



COMMENT RESPONSE DOCUMENT

EASA CRD of Proposed CM-21.A-D-003 Airplane Flight Manual revisions for changes in mass with and without effect on the certified noise levels

[Published on 24 August 2020 and officially closed for comments on 14 September 2020]

Commenter 1: Eurocontrol

Comment # 1

Para 4.2, page 6: In general, does the “original highest MTOM”, as referred to in the document on page 6, para 4.2, corresponds to the highest MTOM of the EASA approved weight/GC envelope of the airplane when delivered to the customer? In general, does it correspond to the MTOM as stated in the TCDS?

EASA response: *Noted*

The highest MTOM herein referred is associated to a previously certified configuration at higher MTOM (compared to the one at the time of the application). It might be the highest one mentioned in the TCDS or the one at the time of delivery of the specific a/c serial number. It is the configuration that was recorded in the previous issue of the AFM (or supplement) and for which the applicant obtained a previous Form 45 reading the combination of such mass to the associated noise levels.

Comment # 2

Para 3 page 4: The document reads “the aeroplane flight manual (AFM) is the official document defining the aeroplane’s certified envelope”. Page 5, para 4.1, the documents reads “the outcome of the application will be a new EASA-approved AFM supplement”. Does it mean that the AFM is composed of the original AFM containing the original aeroplane’s certified envelope and of a distinct series of AFM supplements formally modifying (reducing) the original MTOM, typically in order to reduce ATC charges?

EASA response: *Noted*

Yes, the applicable aircraft AFM is the one encompassing the latest EASA approved AFM contents starting with the approved TC holder’s AFM and associated supplements linked to subsequent STC/Minor Changes.

Comment # 3



Page 5 para 4.1: The above cases are ... to be implemented through a change to Type Certificate (by a minor change for Category 1 and by a major change through a STC for Category 2). Why the AFM change revision procedure involves as well a change to Type Certificate? In 4.1.1, the document reads “This type of application should be categorised as a Minor Change to TC applied for to EASA”. Why should it be categorised as a change to TC?

EASA response: *Agreed*

The word ‘change’ has to be understood as a change to a product type certificate. In principle changes can be to TC and to STC, depending to the holder of the design approval, therefore in the final version of the CM at para 4.1 both combinations are considered and the wording ‘to TC’ has then be removed in 4.1.1 for keeping the guideline more generic.

The term ‘changes to the type certificate’ does not refer to changing the document that reflects the type certificate (TC) but to the elements of the TC as defined in Part 21.A.41. It means that the processes for the approval of changes do not only apply to physical changes to the type design but also to documentary changes as e.g. AFM, operational suitability data, airworthiness and operational limitations.

Comment # 4

Page 7 para 4.2 (4): What are the regulations or rules applicable in EU to the AFM copy available to flight crew?

EASA response: *Agreed*

It is acknowledged that the current CM wording is not formally correct. A wording modification will be provided in the final version of the CM.

Per Commission Regulation (EU) No 965/2012 Air operations ORO.MLR.100 (f) Each crew member shall be provided with a personal copy of the relevant sections of the Operations Manual pertaining to their duties. Each holder of an Operations Manual (OM), or appropriate parts of it, shall be responsible for keeping their copy up to date with the amendments or revisions supplied by the operator.

(j) The operator shall ensure that information taken from approved documents [such as the AFM], and any amendment thereof, is correctly reflected in the OM. This does not prevent the operator from publishing more conservative data and procedures in the OM.

Per CAT.GEN.MPA.180 (a) the AFM or equivalent document(s), shall be carried on each flight, as originals or copies unless otherwise specified.

Link to the EASA webpage pointing to referenced EU regulation: <https://www.easa.europa.eu/document-library/regulations/commission-regulation-eu-no-9652012>

Comment # 5

In general, why is a modification of the certification required, when in fact the modification is done for operational purposes?



EASA response: *Noted*

The modification is required in the moment in which there is an impact on the EASA AFM approved data.

Comment # 6

On which basis or in which circumstances would a non-European applicant get an approval from EASA for a mass reduction?

EASA response: *Noted*

In general, from a legal standpoint, everyone can apply for a minor change to type certificate to EASA.

Non-European Applicants normally apply to their Competent Authority; however EASA might receive the application and accordingly process it. Subsequently the National Authority of registry needs to provide their agreement as well.

Comment # 7

In the proposed procedure EASA modifies the official document (by AFM supplement) to reduce the aircraft's MTOM. Why does a modification to increase the MTOM to the original weight not require the approval of EASA?

EASA response: *Noted*

The changes associated with a mass increase require an airworthiness approval under EASA system. The only clarification in the CM where there is the a mass increase without an EASA involvement is when an Applicant wants to restore the status of the aircraft to a **previously certified higher mass, which means that such mass value has been already approved by EASA in the past. The wording has been improved in the CM.**

Comment # 8

Who "invalidates" the AFM supplement issues by EASA? Is it the operator themselves by complying with their Air Operator Certificate on how to document and track revisions back to the original status, or is it the competent Authority of the Member State of registry.

EASA response: *Noted*

An AFM approved by EASA cannot be invalidated by any other entity. When an Operator intends to return to the original higher MTOM, the Operator is responsible for documenting and tracking the reversion of the aeroplane mass and noise levels back to the original status, which is already approved. It is the responsibility of



the Operator to ensure that the Operations Manual has been properly updated in accordance with the approved AFM content specific to the selected configuration for the impacted aircraft MSN.

Comment # 9

In a subsequent reduction of the MTOM, would the approval of EASA be required, or would the first AFM supplement still be valid.

EASA response: Noted

This is the case under category 1, please refer to para 4.1.1. If the 'subsequent reduction of MTOM' herein referred is an aircraft configuration / AFM previously approved by EASA, this AFM supplement is still valid.

Comment # 10

What is considered to be a change with a relative permanent status? (see Note under para. 4.2) Is a seasonal modification of the MTOM, i.e. twice a year, considered a frequent change?

EASA response: Noted

No, such frequency is the one actually forecast that can be ascribed to "permanent status". A frequent switch might be considered one on weekly basis, for instance.

Comment # 11

Is it intended that an AFM supplement issued by EASA as a result of the proposed procedure, will in fact remove the possibility of using flexible weight variants available in the AFM, and therefore will only one MTOM be certified?

EASA response: Disagreed

No, the intent of the CM is to provide guidance for the approval of specific kinds of administrative AFM approvals as explained in the purpose and scope of the CM. As a point of clarification, an aircraft shall have only one MTOM and MLM at the time as per applicable AFM. What is called a flexible weight variant should need a maintenance action per SB to change the MTOM/MLM in the AFM and the placard in the flight deck. If an organisation has been provided with a Customer Service Bulletin, there is no need to apply to EASA.



Commenter 11: Airbus Commercial Aircraft

Comment # 12

PDF page 5/11, 4.1.1, first sentence, quote:

“The scope of this type of application is for mass reduction approval, with the reduced mass being already contained in the EASA approved weight/CG aeroplane envelope, **without taking credit for the potentially lower noise levels.**”

Airbus comment:

Certification noise levels are not automatically decreasing with reduced aircraft maximal take-off weight. Indeed, lateral noise levels are always increasing when the Maximal Take-Off Mass (MTOM) is decreasing. For some aircraft model the approach noise certification levels are increasing when Maximum Landing Weight (MLW) is decreasing.

EASA response: Noted

The comment is indeed correct, for this reason the wording reads 'potentially lower'.

Comment # 13

PDF page 6/11, 4.1.2., first sentence, quote:

“This category concerns a request for a change to the MTOM and/or to the MLM (contained in the EASA approved weight/CG aeroplane envelope) with the intention to request from the competent Authority of the Member State of registry a new noise certificate associated with the **new MTOM and/or MLM.**”
Unquote.

Airbus proposed new wording:

Replace "...new MTOW and/or MLM." by "new reduced MTOW and/or MLM"

Rational:

To simplify the reading w.r.t. category 1 & 2 references (reduced MTOM each).

EASA response: Agreed

The CM is amended accordingly.



Comment # 14

PDF page 7, 4.2.2.b, first sentence, quote:

“Subcase B2, refer to §4.1.2 **Error! Reference source not found**: the reduced aeroplane [...]”

Unquote

Airbus comment

Please check the editing of this section.

EASA response: *Agreed*

The CM text of this chapter has been simplified.

Comment # 15

PDF page 11/11 – Appendix II

Airbus comments:

- a) There is a systematic typo failure in the references to the chapters of the Certification Memo, i.e.:
 - Ref.: §3.1.2 should be §4.1.2
 - Ref.: §3.1.1 should be §4.1.1 (two times)
- b) To avoid potential confusion, Airbus would like to suggest to modify the flow chart for “MASS INCREASE” to directly link “OUT OF SCOPE OF THIS CM” to the branch “REVERSION TO HIGHER MASS ORIGINALLY CERTIFIED-->**NO-->OUT OF SCOPE OF THIS CM**”
- c) The reference to chapter 5 of this CM is not well understood.

EASA response: *Agreed*

- a) **The updated CM reflects the provided proposal and comment.**

Commenter 3: KLM Royal Dutch Airlines – C. de Jong / Master Engineer Airworthiness /11-08-2020

Comment # 16



Par 4.1.2: It is unclear why a change to the AFM to include a lower MTOW including changes to the certified noise levels should result in a Major change classification if the MTOW is reduced and the corresponding noise record is listed in the TCDSN and the EASA Noise databases is based on approved data, certified by the TC holder.

Using GM 21.A.91 par. 3.6 article (b) (1)“ *Changes to limitations or procedures that remain within already certified limits (e.g. weight, structural data, noise, etc.)*” is more appropriate.

If the noise level is the reason for the major classification, than ICAO 9501 VOLUME I - Environmental Technical Manual. Third Edition, 2018. Par 2.3. provides the following definition for no-acoustical changes (NAC).

- a) changes exceed 0.10 dB at any noise measurement point and which an applicant does not track;*
- b) cumulative changes in aeroplane certification noise levels approved by the certifying authority whose sum is greater than 0.10 dB but not more than 0.30 dB at any noise measurement point and for which an applicant has an approved tracking procedure;*

If this definition for the classification for changes to the noise level is used, we conclude that a reduction in the noise level is not considered as an appreciable effect and could be classified as minor.

EASA response: *Disagreed*

Point 21.A.91 defines a minor change by having no appreciable effect on mass, [...] or its environmental characteristics. All other changes are major.

GM 21.A.91 3.6 (b)(1) lists categories of AFM revisions which are deemed to be minor: “changes to limitations or procedures that remain within already certified limits (e.g. weight, structural data, noise, etc.)”

Appendix A to GM 21.A.91 finally lists examples of major changes per discipline. Under 8. Environment it is specified what is considered to be an appreciable effect on noise. In (i) it is explained that “a reduction in the noise certification level(s) for which the applicant wishes to take credit” is considered to be a change having an appreciable effect on noise.

The CM is prepared for giving further guidance on 21.A.91 including its GM and Appendix A to the GM.

The category 2 application follows the above definitions while classifying the category 2 as a major change. By requesting a new noise certificate from the competent Authority of the Member State of registry an applicant wishes to take credit for a reduction in noise certification limits.

The category 1 application is considered to reflect the case of a change not having any an appreciable effect on its environmental characteristics and is therefore classified as minor. It follows the ICAO ETM definition of a No-acoustical while the noise levels remain unchanged and the original noise certificate issued against the higher MTOM/MLM remains valid.



Comment # 17

Appendix 2: in the decision tree procedure step Maj Change ref to § 3.1.2 should read § 4.1.2 and in the procedure step Minor Change ref to § 3.1.1 should read § 4.1.1.

EASA response: *Agreed*

See comment #15 (a)

Commenter 4: Scandinavian Avionics Design ApS – Franz Redak / Head of Office of Airworthiness – 15.09.2020

Comment # 18

In 4.1.1. It seems that the wording would not specifically identify the possibility to perform such change under the privilege of a DOA.

We would recommend to enter wording as follows:

- in 4.1.1. that such Minor change may be performed under the privilege of 21.A.263(c)(2). A note in 3 would be equally sufficient.

EASA response: *Agreed*

The CM text has been adapted accordingly.

Comment # 19

While the whole CM is suggesting to talk about a 'design change application', in 4.1.2.1 Guidance for the application, it is suddenly talking about an organisation privilege i.a.w. 21.A.263(c)(9). While it is true that you need such a privilege in place prior exercising the 'certain' STC or Major Change it is not true that it 'always' needs an EASA approval, provided the privilege is in place. The extension of the privilege to AFM changes as per this CM does not need an approval as we read the AMC to this para. The follow-on 'certain' STC or Major change only requires an acceptance of a related 'justification document' to the privilege but no approval.

We would recommend to enter wording as follows:

- in 4.1.2.1. either remove misleading wording about the privilege completely or just note that such a change potentially qualifies for a 'certain' STC or Major change.

EASA response: *Agreed*

The CM text has been simplified in this aspect.



Comment # 20

4.1.2.1 seems to identify that the privilege holder i.a.w. 21.A.263(c)(9) needs to submit the STC data immediately to EASA once the 'certain' change is completed in order to submit the STC number and to amend the Noise Database. This seems to indicate that there is a very close timeframe to be followed. Such a close succession of completion and submittal of data to EASA is not currently identified in the AMC and GM of the privilege.

Recommendation:

- **Clarify the timeframe and other conditions applicable to such change in the related AMC of the privilege.**

EASA response: *Partially Agreed*

The CM text has been simplified in this aspect.

Commenter 5: EMBRAER – Marcos de Mathias Rizzo / Engineer / AFM Specialist /September 14, 2020

Comment # 21

Item 4.1.1 (page 5): Reading this section, it seems that only non-TC holders could apply to minor AFM changes associated to mass change, besides, we were not sure if this is really the EASA objective. Embraer suggests a revision in this section to make it clearer if the TC holders may also make such kind of applications, at their discretion.

EASA response: *Disagreed*

The CM is applicable to non TC holders since only in this field of work the need for further guidance was identified. The CM does not prevent TC holders from exercising their own privileges.

Comment # 22

Item 4.2 (page 7): The item 2.b has a reference error message.

EASA response: *Agreed*

See Comment #14

Comment # 23



Item 4.2 (page 7): Regarding the Note b (This guidance applies when the change has a relatively permanent status, assuming that the Applicant/Operator does not intend to frequently switch the aeroplane configuration between the different approved masses A and B.), Embraer understands that “relatively permanent” could be better defined, to be clearer the period that EASA understands as “relatively permanent”.

EASA response: Noted

See Comment #10.

Commenter 6: ATR – Camille BENTZ / Certification Specialist – 14th Sept 2020

Comment # 24

ATR has no comment on the proposed CM-21.A-D-003.

EASA response: Noted

Thank you for your feedback.

Commenter 7: British Airways – 16th Sept 2020

Comment # 25

1. BA have in the past have considered the situations described in the Notification of a Proposal to Issue a Certification Memorandum CM-21.a-D-003 as a Minor change.

Please see our reasoning below.

- a) There is no physical change to the aircraft, airframe or its systems this is a change to how the aircraft is operated only – Typically managed by restricting the amount of fuel or catering load on the aircraft only.
- b) The data supporting the change – TCDSNs for the new lower operating mass are already approved by the authority and available to the DOA via the EASA website.
- c) The maintenance of the aircraft remains unchanged – The SRM and Approved Maintenance Programme remain unchanged so repairs are performed against the original higher mass and ALI part 1 and Part 2 tasks continue to be maintained to the higher operating weight.



- d) The change to Noise Db level is not affected detrimentally with lower Mass, as the Db level decreases
- 2. In addition to the above point of reducing Db levels, BA believes that there may be an unintended consequence of this Certification Memorandum due to the additional cost associated with STC application deterring operators in future from reducing noise levels, as the cost / benefit case becomes more marginal. This would seem counter to the authorities and industries environmental goals

EASA response: Partially agreed.

With reference to point 1a) and 1c), in case of administrative mass reduction-only, the BA's consideration is aligned with the CM, i.e. minor classification.

Points 1b) and d) are deemed to have been already handled thru response to Comment #12 and #16.

Regarding point 2) The CM does not change the legal environment but provides guidance to ensure a correct application of Part 21 with reference to change classification. It is also reminded that once the mass/noise combination is achieved thru a dedicated Service Bulletin there is no need to apply for STC to EASA.

