comment

FTG Paragraph 23.65(b)(4) and (7) it is noted that the graphs in these paragraphs have not been converted to SI units

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
c.Not all units are converted;
d.correcting of mistakes.

With regard to these comments the following remarks can be made:
a.The comment is agreed in principle, however it should be noted that ICAO Annex 5 allows the use of these non-SI alternatives, but lists the SI units as the "primary units" (see table 3-4 of Annex 5). Therefore the conversion to SI units in these cases is still valid, bearing in mind that the non-SI alternative units, quoted between brackets, may continue to be us
b.As explained under 2. above the units were converted using the "equivalent tolerance" principle, which is believed to be th right approach in general. It is however noted that some of the figures in the airworthiness codes serve only as an input to calculations and do not reflect an actual requirement to be met (e.g. CS 25.415(a)). In such case the figure has to be treate a figure with no tolerance, and the conversion should be as accurate as possible.
From some of the comments it is also clear that people have used the figures with "old" units with a tolerance that was not reflected in the figure. There may have been a good reason to do so, but it may also have been for no good reason. It will be necessary to review all the figures to check if the tolerance as implied by the figure is sufficient for the purpose of the requirement.
c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula's and i graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

B2-PARAGRAPH23.75

Para. *(a)(1)*

96 / CAA UK

Comment

FTG Paragraph 23.75(a)(1) reference to 3 knots has not been converted to SI units.

Response

Noted. Conversion made.

B2-PARAGRAPH23.75

Para. *(b)(1)*

96 / CAA UK

Comment

FTG Paragraph 23.75 (b)(1) reference to 3 knots has not been converted to SI units.

Response

Noted. Conversion made.

B2-PARAGRAPH23.153

Para. *(a)(1)*

96 / CAA UK

Comment

FTG Paragraph 23.153(a)(1) reference to 5 knots has not been converted to SI units.

Response

Noted. Conversion made.

B2-PARAGRAPH23.155

Para. *(c)*

96 / CAA UK

Comment

FTG Paragraph 23.155c it is noted that the graph in this paragraph has not been converted to SI units.

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
c.Not all units are converted;
d.correcting of mistakes.

With regard to these comments the following remarks can be made:
a.The comment is agreed in principle, however it should be noted that ICAO Annex 5 allows the use of these non-SI alternatives, but lists the SI units as the “primary units” (see table 3-4 of Annex 5). Therefore the conversion to SI units in these cases is still valid, bearing in mind that the non-SI alternative units, quoted between brackets, may continue to be us
b.As explained under 2. above the units were converted using the “equivalent tolerance” principle, which is believed to be th right approach in general. It is however noted that some of the figures in the airworthiness codes serve only as an input to calculations and do not reflect an actual requirement to be met (e.g. CS 25.415(a)). In such case the figure has to be treate a figure with no tolerance, and the conversion should be as accurate as possible.
From some of the comments it is also clear that people have used the figures with “old” units with a tolerance that was not reflected in the figure. There may have been a good reason to do so, but it may also have been for no good reason. It will be necessary to review all the figures to check if the tolerance as implied by the figure is sufficient for the purpose of the requirement.
c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula’s and i graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

B2-PARAGRAPH23.171

Para. *(a)(2)*

96 / CAA UK

Comment

FTG Paragraph 23.171(a)(2) it is noted that the 3 graphs in this paragraph have not been converted to SI units.

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
c.Not all units are converted;
d.correcting of mistakes.

With regard to these comments the following remarks can be made:
a.The comment is agreed in principle, however it should be noted that ICAO Annex 5 allows the use of these non-SI alternatives, but lists the SI units as the "primary units" (see table 3-4 of Annex 5). Therefore the conversion to SI units in these cases is still valid, bearing in mind that the non-SI alternative units, quoted between brackets, may continue to be us
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From some of the comments it is also clear that people have used the figures with "old" units with a tolerance that was not reflected in the figure. There may have been a good reason to do so, but it may also have been for no good reason. It will be necessary to review all the figures to check if the tolerance as implied by the figure is sufficient for the purpose of the requirement.
c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula's and i graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

B2-PARAGRAPH23.175

Para. *(c)(2)*

96 / CAA UK

Comment

FTG Paragraph 23.175(c)(2) it is noted that the graph in this paragraph has not been converted to SI units.

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
c.Not all units are converted;
d.correcting of mistakes.

With regard to these comments the following remarks can be made:
a.The comment is agreed in principle, however it should be noted that ICAO Annex 5 allows the use of these non-SI alternatives, but lists the SI units as the "primary units" (see table 3-4 of Annex 5). Therefore the conversion to SI units in these cases is still valid, bearing in mind that the non-SI alternative units, quoted between brackets, may continue to be us
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c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula's and i graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

B2-PARAGRAPH23.181

Para. *(e)(2)*

96 / CAA UK

Comment

FTG Paragraph 23.181 (e)(2) text is missing from the end of this paragraph " The rudder pulsing technique usually produce better Dutch roll ……" The words "Chapter 2 Section 23.181 (continued)" should be deleted from this paragraph.

Response

Carried.

B2-PARAGRAPH23.201

Para. ***(b)(4)***

96 / CAA UK

Comment

FTG Paragraph 23.201 (b)(4) reference to 1 knot per second has not been converted to SI units.

Response

Noted. Conversion made.

B2-PARAGRAPH23.203

Para. ***(b)(3)***

96 / CAA UK

Comment

FTG Paragraph 23.203(b)(3) reference to "3 to 5 knots per second" has not been converted to SI units.

Response

Noted. Conversion made.

B2-PARAGRAPH23.1045

Para. ***(b)(9)***

96 / CAA UK

Comment

FTG Paragraph 23,1045(b)(9) rate of change of temperature has not been converted to SI units.

Response

Noted. Conversion made.

Para. ***(f)(1)***

96 / CAA UK

Comment

FTG Paragraph 23,1045(f)(1) temperature has not been converted to SI units.

Response

Noted. Conversion made.

Para. ***(f)(2)***

96 / CAA UK

Comment

FTG Paragraph 23,1045(f)(2) it is noted that the sample calculation has not been converted to SI units.

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
c.Not all units are converted;
d.correcting of mistakes.

With regard to these comments the following remarks can be made:
a.The comment is agreed in principle, however it should be noted that ICAO Annex 5 allows the use of these non-SI alternatives, but lists the SI units as the "primary units" (see table 3-4 of Annex 5). Therefore the conversion to SI units in these cases is still valid, bearing in mind that the non-SI alternative units, quoted between brackets, may continue to be us
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From some of the comments it is also clear that people have used the figures with "old" units with a tolerance that was not reflected in the figure. There may have been a good reason to do so, but it may also have been for no good reason. It will be necessary to review all the figures to check if the tolerance as implied by the figure is sufficient for the purpose of the requirement.
c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula's and i graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

B2-PARAGRAPH23.1047

Para. *(c)(2)*

96 / CAA UK

Comment

FTG Paragraph 23,1047(c)(2) and (d)(2) it is noted that the examples have not been converted to SI units.

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
c.Not all units are converted;
d.correcting of mistakes.

With regard to these comments the following remarks can be made:
a.The comment is agreed in principle, however it should be noted that ICAO Annex 5 allows the use of these non-SI alternatives, but lists the SI units as the "primary units" (see table 3-4 of Annex 5). Therefore the conversion to SI units in these cases is still valid, bearing in mind that the non-SI alternative units, quoted between brackets, may continue to be us
b.As explained under 2. above the units were converted using the "equivalent tolerance" principle, which is believed to be th right approach in general. It is however noted that some of the figures in the airworthiness codes serve only as an input to calculations and do not reflect an actual requirement to be met (e.g. CS 25.415(a)). In such case the figure has to be treat a figure with no tolerance, and the conversion should be as accurate as possible.
From some of the comments it is also clear that people have used the figures with "old" units with a tolerance that was not reflected in the figure. There may have been a good reason to do so, but it may also have been for no good reason. It will be necessary to review all the figures to check if the tolerance as implied by the figure is sufficient for the purpose of the requirement.
c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula's and i graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

Para. *(d)(2)*

96 / CAA UK

Comment

FTG Paragraph 23,1047(c)(2) and (d)(2) it is noted that the examples have not been converted to SI units.

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
c.Not all units are converted;
d.correcting of mistakes.

With regard to these comments the following remarks can be made:
a.The comment is agreed in principle, however it should be noted that ICAO Annex 5 allows the use of these non-SI alternatives, but lists the SI units as the "primary units" (see table 3-4 of Annex 5). Therefore the conversion to SI units in these cases is still valid, bearing in mind that the non-SI alternative units, quoted between brackets, may continue to be us
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c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula's and i graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

B2-PARAGRAPH23.1091

Para.

96 / CAA UK

Comment

FTG Paragraph 23.1091 the formatting of this paragraph needs adjustment.

Response

Noted. The necessary adjustment has now been made.

B2-PARAGRAPH23.1093

Para. ***(c)***

96 / CAA UK

Comment

FTG Paragraph 23.1093 (c) it is noted that the SI unit has not been included for altitude.

Response

Noted. SI unit has now been added.

Para. ***Figures 256-1 and -2***

96 / CAA UK

Comment

FTG Paragraph 23.1093 figures 256-1 and –2 it is noted that the table and graph have not been converted to SI units.

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
c.Not all units are converted;
d.correcting of mistakes.

With regard to these comments the following remarks can be made:
a.The comment is agreed in principle, however it should be noted that ICAO Annex 5 allows the use of these non-SI alternatives, but lists the SI units as the "primary units" (see table 3-4 of Annex 5). Therefore the conversion to SI units in these cases is still valid, bearing in mind that the non-SI alternative units, quoted between brackets, may continue to be us
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c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula's and i graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

B2-PARAGRAPH23.1301

Para. ***(b)(3)(ii)***

96 / CAA UK

Comment

FTG Paragraph 23.1301b)(3)(ii) reference to the FAA should be EASA.

Response

Noted. The last sentence of (ii), being irrelevant, is removed.

B2-PARAGRAPH23.1325

Para. *(b)*

96 / CAA UK

Comment

FTG Paragraph 23.1325(b) it is noted that the equation has not been converted to SI units.

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
c.Not all units are converted;
d.correcting of mistakes.

With regard to these comments the following remarks can be made:
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c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula's and i graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

B2-PARAGRAPH23.1541

Para. *(a)*

96 / CAA UK

Comment

FTG Paragraph 23.1541(a) the word "acrobatic" should be "aerobatic" for consistency with the rest of CS 23.

Response

Carried (!).

B2-App 1

Para.

96 / CAA UK

Comment

FTG Appendices 1, 2, 3 and 9 have not been amended to include the SI units.

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
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c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula's and i graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

B2-App 2

Para.

96 / CAA UK

Comment

FTG Appendices 1, 2, 3 and 9 have not been amended to include the SI units.

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
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c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula's and i graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

B2-App 3

Para.

96 / CAA UK

Comment

FTG Appendices 1, 2, 3 and 9 have not been amended to include the SI units.

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
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c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula's and i graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

B2-App 9

Para.

96 / CAA UK

Comment

FTG Appendices 1, 2, 3 and 9 have not been amended to include the SI units.

Response

Noted.
The comments received on this issue can be split up in four categories:
a.The non-SI alternative units knot, nautical mile and foot, allowed by ICAO Annex 5, should not be converted in SI units;
b.The conversions made, are not accurate enough;
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c.It is acknowledged that due to lack of time and resources it was not possible to convert the units in certain formula's and i graphics. This is a task which needs to be taken up by the Agency.
d.The necessary corrections are made.

other

Para.

96 / CAA UK

Comment

FTG page 2-FTG-3-4 text at top of page needs amendment as it appears to be two notes on top of one another.

Response

Noted. Text amended.

96 / CAA UK

Comment

FTG page 2-FTG-3-7 text "Chapter 6 Paragraph 23.1523 (continued)" should be "Chapter 6 Paragraph 23.1541 (continue

Response

Carried.

96 / CAA UK

Comment

FTG page 2-FTG-3-6 text "Chapter 6 Paragraph 23.1527 (continued)" should be deleted.

Response

Carried.

96 / CAA UK

Comment

FTG Chapter 6 this text in this chapter has not been left and right justified.

Response

Noted. Text corrected.

96 / CAA UK

Comment

FTG Chapter 2 Page 2-FTG-2-5 text "Chapter 2 Paragraph 23.29 (continued)" should be "Chapter 2 Paragraph 23.25 (cont "

Response

Carried.

96 / CAA UK

Comment

FTG page 2-FTG-5-9 text at top of page need amendment as it appears to be two notes on top of one another.

Response

Noted. Text adjusted.

other

Para.

96 / CAA UK

Comment

FTG page 2-FTG-6-11 text “Chapter 6 Paragraph 23.1587 (continued)” should be “Chapter 6 Paragraph 23.1585 (continu

Response

Carried.

96 / CAA UK

Comment

FTG Page 2-FTG-4-19 the text “Chapter 4 Paragraph 23.1093 (continued)” at the top of this page should be deleted.

Response

Carried.

96 / CAA UK

Comment

FTG page 2-FTG-4-8 text at top of page “Chapter 4 Paragraph 23.1045 (continued)” should be deleted.

Response

Carried.

96 / CAA UK

Comment

FTG page 2-FTG-4-7 formatting of text “239-244 RESERVEDSection 5.Cooling” needs adjustment.

Response

Noted. Text now adjusted.

96 / CAA UK

Comment

FTG page 2-FTG-6-8 text “Chapter 6 Paragraph 23.1581 (continued)” should be deleted.

Response

Carried.

96 / CAA UK

Comment

FTG Chapter 2 Section 3 the paragraph headings for this section all need the word spacing adjusted, e.g. “138 Paragraph2:
.

Response

Noted. Chapter 3 Section 2 has been corrected.

96 / CAA UK

Comment

FTG Page 2-FTG-3-1 the words “Chapter 2 Paragraph 23.677 (continued)” should be deleted from the top of this page.

Response

Carried.

96 / CAA UK

Comment

FTG Page 2-FTG-2-72 the words “Chapter 2 Paragraph 23.221 (continued)” should be deleted from the top of this page.

Response

Carried.

96 / CAA UK

Comment

FTG page 2-FTG-2-56 text at top of page need amendment as it appears to be two notes on top of one another

Response

Carried.

96 / CAA UK

Comment

FTG Page 2-FTG-2-45 text at top of page needs amendment as it appears to be two notes on top of one another.

Response

other

Para.

Carried.

96 / CAA UK

Comment

FTG Chapter 2 Page 2-FTG-2-1 text “Chapter 2 Paragraph 23.21 (continued)” needs to be deleted from the top of the page

Response

Carried.

96 / CAA UK

Comment

Contents page for the Flight Test Guide – the word section has been replaced with paragraph and as a result the word spaci needs adjustment, i.e. “paragraph23.1” etc..

Response

Carried.

96 / CAA UK

Comment

4.1Page 2-FTG-4-7 There are formatting errors in the middle of the page:

238 PARAGRAPH 23.1027 PROPELLER FEATHERING SYSTEM. Included in § 23.903 material.
See paragraph 190 of this FTG.

Response

Noted. Corrections made.

96 / CAA UK

Comment

FTG Page 2-FTG-2-49 text at top of page “Chapter 2 Paragraph 23.143(Continued)” should be “Chapter 2 (Continued)”.

Response

Carried.

Para. ***AMC 23.573(a)(3)***

96 / CAA UK

Comment

AMC 23.573(a)(1) and (3) – it is noted that an additional paragraph has been added to this section without prior NPA actio

Response

Disagreed. The existing footnote is relevant.

Para. ***FTG pages 2-FTG-2-39 and 40***

96 / CAA UK

Comment

FTG Pages 2-FTG-2-39 and 40, the headers and footers are missing from these pages.

Response

Noted. However, technically difficult.