COMMENT RESPONSE DOCUMENT (CRD) TO NOTICE OF PROPOSED AMENDMENT (NPA) 2011-08

DRAFT OPINION OF THE EUROPEAN AVIATION SAFETY AGENCY

for a Commission Regulation amending Regulation (EC) No 216/2008 of the European Parliament and the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC

and

for a Commission Regulation amending Commission Regulation (EC) No 1702/2003 of 24 September 2003 laying down implementing rules for the airworthiness and environmental certification of aircraft and related products, parts and appliances, as well as for the certification of design and production organisations ('Part 21'),

and

DRAFT DECISION OF THE EXECUTIVE DIRECTOR OF THE EUROPEAN AVIATION SAFETY AGENCY

amending Decision No 2003/1/RM of the Executive Director of the European Aviation Safety Agency of 17 October 2003 on acceptable means of compliance and guidance material for the airworthiness and environmental certification of aircraft and related products, parts and appliances, as well as for the certification of design and production organisation ('AMC and GM to Part 21'),

and

DRAFT DECISION OF THE EXECUTIVE DIRECTOR OF THE EUROPEAN AVIATION SAFETY AGENCY

amending Decision No 2003/3/RM of the Executive Director of the European Aviation Safety Agency of 17 October 2003 on certification specifications providing acceptable means of compliance for aircraft engine emissions and fuel venting ('CS-34')

and

DRAFT DECISION OF THE EXECUTIVE DIRECTOR OF THE EUROPEAN AVIATION SAFETY AGENCY

amending Decision No 2003/4/RM of the Executive Director of the European Aviation Safety Agency of 17 October 2003 on certification specifications providing acceptable means of compliance for aircraft noise ('CS-36')

"Implementation of CAEP/8 amendments"

Explanatory Note

I. General

1. The purpose of the Notice of Proposed Amendment (NPA) 2011-08, dated 16 May 2011 was to propose amendments to the following:

   - Regulation (EC) No 216/2008[1] (the Basic Regulation);
   - Commission Regulation (EC) No 1702/2003[2] ;
   - Decision No 2003/1/RM of the Executive Director of the European Aviation Safety Agency of 17 October 2003[3];
   - Decision No 2003/3/RM of the Executive Director of the European Aviation Safety Agency of 17 October 2003[4]; and
   - Decision No 2003/4/RM of the Executive Director of the European Aviation Safety Agency of 17 October 2003[5];

   in order to implement the amendments of:

   - Annex 16 Volume I and Volume II adopted by the ICAO Council on 4 March 2011; and
   -- ICAO Doc 9501 – Environmental Technical Manual – Volume I and Volume II approved by ICAO/CAEP/8 in February 2010.

II. Consultation

2. The draft text for amending the above mentioned Regulations and Decisions was published on the web site (http://www.easa.europa.eu) on 16 May 2011.

   By the closing date of 16 August 2011, the European Aviation Safety Agency ("the Agency") had received 38 comments from 13 National Aviation Authorities, professional organisations and private companies.

III. Publication of the CRD

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[1] Regulation (EC) No 216/2008 of the European Parliament and the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC (OJ L 79, 19.3.2008, p. 1), as last amended by Regulation (EC) No 1108/2009 (OJ L 309, 24.11.2009, p. 51).

[2] Commission Regulation (EC) No 1702/2003 of 24 September 2003 laying down implementing rules for the airworthiness and environmental certification of aircraft and related products, parts and appliances, as well as for the certification of design and production organisations (Part 21) (OJ L 243, 27.9.2003, p. 6), as last amended by Regulation (EC) No 1194/2009 (OJ L 321, 8.12.2009, p. 5).

[3] Decision on acceptable means of compliance and guidance material for the airworthiness and environmental certification of aircraft and related products, parts and appliances, as well as for the certification of design and production organisation (AMC and GM to Part 21). Decision as last amended by Decision 2010/001/R of the Executive Director of the Agency of 23 March 2010.

[4] Decision on certification specifications providing acceptable means of compliance for aircraft engine emissions and fuel venting (CS-34).

[5] Decision on certification specifications providing acceptable means of compliance for aircraft noise (CS-36). Decision as last amended by Decision 2009/012/R of the Executive Director of the Agency of 7 September 2009.

3. All comments received have been acknowledged and incorporated into this Comment Response Document (CRD) with the responses of the Agency.

4. In responding to comments, a standard terminology has been applied to attest the Agency's acceptance of the comment. This terminology is as follows:

- **Accepted** – The comment is agreed by the Agency and any proposed amendment is wholly transferred to the revised text.
- **Partially Accepted** – Either the comment is only agreed in part by the Agency, or the comment is agreed by the Agency but any proposed amendment is partially transferred to the revised text.
- **Noted** – The comment is acknowledged by the Agency but no change to the existing text is considered necessary.
- **Not Accepted** - The comment or proposed amendment is not shared by the Agency

In addition to the comments that were taken into account, the Agency has moved the requirements for exemptions on the emissions production cut-off. Instead of placing the text in paragraph 1 of Article 6 of the Basic Regulation, the Agency is now proposing to place it in a new paragraph 2 of Article 2 of the Commission Regulation that will amend the Basic Regulation. The reason for this move is that the exemptions to the production cut-off cannot be considered as exemptions to the essential requirements of Article 6 of the Basic regulation. The Agency considers these exemptions to the emissions production cut-off requirement as a transition measure: during a limited amount of time after the entry into force of the Commission Regulation amending the Basic Regulation, there is a possibility to not comply with the emissions production cut-off requirement. The text itself is unchanged.

The resulting text highlights the changes as compared to the current rule and is given in the Appendix A.

5. The Agency's Opinion will be issued at least one month after the publication of this CRD to allow for any possible reactions of stakeholders regarding possible misunderstanding of the comments received and answers provided.

6. Such reactions should be received by the Agency not later than **18 November 2011** and should be submitted using the Comment-Response Tool at http://hub.easa.europa.eu/crt.

IV. CRD table of comments, responses and resulting text

(General Comments) -

comment *1* comment by: *Belgium Civil Aviation*

BCAA agrees with the intended agency's proposal to align EU regulations with the latest ICAO standards and recommended practices and associated guidelines, in particular to align respective Euiropean regulations to amendment 10 to Icao Annex 16 Volume I and to amendment 7 to Icao Annex 16 Volume II to the Chicago Convention.

response *Noted*

The Agency appreciates the support of the Belgium Civil Aviation Authority.

comment *4* comment by: *UK CAA*

Please be advised that the UK CAA have no comments to make on NPA 2011-08, Implementation fo CAEP/8 Amendments.

response *Noted*

The Agency appreciates the support of the UK Civil Aviation Authority.

comment *23* comment by: *Cessna Aircraft Company*

Cessna Aircraft Company has no comment on this issue at this time.

response *Noted*

The Agency appreciates the support of the Cessna Aircraft Company.

comment *26* comment by: *LFV, Air Navigation Services of Sweden*

LFV, Air navigation Services of Sweden have no comments to the Notice of proposed amendment No 2011-08.

response *Noted*

The Agency appreciates the support of the LFV, Air Navigation Services of Sweden.

comment *27* comment by: *KLM EASA DOA 21J.012*

Although it seems that this NPA would only affect the engine manufacturers, KLM wants to assure that this coming change will not affect the current KLM aircraft fleet.

Newly delivered engines will in the near future be required to comply with the latest ICAO Annex 16 requirements. In this respect, we assume that these engines are two-way interchangeable with engines that comply with the older, pre-latest ICAO Annex 16 requirements. Please confirm that engines, pre and post the latest ICAO Annex 16 requirement are fully interchanges for aircraft under the same TCDS

and for aircraft that shares the same engine types.

If interchangeability of old and new engines would not be allowed, this would force KLM to set up a second engine pool for the new aircraft. This would give a serious economical burden.

response

Noted

The new amendment 7 of Vol. II of Annex 16 will only affect the engine manufacturers. It will not affect the Airlines.
The engine manufacturers will have to comply with the new requirements including the production cut-off on NOx emissions.
For the production cut-off requirement there are two kinds of newly manufactured engines taken into account: 'new' and 'spare' engines. 'New' engines are defined as complete new engines units which are to be installed on new aircraft. 'Spare' engines are defined as complete new engine units which are to be installed on in-service aircraft for maintenance and replacement.
The difference has to be made when it comes to the exemption process.
There will be no limitation in number production for the 'spare' engines having emissions equivalent to or better than the engines they replace.

comment

28 comment by: *Swiss International Airlines / Bruno Pfister*

SWISS Intl Air Lines accepts the NPA without further comments.

response

Noted

The Agency appreciates the support of the Swiss International Airlines.

comment

HHHH29 comment by: *FAA*

Attachment #1

See Attached File

response

Not accepted

At its special meeting on 15 September 2009, the EASA Management Board has concluded that the extension of the Agency's involvement in environmental issues should be put on hold for the time being, in favour of other priorities.

comment

HHHH31 comment by: *FAA*

Attachment #2

Page: General

Comment: EASA has not identified the incorporation of the Guidelines for Noise Certification of Tilt-rotor Aircraft from ICAO Annex 16, Attachment F and ETM Chapter 7.

Proposed Text: Text similar to that of ICAO Annex 16, Attachment F and ETM Chapter 7.

Justification: Tilt-rotor aircraft development has advanced to the point of anticipated U.S. certification. In consideration of this, the FAA has begun a rulemaking project to adopt the ICAO noise standards into U.S. regulations. In

	the interest of harmonization and the likelihood of a potential EASA certification of a tilt rotor aircraft, it would be beneficial for EASA to also consider adoption of the ICAO standards.
response	*Not accepted* At its special meeting on 15 September 2009, the EASA Management Board has concluded that the extension of the Agency's involvement in environmental issues should be put on hold for the time being, in favour of other priorities.

NOTICE OF PROPOSED AMENDMENT (NPA) No 2011-08 — General comments p. 1-2

comment	*25* comment by: *Ovidiu Traichioiu / CAA ROMANIA* We fully endorse the amendments proposed to the involved documents: Part 21, CS - 34 and CS - 36.
response	*Noted* The Agency appreciates the support of the Romanian Civil Aviation Authority.

NPA 2011-08 — A. Explanatory Note — I. General p. 3-4

comment	*3* comment by: *Dassault Aviation* *Section A : Explanatory Note §I.7.b. : " the propose rule is harmonised via the ICAO/CAEP process with the rules of FAA".* Dassault-Aviation has some concerns about this "harmonization" due to the fact the previous ICAO, Annex 16, Vol1 amendments are not completed by FAA. FAA haven't implemented the 14CFR Part36 since February 2006, Amdt28. Due to modifications of the Doc 9501 in two volumes (noise and emissions), FAA should publish a new release of the AC36-4C. Dassault Aviation fear that there is no real and fear harmonization between US and European rules.
response	*Noted* The Agency and FAA work together closely in the framework of the ICAO-CAEP process and this is considered the preferred vehicle to keep their regulations harmonised as much as possible. The Agency has no doubt that FAA will harmonise with ICAO standards to the maximum extent possible but accepts that there may be constraints and limitations that could interfere with this objective.

comment	*5* comment by: *DGAC* DGAC-France fully supports adoption of amendments unaltered as agreed in ICAO and as recommended by EASA in pragraph 45 of the present NPA
response	*Noted* The Agency appreciates the support of the French Civil Aviation Authority.

NPA 2011-08 — A. Explanatory Note — V. Regulatory Impact Assessment (1. Purpose and Intended Effect ; 2. Options; 3. Sectors concerned; 4. Impacts) p. 9-10

comment	*24* comment by: *Ovidiu Traichioiu / CAA ROMANIA* We would like to endorse option number 3.
response	*Noted* The Agency appreciates the support of the Romanian Civil Aviation Authority.

NPA 2011-08 — A. Explanatory Note — V. Regulatory Impact Assessment — 5. Summary and Final Assessment p. 10-11

comment	*6* comment by: *DGAC* As mentioned above, DGAC-France fully supports adoption of amendments unaltered as agreed in ICAO and therefore fully supports EASA recommendation of paragraph 45.
response	*Noted* The Agency appreciates the support of the French Civil Aviation Authority.

NPA 2011-08 — B. Draft Opinion and Decisions — I. Draft Opinion for amending the Basic Regulation and for amending Commission Regulation (EC) No 1702/2003 (Part 21) — 1. Draft text for amending the Basic Regulation p. 12-13

comment	*7* comment by: *Airbus* **Page 12, Basic Regulation Article 6(1)(a)(i)** **Modify the proposed text as follows:** (i) Such exemptions shall be granted by the Competent Authority responsible for the organisation requesting the exemption, in consultation with the Agency. Exemptions may only be granted when the economic impact to the organisation producing the engines outweighs environmental protection interests and, in the case of new engines to be installed on new aircraft, shall not be granted to more than ~~75~~ a defined number of engines per engine type. **Justification:** Annex 16 Volume II Amendment 7 does not specify the number. This number is given in the Environmental Technical Manual. If the number of 75 is specified in the Basic Regulation, even a minor overstepping (by a few units, possibly due to unforeseen circumstances) would be impossible without a Basic Regulation change, involving a heavy legislative process.

The indication of the number in the proposed AMC 21A.130(b)(4) and AMC 21A.165(c)(3) should be sufficient.

response *Not accepted*

Legal principles do not allow that an exemption clause like this would be open-ended or unlimited. For that reason and for consistency with the ETM Doc 9501 -Volume II, the Agency proposed the limit of 75.
The same principle was applied to the transition period during which the exemptions can be granted. The 4-year period was chosen in consistency with the ETM Doc 9501 - Volume II, although the Annex 16, Volume II specifies "over a specific period of time".

comment *8* comment by: *Airbus*

Page 12, Basic Regulation Article 6(1)(a)(ii)

Modify the proposed text as follows:

(ii) When considering a request for exemption, the Competent Authority shall take into account:

-- the justification provided by the organisation, including, but not limited to, considerations of technical issues, adverse economic impacts, environmental effects, impact of unforeseen circumstances and equity issues;

-- the intended use of the affected engines, namely whether they are ~~spare or new engines~~ to be used as spare engines or to be installed on new aircraft;

-- the number of new engines affected;

-- the number of granted exemptions for that engine type.

Justification:

Clarification

response *Partially accepted*

The Agency agrees that this text needs some clarification and in particular the term 'new engine' needs clarification. However, the Agency would like to stay harmonised as close as possible with the language in the ETM and proposes the following:
"- the intended use of the affected engines, namely whether they are spare engines or new engines (engines to be installed on new aircraft)".

comment *9* comment by: *Airbus*

Pages 12-13, Basic Regulation Article 6(1)(a)(iii)

Modify the proposed text as follows:

(iii) When granting the exemption, the Competent Authority shall specify as a

minimum:

-- the engine's type-certificate number;

-- the maximum number of engines included in the exemption;

-- the ~~maximum duration and~~ intended use of the affected engines and the time limit for their production.

Justification:

Clarification

response

Accepted

The Agency agrees that this change better expresses the intent of the rule.

comment

10 comment by: *Airbus*

Page 13, Basic Regulation Article 6(1)(a)(iv)

Comment:

Part 21 and/or its AMC/GM should mirror the marking, quality control and reporting requirements of this paragraph.

Appropriate placeholders could be 21A.801 (or a new GM 21A.801) for the marking requirements, and AMC 21A.130(b)(4) and AMC 21A.165(c)(3) for quality control and reporting requirements.

Justification:

Overall consistency of the rules

response

Not accepted

Marking
The Agency has chosen to put these requirements in Article 2 of the Commission Regulation amending the Basic Regulation (see new proposed text attached in Appendix A of this CRD). This Article 2 considers the exemption process as a transition period. The Implementing Rules require that the engines comply with the applicable emissions requirements. Therefore marking related to exemption is not contained in the Implementing Rules. The Acceptable Means of Compliance only give details on how to proceed with the exemption.

Quality control and reporting requirements
It is important to remember that the Implementing Rules are written for airworthiness and environment. The quality control and the reporting requirements already exist in the Implementing Rules.

comment

11 comment by: *Airbus*

Page 18, AMC 21A.130(b)(4), paragraph 2.2.2(c)
Page 22, AMC 21A.165(c)(3), paragraph 2.2.2(c)

Modify the proposed text as follows:

c) Other engines

Unlimited exemptions may be granted for continued production of spare engines having emissions equivalent to or lower than the engines they are replacing.

Engines for use on aircraft excluded from the scope of the Basic Regulation - i.e. aircraft specified in Annex II to the Basic Regulation and aircraft involved in activities referred to in Article 1(2) of the Basic Regulation (e.g. military, customs, police, search and rescue fire fighting, coastguard or similar activities and services) - are excluded from civil aircraft NOx production cut-off requirements.

Justification:

Clarification

response

Accepted

The Agency agrees that this change better expresses the intent of the rule.

comment

H30 comment by: *FAA*

Attachment #3

See attachment.

response

Partially accepted

See response to comment 9.

comment

32 comment by: *FAA*

Page: p. 13

Comment: 1.(a)(iii), third bullet is not consistent with that of the ETM Doc 9501 Volume II.

Proposed Text:
— the maximum duration (end date) of continued production of exempted engines;
— designation of proposed exempted engines to whom they will be delivered

Justification: The NPA language is a consolidation of two bullets from the ETM, but consolidation has changed the meaning from that of the ETM.

response

Partially accepted

See response to comment 9.

amending AMC and GM to Part 21 — AMC 21A.130 (b) (4) — Applicable emissions requirements — 1. General

comment 12 comment by: *Boeing*

JUSTIFICATION: The proposed text in the NPA does not appear to capture the intent properly. It could be interpreted as just meeting the requirements, including applicability, of Amendment 4, which would exclude many in production engines from having to meet the levels intended. Our suggested revision provides the clarification needed for better comprehension of the intent of the paragraph.

JUSTIFICATION: The proposed text in the NPA does not appear to capture the intent properly. It could be interpreted as just meeting the requirements, including applicability, of Amendment 4, which would exclude many in production engines from having to meet the levels intended. Our suggested revision provides the clarification needed for better comprehension of the intent of the paragraph.
Page: 16
Section: AMC 21A.130 (b) (4)
Paragraph 1. General

The proposed text states:

"...the emissions requirements applicable are those of Amendment 4 to Volume II of Annex 16 ..."

We suggest revising the text as follows:

"...the emissions requirements applicable are ~~those of~~ ***the regulatory levels defined by*** *Annex 16,* ***Volume II, paragraphs 2.32, and, specifically for NOx, the levels defined in c) 1) 2) and 3)****..."*

JUSTIFICATION: The proposed text in the NPA does not appear to capture the intent properly. It could be interpreted as just meeting the requirements, including applicability, of Amendment 4, which would exclude many in production engines from having to meet the levels intended. Our suggested revision provides the clarification needed for better comprehension of the intent of the paragraph.

response *Partially accepted*

The Agency agrees that this text needs clarification and proposes the following: "... the emissions requirements applicable are ~~those of Amendment 4 to Volume II~~ the regulatory levels defined in Volume II, Part II, Chapter 2, paragraph 2.3.2 c) of Annex 16 to the Chicago Convention."

NPA 2011-08 — B. Draft Opinion and Decisions — II. Draft Decision for amending AMC and GM to Part 21 — AMC 21A.130 (b) (4) — Applicable emissions requirements — 2. Process and criteria for exemptions against a NOx emissions production cut-off requirement p. 16-17

comment	*16* comment by: *Boeing* Page: 17 Section: AMC 21A.130 (b) (4) Paragraph 2.1 c) Justification for Exemptions --- The proposed text states: *"Environmental effects. This should consider the amount of additional NOx emissions that will be emitted as a result of the exemption. This could include consideration of items such as:* · *the amount that the engine model exceeds the NOx emissions standard, taking into account any other engine models in the engine family covered by the same type-certificate and their relation to the standard; …"* It is unclear in this text what the petitioner is being asked to do. Should the petitioner report the margin of all their models in the TCDS, or just those that are still being produced? What are the units to use to describe the exceedance -- %, g/kN? Should the petitioner identify the number of expected delivered configurations by model/thrust rating, or is the maximum available thrust rating for a given minor model airplane to be assumed? **JUSTIFICATION:** More specificity is needed as to what action the petitioner is required to do to comply with this item.
response	*Not accepted* The text refers to the Standard which is given in g/kN for the whole LTO cycle. Furthermore, it is implicit that for the comparison exercise only engines that are still in production should be taken into account. Whatever the unit is (i.e. % or g/kN), it will be easy to calculate one from the other. Moreover, this is the same text as in the ETM Doc 9501 - Volume II.

comment	*18* comment by: *Boeing* Page: 17 Section: AMC 21A.130 (b) (4) Paragraph 2.1 c) Justification for Exemptions --- The proposed text states: ▪ *"Environmental effects. This should consider the amount of additional NOx emissions that will be emitted as a result of the exemption. This could include consideration of items such as:* *. . .* *- the amount of NOx emissions that would be emitted by an alternative engine for the same application; and …* *. . .* ▪ *Equity issues in administering the production cut-off among economically competing parties (e.g. provide rationale for granting this exemption when*

another manufacturer has a compliant engine and does not need an exemption, taking into account the implications for operator fleet composition, commonality and related issues in the absence of the engine for which exemptions are sought);

We suggest the following revisions:

▪ *"Environmental effects. This should consider the amount of additional NOx emissions that will be emitted as a result of the exemption. This could include consideration of items such as:*

. . .

~~*the amount of NOx emissions that would be emitted by an alternative engine for the same application; and …*~~

. . .

▪ *Equity issues in administering the production cut-off among economically competing parties (e.g. provide rationale for granting this exemption when another manufacturer has a compliant engine and does not need an exemption, taking into account* ***the amount of NOx emissions that would be emitted by an alternative engine for the same application, and*** *the implications for operator fleet composition, commonality and related issues in the absence of the engine for which exemptions are sought);"*

JUSTIFICATION: It appears that the consideration of *"…the amount of NOx emissions that would be emitted by an alternative engine for the same application …"* would only come into play when Equity issues are also required to be considered. In light of this, we suggest these items be combined into one paragraph.

response *Not accepted*

Changing the position of this text would change the intent of the ETM Doc 9501 - Volume II.

comment *33* comment by: *FAA*

Page: p. 17

Comment: AMC 21A.130(b)(4) b)

Proposed Text: "Scope of application for exemptions."

Justification: The NPA heading is slightly different than ETM Doc 9501 Volume II.

response *Not accepted*

In the AMC 21A130 (b) (4), 'b) scope of the request' is a subparagraph of '2.1 Request' which itself is a subparagraph of '2. Process and criteria for exemptions against a NOx emissions production cut-off requirement'.
The difference with the ETM Doc 9501 - Volume II is due to an adaptation of the structure but does not change the meaning.

NPA 2011-08 — B. Draft Opinion and Decisions — II. Draft Decision for amending AMC and GM to Part 21 — AMC 21A.130 (b) (4) — Applicable p. 17

emissions requirements — 2. Process and criteria for exemptions against a NOx emissions production cut-off requirement — 2.2 Evaluation

comment	*14* comment by: *Boeing* Page: 17 Section: AMC 21A.130 (b) (4) Paragraph: 2.1 b) Scope of the request --- The proposed text states: *"Note: In the case where the engines are 'new' (new engines installed on new aircraft), and if this would result in a larger negative environmental impact to spare engines, more detailed justification could be required to approve this application."* **We suggest revising the text as follows:** *Note: In the case where the engines are 'new' (new engines installed on new aircraft), and if this would result in a larger negative environmental impact **as compared to exemptions only for spare engines**, more detailed justification could be required to approve this application.* **JUSTIFICATION:** The proposed text in the NPA is unclear. Our suggested revision provides the clarification needed for better comprehension of the intent of this paragraph.
response	*Accepted* The Agency agrees that this change better expresses the intent of the rule.

comment	*34* comment by: *FAA* Page: p. 17 Comment: 2.2.1 Proposed Text: We acknowledge the text being proposed in Article 6 of the Essential Requirements, 1.(a) (v), but suggest that EASA revise this paragraph (and that of Article 61l.(a)(v)) to be clear about what role the Agency, Competent Authorities (Member States and Third Countries) each play in the review, overview, advisement, monitoring, evaluation and record-keeping of exemption applications, approvals, and disapprovals. Justification: It is not clear what role the Agency, Competent Authorities (Member States and Third Countries) each play in the review, overview, advisement, monitoring, evaluation, approval and record-keeping of exemption applications and approvals.
response	*Not accepted* The role of each entity is defined in the Implementing Rules of the Basic

Regulation. Regarding the emissions requirements the role of each entity is defined in the following:
- Article 2 of the Commission Regulation amending the Basic Regulation (see new proposed text attached in Appendix A of this CRD)
- 21A.4 - 21A.165 (c) 3. - AMC 21A.130 (b) (4) - AMC 21A.165 (c) (3) of the Implementing Rules

NPA 2011-08 — B. Draft Opinion and Decisions — II. Draft Decision for amending AMC and GM to Part 21 — AMC 21A.130 (b) (4) — Applicable emissions requirements — 2. Process and criteria for exemptions against a NOx emissions production cut-off requirement — 2.2.2. a) Use of engines p. 18

comment *20* comment by: *Boeing*

Page: 18
Section: AMC 21A.130 (b) (4)
Paragraph 2.2.2 a) Use of engines

The proposed text states:

"'New engines' are defined as complete new engine units which are to be installed on new aircraft. They can only be exempted from a NOx production cut-off requirement if they already meet the previous standard (e.g. exemption from the CAEP/6 NOx production cut-off requirement is only possible if an engine type already meets the CAEP/4 NOx standard)."

We request the text be revised as follows:

"'New engines' are defined as complete new engine units which are to be installed on new aircraft. They can only be exempted from a NOx production cut-off requirement if they already meet the previous standard (e.g. exemption from the CAEP/6 NOx production cut-off requirement is only possible if an engine type already meets ***the level defined as the*** *CAEP/4 NOx standard* ***in Annex 16, paragraph 2.3.2 c) 1), 2), and 3)****)."*

JUSTIFICATION: We find that the proposed text in the NPA does not capture the intent adequately. It could be interpreted as just meeting the requirements, including applicability of Amendment 4 or CAEP/4, which would exclude many in-production engines from having to meet the levels intended. Our suggested revision more correctly clarifies the intent.

response *Partially accepted*

The Agency agrees that this text needs clarification and we propose the following:

"'New engines' are defined as complete new engine units which are to be installed on new aircraft. They can only be exempted from a NOx production cut-off requirement if they already meet the previous standard (e.g. exemption from the CAEP/6 NOx production cut-off requirement is only possible if an engine type already meets the regulatory levels defined in Volume II, Part II, Chapter 2, paragraph 2.3.2 c) of Annex 16 to the Chicago Convention ~~CAEP/4~~

~~NOx standard~~).”

NPA 2011-08 — B. Draft Opinion and Decisions — II. Draft Decision for amending AMC and GM to Part 21 — AMC 21A.130 (b) (4) — Applicable emissions requirements — 2. Process and criteria for exemptions against a NOx emissions production cut-off requirement — 2.2.2. b) Number of exemptions for new engines p. 18

comment *35* comment by: *FAA*

Page: p. 18

Comment: 2.2 b)

Proposed Text: “Number of new engines for exemption.”

Justification: The NPA heading has changed meaning from that of ETM Doc 9501 Vol. II

response *Partially accepted*

In order to avoid any unintended change of the meaning the Agency proposes to go back to the original language of the ETM Doc 9501 - Volume II which is ‘Number of new engine exemptions’.

NPA 2011-08 — B. Draft Opinion and Decisions — II. Draft Decision for amending AMC and GM to Part 21 — AMC 21A.130 (b) (4) — Applicable emissions requirements — 2. Process and criteria for exemptions against a NOx emissions production cut-off requirement — 2.2.2. c) Other engines p. 18

comment *36* comment by: *FAA*

Page: p. 18

Comment: 2.2.2c)

Proposed Text: “Exceptions”

Justification: The NPA heading has changed from that of ETM Doc 9501 Vol. II.

response *Not accepted*

The Agency considers that the heading of the ETM Doc 9501 - Volume II is not appropriate since the paragraph contains unlimited exemptions for spare engines which cannot be considered as exceptions. For that reason we used the heading ’Other engines’ that can include the exemption provision for spare engines as well as the engines for use on aircraft excluded from the scope of the Basic Regulation.

comment *37* comment by: *FAA*

Page: p. 18

Comment: 2.3

Proposed Text: Add language more similar to that of ETM Doc 9501 Vol. II: "*Review*
The competent authority should review, in a timely manner, the application using the information provided in 2.1 and against the definitions/criteria in 2.2. The analysis and conclusions from the review should be communicated to the applicant in a formal response. If the application is approved, the response should clearly state the scope of the exemptions which have been granted. If the application is rejected, then the response should include a detailed justification."

Justification: The NPA offers procedures to follow for the rejection of requests, but not clearly for the acceptance of requests in a fashion similar to ETM Doc 9501 Vol. II

response *Not accepted*

The review process for granting exemptions is given in Article 2 paragraph (2) of the Commission Regulation amending the Basic Regulation (see new proposed text attached in Appendix A of this CRD) in order to put obligations on the production organisations, the competent authorities and the Agency. The details of the process are given in the AMCs as well as the rejection process which does not need to be at the Basic Regulation level.

NPA 2011-08 — B. Draft Opinion and Decisions — II. Draft Decision for amending AMC and GM to Part 21 — SUBPART G — AMC No 2 to 21A.163(c) — Completion of the EASA Form 1 p. 19-20

comment *2* comment by: *Luftfahrt-Bundesamt*

AMC No 2 to 21A.163(c) - Completion of the EASA Form 1 (Page 20) requires explicitly the statement "[NEW] OR [SPARE] ENGINE EXEMPTED FROM [NOx] EMISSIONS PRODUCTION CUT-OFF REQUIREMENTS".

Comment 1 - There is no similar requirement for engines produced under Subpart F. Please update the current AMC No 2 to 21A.130(b) accordingly.

Comment 2 - As the wording "NOx" is given in brackets "[..]", it is not clear if such a statement is only applicable to NOx-requirements or may also be used for other exemptions on emission requirements, as [NEW] and [SPARE) is also given in brackets and may be selected individually. If it applies to NOx only the brackets should be deleted.

Comment 3 - As the above mentioned AMC directly provides a certain wording, we propose also to include a certain wording for the general statement in block 12 regarding the
compliance with the applicable emission requirements current on the date of manufacture. For example :
"THIS ENGINE FULFILS THE APPLICABLE EMISSIONS REQUIREMENTS AT THE DATE OF MANUFACTURE (COMMISSION REGULATION EC 216/2008 ARTICLE

	6, LAST AMENDMENT BY COMMISSION REGULATION EC xyz/20xx)"
response	*Partially accepted* **Comment 1: accepted** The following change is proposed: **AMC No 2 to 21A.130(b)** **Statement of Conformity for Products (other than complete aircraft), parts** **and/or appliances – The Authorised Release Certificate (EASA Form 1)** **A. INTRODUCTION** **…** **5. COMPLETION OF THE CERTIFICATE BY THE ORIGINATOR** **…** **Block 12 – Remarks** **Examples of conditions which would necessitate statements in block 12 are:** **…** • **In case of an engine, when the Competent Authority has granted an emissions production cut-off exemption the following statement must be entered in block 12:** **'["NEW" OR "SPARE"] ENGINE EXEMPTED FROM NOx EMISSIONS PRODUCTION CUT-OFF REQUIREMENT'.** **Block 13b – Authorised Signature** **…** **----------** **Comment 2: accepted** **The text will be changed as follows:** • **In case of an engine, if the Competent Authority has granted an emissions production cut-off exemption the record: '["NEW" OR "SPARE"] ENGINE EXEMPTED FROM ┼NOx┼ EMISSIONS PRODUCTION CUT-OFF REQUIREMENT'.** **---** **Comment 3: Not accepted** **The issuance of the Form 1 is the evidence that the engines complies to the applicable emissions requirements current at the date of manufacture. If there are exemptions they will have been granted following the process that is given in the rules.**

emissions requirements — 1. General

comment

13 comment by: *Boeing*

Page: 20
Section: AMC 21A.165 (c) (3)
Paragraph 1. General

The proposed text states:

"…the emissions requirements applicable are those of Amendment 4 to Volume II of Annex 16 …"

We suggest revising the text as follows:

"…the emissions requirements applicable are ~~those of~~ ***the regulatory levels defined by*** *Annex 16,* ***Volume II, paragraphs 2.32, and, specifically for NOx, the levels defined in c) 1) 2) and 3)****…"*

JUSTIFICATION: The proposed text in the NPA does not appear to capture the intent properly. It could be interpreted as just meeting the requirements, including applicability, of Amendment 4, which would exclude many in production engines from having to meet the levels intended. Our suggested revision provides the clarification needed for better comprehension of the intent of the paragraph.

response

Partially accepted

The Agency agrees that this text needs clarification and we propose the following:
"... the emissions requirements applicable are ~~those of Amendment 4 to Volume II~~ the regulatory levels defined in Volume II, Part II, Chapter 2, paragraph 2.3.2 c) of Annex 16 to the Chicago Convention."

comment

15 comment by: *Boeing*

Page: 20
Section: AMC 21A.165 (c) (3)
Paragraph 2.1 b) Scope of the request

The proposed text states:

"Note: In the case where the engines are 'new' (new engines installed on new aircraft), and if this would result in a larger negative environmental impact to spare engines, more detailed justification could be required to approve this application."

We suggest revising the text as follows:

Note: In the case where the engines are 'new' (new engines installed on new aircraft), and if this would result in a larger negative environmental impact ***as***

***compared to exemptions only for spare engines**, more detailed justification could be required to approve this application.*

JUSTIFICATION: The proposed text in the NPA is unclear. Our suggested revision provides the clarification needed for better comprehension of the intent of this paragraph.

response *Accepted*

The Agency agrees that this change better expresses the intent of the rule.

comment *38* comment by: *FAA*

Page: p. 20

Comment: AMC 21A.165A(3)

Proposed Text: Make the same changes to the language here as was made for AMC 21A.130(b)(4).

Justification: EASA has intended the language to be identical for production with/without production organization approval.

response *Partially accepted*

Not accepted : see responses to comments: 33, 34, 36 and 37
Partially accepted: see response to comment 35

NPA 2011-08 — B. Draft Opinion and Decisions — II. Draft Decision for amending AMC and GM to Part 21 — AMC 21A.165(c)(3) — Applicable emissions requirements — 2. Process and criteria for applying for exemptions against a NOx emissions production cut-of requirement — 2.1 Request p. 20-21

comment *17* comment by: *Boeing*

Page: 21
Section: AMC 21A.165 (c) (3)
Paragraph 2.1 c) Justification for Exemptions

The proposed text states:

"Environmental effects. This should consider the amount of additional NOx emissions that will be emitted as a result of the exemption. This could include consideration of items such as:

- *the amount that the engine model exceeds the NOx emissions standard, taking into account any other engine models in the engine family covered by the same type-certificate and their relation to the standard; …"*

It is unclear in this text what the petitioner is being asked to do. Should the petitioner report the margin of all their models in the TCDS, or just those that are still being produced? What are the units to use to describe the exceedance -- %, g/kN? Should the petitioner identify the number of expected delivered configurations by model/thrust rating, or is the maximum available thrust rating for a given minor model airplane to be assumed?

JUSTIFICATION: More specificity is needed as to what action the petitioner is required to do to comply with this item.

response

Not accepted

The text refers to the Standard which is given in g/kN for the whole LTO cycle. Moreover it is implicit that for the comparison exercise only engines that are still in production should be taken into account. Whatever the unit is (i.e. % or g/kN) it will be easy to calculate one from the over.

comment

19 comment by: *Boeing*

Page: 21
Section: AMC 21A.165 (c) (3)
Paragraph 2.1 c) Justification for Exemptions

The proposed text states:

▪ *"Environmental effects. This should consider the amount of additional NOx emissions that will be emitted as a result of the exemption. This could include consideration of items such as:*
. . .
- the amount of NOx emissions that would be emitted by an alternative engine for the same application; and …
. . .
▪ *Equity issues in administering the production cut-off among economically competing parties (e.g. provide rationale for granting this exemption when another manufacturer has a compliant engine and does not need an exemption, taking into account the implications for operator fleet composition, commonality and related issues in the absence of the engine for which exemptions are sought);*

We suggest the following revisions:

▪ *"Environmental effects. This should consider the amount of additional NOx emissions that will be emitted as a result of the exemption. This could include consideration of items such as:*
. . .
~~*the amount of NOx emissions that would be emitted by an alternative engine for the same application; and …*~~
. . .
▪ *Equity issues in administering the production cut-off among economically competing parties (e.g. provide rationale for granting this exemption when another manufacturer has a compliant engine and does not need an exemption, taking into account* ***the amount of NOx emissions that would be emitted by an alternative engine for the same application, and*** *the implications for operator fleet composition, commonality and related issues in*

the absence of the engine for which exemptions are sought);"

JUSTIFICATION: It appears that the consideration of *"…the amount of NOx emissions that would be emitted by an alternative engine for the same application …"* would only come into play when Equity issues are also required to be considered. In light of this, we suggest these items be combined into one paragraph.

response *Not accepted*

Changing the position of this text will change the intent of the ETM Doc 9501 - Volume II one.

NPA 2011-08 — B. Draft Opinion and Decisions — II. Draft Decision for amending AMC and GM to Part 21 — AMC 21A.165(c)(3) — Applicable emissions requirements — 2. Process and criteria for applying for exemptions against a NOx emissions production cut-of requirement — 2.2.2. a) Use of engines p. 21-22

comment *21* comment by: *Boeing*

Page: 21
Section: AMC 21A.165 (c) (3)
Paragraph 2.2.2 a) Use of engines

The proposed text states:

"'New engines' are defined as complete new engine units which are to be installed on new aircraft. They can only be exempted from a NOx production cut-off requirement if they already meet the previous standard (e.g. exemption from the CAEP/6 NOx production cut-off requirement is only possible if an engine type already meets the CAEP/4 NOx standard)."

We request the text be revised as follows:

"'New engines' are defined as complete new engine units which are to be installed on new aircraft. They can only be exempted from a NOx production cut-off requirement if they already meet the previous standard (e.g. exemption from the CAEP/6 NOx production cut-off requirement is only possible if an engine type already meets ***the level defined as the*** *CAEP/4 NOx standard* ***in Annex 16, paragraph 2.3.2 c) 1), 2), and 3)****)."*

JUSTIFICATION: We find that the proposed text in the NPA does not capture the intent adequately. It could be interpreted as just meeting the requirements, including applicability of Amendment 4 or CAEP/4, which would exclude many in-production engines from having to meet the levels intended. Our suggested revision more correctly clarifies the intent.

response *Partially accepted*

The Agency agrees that this text needs clarification and we propose the following:

"'New engines' are defined as complete new engine units which are to be installed on new aircraft. They can only be exempted from a NOx production cut-off requirement if they already meet the previous standard (e.g. exemption from the CAEP/6 NOx production cut-off requirement is only possible if an engine type already meets the regulatory levels defined in Volume II, Part II, Chapter 2, paragraph 2.3.2 c) of Annex 16 to the Chicago Convention ~~CAEP/4 NOx standard~~)."

NPA 2011-08 — B. Draft Opinion and Decisions — III. Draft Decision for amending CS-34 — Certification Specifications for Aircraft Engine Emissions and Fuel Venting — CS-34 p. 23

comment *22* comment by: *Boeing*

JUSTIFICATION: The proposed text in the NPA would be more useful if it pointed to where the exemption material can be found. Our revision has included that information.

response *Not accepted*

There is no Guidance Material for the exemption process from the NOx emissions production cut-off requirements. The sentence in CS34 does not mean that GM can be found somewhere else, but it means that there is no Guidance Material for the exemption process from the NOx emissions production cut-off requirements.
The Agency has chosen to put the exemption process at the level of the Commission Regulation amending the Basic Regulation and the details in the AMC of the Implementing Rules.

Appendix A – Resulting Text after NPA consultation

The text of the amendment is arranged to show deleted text, new text or new paragraph as shown below:

1. Deleted text is shown with a strike through: ~~deleted~~
2. New text is highlighted with grey shading: new
3. … indicates that remaining text is unchanged in front of or following the reflected amendment.

I. Draft Opinion for amending the Basic Regulation and for amending Commission Regulation (EC) No 1702/2003 (Part 21)

1. Draft text for amending the Basic Regulation

Article 1

Article 6(1) of Regulation (EC) No 216/2008 is replaced by the following:

'Article 6

Essential requirements for environmental protection

1. Products, parts and appliances shall comply with the environmental protection requirements contained in Amendment ~~9~~10 of Volume I and in Amendment ~~6~~7 of Volume II of Annex 16 to the Chicago Convention as applicable on ~~20 November 2008~~17 November 2011, except for the Appendices to Annex 16.'

Article 2

1. This Regulation shall enter into force on the 20th day following its publication in the Official Journal of the European Union.

2. Emissions production cut-off requirements.

(a) By way of derogation from paragraph (1), Member States may grant exemptions of unlimited duration to the emissions production cut-off requirement of paragraph (d) of Volume II, Part II, Chapter 2, paragraph 2.3.2 of Annex 16 to the Chicago Convention, until 31 December 2016.

(b) Such exemptions shall be granted by the Competent Authority responsible for the organisation requesting the exemption, in consultation with the Agency.

Exemptions may only be granted when the economic impact to the organisation producing the engines outweighs environmental protection interests and, in the case of new engines

to be installed on new aircraft, shall not be granted to more than 75 engines per engine type.

(c) When considering a request for exemption, the Competent Authority shall take into account:

1. the justification provided by the organisation, including, but not limited to, considerations of technical issues, adverse economic impacts, environmental effects, impact of unforeseen circumstances and equity issues;

2. the intended use of the affected engines, namely whether they are spare engines or new engines (to be installed on new aircraft);

3. the number of new engines affected;

4. the number of granted exemptions for that engine type.

(d) When granting the exemption, the Competent Authority shall specify as a minimum:

1. the engine's type-certificate number;

2. the maximum number of engines included in the exemption;

3. the intended use of the affected engines and the time limit for their production;

(e) Organisations producing engines under an exemption granted in accordance with this article shall:

1. ensure that the identification plates on the affected engines are marked 'EXEMPT NEW' or 'EXEMPT SPARE', as relevant;

2. have a quality control process for maintaining oversight of and managing the production of affected engines;

3. provide, on a regular basis, to the Competent Authority and the design organisation details on the exempted engines which have been produced, including model, serial number, use of the engine, and aircraft type on which new engines are installed.

(f) All data referred to in (c) and (e)(3) shall, without undue delay, be communicated to the Agency by the Competent Authority that granted the exemption. The Agency shall establish and maintain a register containing such data and make it publicly available.

2. Draft text for amending Commission Regulation (EC) No 1702/2003 (Part 21)

Article 1

Annex Part 21 to Commission Regulation (EC) No 1702/2003 shall be amended as follows:

'*ANNEX*

Part 21

...

SECTION A

...

SUBPART A — GENERAL PROVISIONS

...

21A.4 Coordination between design and production

Each holder of a type-certificate, restricted type-certificate, supplemental type certificate, ETSO authorisation, approval of a change to type design or approval of a repair design, shall collaborate with the production organisation as necessary to ensure:

(a) The satisfactory coordination of design and production required by 21A.122, ~~or~~ 21A.130(b)(3) and (4), 21A.133 ~~or~~and 21A.165(c)(2) and (3) as appropriate, and

(b) The proper support of the continued airworthiness of the product, part or appliance.

...

SUBPART F — PRODUCTION WITHOUT PRODUCTION ORGANISATION APPROVAL

...

21A.130 Statement of conformity

...

(b) A statement of conformity shall include:

1. For each product, part or appliance a statement that the product, part or appliance conforms to the approved design data and is in condition for safe operation;

2. For each aircraft, a statement that the aircraft has been ground and flight checked in accordance with 21A.127(a); ~~and~~

3. For each engine, or variable pitch propeller, a statement that the engine or propeller has been subjected by the manufacturer to a final functional test in accordance with 21A.128~~,~~; and ~~additionally in case of engines a determination according to data provided by the engine type-certificate holder that each completed engine is in compliance with the applicable emissions requirements current at the date of manufacture of the engine.~~

4. Additionally, in the case of engines, a statement that the completed engine is in compliance with the applicable emissions requirements on the date of manufacture of the engine.

...

SUBPART G — PRODUCTION ORGANISATION APPROVAL

...

21A.165 Obligations of the holder

The holder of a production organisation approval shall:

...

(c) 1. Determine that each completed aircraft conforms to the type design and is in condition for safe operation prior to submitting Statements of Conformity to the Competent Authority, or

2. Determine that other products, parts or appliances are complete and conform to the approved design data and are in a condition for safe operation before issuing an EASA Form 1 to certify conformity to approved design data and condition for safe operation~~,~~; and ~~additionally in case of engines, determine according to data provided by the engine type-certificate holder that each completed engine is in compliance with the applicable emissions requirements as defined in point 21A.18(b), current at the date of manufacture of the engine, to certify emission compliance, or~~

3. Additionally, in the case of engines, determine that the completed engine is in compliance with the applicable emissions requirements on the date of manufacture of the engine.

~~3~~4. Determine that other products, parts or appliances conform to the applicable data before issuing an EASA Form 1 as a conformity certificate.'

II. Draft Decision for amending AMC and GM to Part 21

AMC and GM to Part 21

SECTION A

…

SUBPART F — PRODUCTION WITHOUT PRODUCTION ORGANISATION APPROVAL

…

GM No. 2 to 21A.121

Applicability — Applicable design data

Applicable design data is defined as all necessary drawings, specifications and other technical information provided by the applicant for, or holder of a design organisation approval, TC, STC, approval of repair or minor change design, or ETSO authorisation (or equivalent when Part 21 Section A Subpart F is used for production of products, parts or appliances, the design of which has been approved other than according to Part 21), and released in a controlled manner to the manufacturer producing under Part 21 Subpart F. This should be sufficient for the development of production data to enable manufacture in conformity with the design data.

Prior to issue of the TC, STC, approval of repair or minor change design or ETSO authorisation, or equivalent, design data is defined as 'not approved', but parts and appliances may be released with an EASA Form 1 as a certificate of conformity.

After issue of the TC, STC, approval of repair or minor change or ETSO authorisation, or equivalent, this design data is defined as 'approved' and items manufactured in conformity are eligible for release on an EASA Form 1 for airworthiness purposes.

For the purpose of Subpart F of Part 21 the term 'applicable design data' includes, in the case of engines and when applicable, the information related to the applicable emissions production cut-off requirement.

…

AMC No 2 to 21A.130(b)
Statement of Conformity for Products (other than complete aircraft), parts and/or appliances – The Authorised Release Certificate (EASA Form 1)

A. INTRODUCTION

…

5. COMPLETION OF THE CERTIFICATE BY THE ORIGINATOR

…

Block 12 – Remarks

Examples of conditions which would necessitate statements in block 12 are:

…

- In case of an engine, when the Competent Authority has granted an emissions production cut-off exemption the following statement must be entered in block 12: '["NEW" OR "SPARE"] ENGINE EXEMPTED FROM NOx EMISSIONS PRODUCTION CUT-OFF REQUIREMENT'.

Block 13b – Authorised Signature

…

AMC 21A.130 (b) (4)

Applicable emissions requirements

1. General

This determination is made according to the data provided by the engine type-certificate holder. This data should allow the determination of whether the engine complies with the emissions production cut-off requirement of paragraph (d) of Volume II, Part II, Chapter 2, paragraph 2.3.2 of Annex 16 to the Chicago Convention. It should be noted that in the case of engines for which the Competent Authority has granted an exemption from these requirements, the emissions requirements applicable are the regulatory levels defined in Volume II, Part II, Chapter 2, paragraph 2.3.2 c) of Annex 16 to the Chicago Convention.

2. Process and criteria for exemptions against a NOx emissions production cut-off requirement

2.1 Request

The organisation should submit a formal request to the Competent Authority, signed by an appropriate manager, and copied to all other relevant organisations and involved Competent Authorities including the Agency. The letter should include the following information for the Competent Authority to be in a position to review the application:

a) Administration

- Name, address and contact details of the organisation.

b) Scope of the request

- Engine type (model designation, type-certificate (TC) number, TC date, emission TC basis, ICAO Engine Emissions Databank Unique Identification (UID) Number);
- Number of individual engine exemptions requested;
- Duration (end date) of continued production of the affected engines.
- Whether the proposed affected engines are ‘spares’ or ‘new’ and whom the engines will be originally delivered to.

Note: In the case where the engines are ‘new’ (new engines installed on new aircraft), and if this would result in a larger negative environmental impact as compared to exemptions only for spare engines, more detailed justification could be required to approve this application.

c) Justification for exemptions

When requesting an exemption for a ‘new’ engine, the organisation should, to the extent possible, address the following factors, with quantification, in order to support the merits of the exemption request:

- Technical issues, from an environmental and airworthiness perspective, which may have delayed compliance with the production cut-off requirement;
- Economic impacts on the manufacturer, operator(s) and aviation industry at large;
- Environmental effects. This should consider the amount of additional NOx emissions that will be emitted as a result of the exemption. This could include consideration of items such as:
  - the amount that the engine model exceeds the NOx emissions standard, taking into account any other engine models in the engine family covered by the same type-certificate and their relation to the standard;

— the amount of NOx emissions that would be emitted by an alternative engine for the same application; and

— the impact of changes to reduce NOx on other environmental factors, including community noise and CO_2 emissions;

- Impact of unforeseen circumstances and hardship due to business circumstances beyond the manufacturer's control (e.g. employee strike, supplier disruption or calamitous events);
- Projected future production volumes and plans for producing a compliant version of the engine model seeking exemption;
- Equity issues in administering the production cut-off among economically competing parties (e.g. provide rationale for granting this exemption when another manufacturer has a compliant engine and does not need an exemption, taking into account the implications for operator fleet composition, commonality and related issues in the absence of the engine for which exemptions are sought);
- Any other relevant factors.

2.2 Evaluation

2.2.1. Since the Agency has the overview of the exemptions granted within the Member States and within Third Countries by contacting the relevant Design Organisation, the Agency advises the Competent Authority during the process of granting exemptions. The advice from the Agency should take the form of a letter sent to the Competent Authority.

2.2.2 The evaluation of an exemption request should be based on the justification provided by the organisation and on the following definitions and criteria:

a) Use of engines

- 'Spare engines' are defined as complete new engine units which are to be installed on in-service aircraft for maintenance and replacement. It can be presumed that exemption applications associated with engines for this purpose would be granted as long as the emissions were equal to or lower than those engines they are replacing. The application should include the other items described in points (a) and (b) of paragraph 2.1 above, but it would not need to include the items specified in point (c). For spare engines, the evaluation of the exemption application would be conducted for record keeping and reporting purposes, but it would not be done for approval of an exemption.
- 'New engines' are defined as complete new engine units which are to be installed on new aircraft. They can only be exempted from a NOx production cut-off requirement if they already meet the previous standard (e.g. exemption from the CAEP/6 NOx production cut-off requirement is only possible if an engine type already meets the regulatory levels defined in Volume II, Part II, Chapter 2, paragraph 2.3.2 c) of Annex 16 to the Chicago Convention). Also, in order for and exemption to be granted for this type of engine the applicant must clearly demonstrate that they meet the criteria for an exemption by including items described in points (a), (b) and (c) of paragraph 2.1 above. The Competent Authority may require additional information regarding the appropriateness of the potential exemption.

b) Number of new engine exemptions

Exemptions should be based on a total number of engines and time period for delivery of these engines, which would be agreed at the time the application is approved and based on the considerations explained in point (c) of paragraph 2.1 above. The number of engines exempted should not exceed 75 per

engine type-certificate, and the end date of continued production of the affected engines should not exceed 31.12.2016. The number of exemptions is related to individual non-compliant engines covered under the same type-certificate.

Exemptions for new engines should be processed and approved by the Competent Authority, in agreement with the Agency, for both the manufacture of the exempted engines and the initial operator of the aircraft to which they are to be fitted. Given the international nature of aviation, the Agency should attempt to collaborate and consult on the details of exemptions. In the case where engine type certification is done through a reciprocity agreement between the Agency and Third Countries, the Agency should coordinate on the processing of exemptions and concur before approval is granted.

c) Other engines

Unlimited exemptions may be granted for continued production of spare engines having emissions equivalent to or lower than the engines they are replacing.

Engines for use on aircraft excluded from the scope of the Basic Regulation - i.e. aircraft specified in Annex II to the Basic Regulation and aircraft involved in activities referred to in Article 1(2) of the Basic Regulation (e.g. military, customs, police, search and rescue fire fighting, coastguard or similar activities and services) - are excluded from civil aircraft NOx production cut-off requirements.

2.3 Rejection of request

If the competent authority rejects the request for exemption, the response should include a detailed justification.

GM 21A.130 (b) (4)

Definitions of engine type certification date and production date

Volume II of Annex 16 to the Chicago Convention contains two different references to applicability dates:

- ‘Date of manufacture for the first individual production model’ which refers to the engine type certification date; and
- ‘Date of manufacture for the individual engine’ which refers to the production date of a specific engine serial number (date of Form 1).

The second reference is used in the application of the engine NOx emissions production cut-off requirement, which specifies a date after which all in-production engine models must meet a certain NOx emissions standard.

21A.130(b)(4) includes the production requirements and refers to paragraphs (b) and (d) of Volume II, Part III, Chapter 2, paragraph 2.3 of Annex 16 to the Chicago Convention.

...

SUBPART G — PRODUCTION ORGANISATION APPROVAL

GM 21A.131

Scope — Applicable design data

Applicable design data is defined as all necessary drawings, specifications and other technical information provided by the applicant for, or holder of a design organisation approval, TC, STC, approval of repair or minor change design, or ETSO authorisation (or equivalent when Part 21 Section A Subpart G is used for production of products, parts or appliances, the design of which has been approved other than according to Part 21) and released in a controlled manner to a production organisation approval holder. This should be sufficient for the development of

production data to enable repeatable manufacture to take place in conformity with the design data.

Prior to issue of the TC, STC, approval of repair or minor change design or ETSO authorisation, or equivalent, design data is defined as 'not approved' but parts and appliances may be released with an EASA Form 1 as a certificate of conformity.

After issue of the TC, STC, approval of repair or minor change or ETSO authorisation, or equivalent this design data is defined as 'approved' and items manufactured in conformity are eligible for release on an EASA Form 1 for airworthiness purposes.

For the purpose of Subpart G of Part 21 the term 'applicable design data' includes, in case of engines and when applicable, the information related to the applicable emissions production cut-off requirement.

...

AMC No 2 to 21A.163(c) — Completion of the EASA Form 1

...

EASA Form 1 Block 12 'Remarks'

...

Examples of data to be entered in this block as appropriate:

- For complete engines, a statement of compliance with the applicable emissions requirements current on the date of manufacture of the engine.
- For ETSO articles, state the applicable ETSO number.
- Modification standard.
- Compliance or non-compliance with airworthiness directives or Service Bulletins.
- Details of repair work carried out, or reference to a document where this is stated.
- Shelf life data, manufacture date, cure date, etc.
- Information needed to support shipment with shortages or re-assembly after delivery.
- References to aid traceability, such as batch numbers.
- In case of an engine, if the Competent Authority has granted an emissions production cut-off exemption the record: '["NEW OR SPARE"] ENGINE EXEMPTED FROM NOx EMISSIONS PRODUCTION CUT-OFF REQUIREMENT'.

...

AMC 21A.165(c)(3)

Applicable emissions requirements

1. General

This determination is made according to the data provided by the engine type-certificate holder. This data should allow the determination of whether the engine complies with the emissions production cut-off requirement of paragraph (d) of Volume II, Part II, Chapter 2, paragraph 2.3.2 of Annex 16 to the Chicago Convention. It should be noted that in the case of engines for which the Competent Authority has granted an exemption from these requirements, the emissions requirements applicable are the regulatory levels defined in Volume II, Part II, Chapter 2, paragraph 2.3.2 c) of Annex 16 to the Chicago Convention.

2. Process and criteria for applying for exemptions against a NOx emissions production cut-of requirement.

2.1 Request

The organisation should submit a formal request to the Competent Authority, signed by an appropriate manager, and copied to all other relevant organisations and involved Competent Authorities including the Agency. The letter should include the following information for the Competent Authority to be in a position to review the application:

a) Administration

- Name, address and contact details of the organisation.

b) Scope of the request

- Engine type (model designation, type-certificate (TC) number, TC date, emission TC basis, ICAO Engine Emissions Databank Unique Identification (UID) Number);
- Number of individual engine exemptions requested;
- Duration (end date) of continued production of the affected engines.
- Designate whether the proposed exempted engines are 'spares' or 'new' and whom the engines will be originally delivered to.

Note: In the case where the engines are 'new' (new engines installed on new aircraft), and if this would result in a larger negative environmental impact as compared to exemptions only for spare engines, more detailed justification could be required to approve this application.

c) Justification for exemptions

When requesting an exemption for a 'new' engine, the organisation should, to the extent possible, address the following factors, with quantification, in order to support the merits of the exemption request:

- Technical issues, from an environmental and airworthiness perspective, which may have delayed compliance with the production cut-off requirement;
- Economic impacts on the manufacturer, operator(s) and aviation industry at large;
- Environmental effects. This should consider the amount of additional NOx emissions that will be emitted as a result of the exemption. This could include consideration of items such as:
  - the amount that the engine model exceeds the NOx emissions standard, taking into account any other engine models in the engine family covered by the same type-certificate and their relation to the standard;
  - the amount of NOx emissions that would be emitted by an alternative engine for the same application; and
  - the impact of changes to reduce NOx on other environmental factors, including community noise and CO_2 emissions;
- Impact of unforeseen circumstances and hardship due to business circumstances beyond the manufacturer's control (e.g. employee strike, supplier disruption or calamitous events);
- Projected future production volumes and plans for producing a compliant version of the engine model seeking exemption;
- Equity issues in administering the production cut-off among economically competing parties (e.g. provide rationale for granting this exemption when another manufacturer has a compliant engine and does not need an exemption taking into account the implications for operator fleet composition, commonality and related issues in the absence of the engine for which exemptions are sought);
- Any other relevant factors.

2.2 Evaluation process.

2.2.1. Since the Agency has the overview of the exemptions granted within the Member States and within Third Countries by contacting the relevant Design Organisation, the Agency advises the Competent Authority during the process of granting exemptions. The advice from the Agency should take the form of a letter sent to the Competent Authority.

2.2.2 The evaluation of an exemption request should be based on the justification provided by the organisation and on the following definitions and criteria:

a) Use of engines

- 'Spare engines' are defined as complete new engine units which are to be installed on in-service aircraft for maintenance and replacement. It can be presumed that exemption applications associated with engines for this purpose would be granted as long as the emissions were equal to or lower than those engines they are replacing. The application should include the other items described in points (a) and (b) of paragraph 2.1 above, but it would not need to include the items specified in point (c). For spare engines, the evaluation of the exemption application would be conducted for record keeping and reporting purposes, but it would not be done for approval of an exemption.

- 'New engines' are defined as complete new engine units which are to be installed on new aircraft. They can only be exempted from a NOx production cut-off requirement if they already meet the previous standard (e.g. exemption from the CAEP/6 NOx production cut-off requirement is only possible if an engine type already meets the regulatory levels defined in Volume II, Part II, Chapter 2, paragraph 2.3.2 c) of Annex 16 to the Chicago Convention). Also, in order for and exemption to be granted for this type of engine the applicant must clearly demonstrate that they meet the criteria for an exemption by including items described in points (a), (b) and (c) of paragraph 2.1 above. The Competent Authority may require additional information regarding the appropriateness of the potential exemption.

b) Number of new engine exemptions

Exemptions should be based on a total number of engines and time period for delivery of these engines, which would be agreed at the time the application is approved and based on the considerations explained in point (c) of paragraph 2.1 above. The number of engines exempted should not exceed 75 per engine type-certificate, and the end date of continued production of the affected ngines should not exceed 31.12.2016. The number of exemptions is related to individual non-compliant engines covered under the same type-certificate.

Exemptions for new engines should be processed and approved by the Competent Authority, in agreement with the Agency, for both the manufacture of the exempted engines and the initial operator of the aircraft to which they are to be fitted. Given the international nature of aviation, the Agency should attempt to collaborate and consult on the details of exemptions. In the case where engine type certification is done through a reciprocity agreement between the Agency and Third Countries, the Agency should coordinate on the processing of exemptions and concur before approval is granted.

c) Other engines

Unlimited exemptions may be granted for continued production of spare engines having emissions equivalent to or lower than the engines they are replacing.

Engines for use on aircraft excluded from the scope of the Basic Regulation - i.e. aircraft specified in Annex II to the Basic Regulation and aircraft involved in

activities referred to in Article 1(2) of the Basic Regulation (e.g. military, customs, police, search and rescue fire fighting, coastguard or similar activities and services) - are excluded from civil aircraft NOx production cut-off requirements.

2.3 Rejection of request

If the competent authority rejects the request for exemption, the response should include a detailed justification.

GM 21A.165(c)(3)

Definitions of engine type certification date and production date

Volume II of Annex 16 to the Chicago Convention contains two different references to applicability dates:

- 'Date of manufacture for the first individual production model' which refers to the engine type certification date; and
- 'Date of manufacture for the individual engine' which refers to the production date of a specific engine serial number (date of Form 1).

The second reference is used in the application of engine NOx emissions production cut-off requirement which specifies a date after which all in-production engine models must meet a certain NOx emissions standard.

21A.165(c)(3) includes the production requirements and refers to paragraphs (b) and (d) of Volume II, Part III, Chapter 2, paragraph 2.3 of Annex 16 to the Chicago Convention.

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III. Draft Decision for amending CS-34

Certification Specifications for Aircraft Engine Emissions and Fuel Venting

CS-34

Amendment 1

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Book 2

Acceptable Means of Compliance and Guidance Material

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GM 34.1 Aircraft engine emissions

Guidance material for the application of the certification specifications for aircraft engine emissions is presented in:

(a) for instrumentation and measurement techniques for gaseous emissions, the attachments to Appendix 3 of ICAO Annex 16, Volume II; ~~and~~

(b) for instrumentation and measurement techniques for gaseous emissions from afterburning gas turbine engines, the attachments to Appendix 5 of ICAO Annex 16, Volume II~~.~~;

(c) for definitions and symbols, Part I of the ICAO Environmental Technical Manual, Volume II;

(d) for emissions certification of turbojet and turbofan engines intended for propulsion only at subsonic speeds, Part III, Chapter 2 of the ICAO Environmental Technical Manual, Volume II; except for the exemption process from the NOx emissions production cut-off requirements;

(e) for turbojet and turbofan engines intended for propulsion at supersonic speeds, Part III, Chapter 3 of the ICAO Environmental Technical Manual, Volume II;

(f) for smoke emission evaluation, Appendix 2 of the ICAO Environmental Technical Manual, Volume II;

(g) for instrumentation and measurement techniques for gaseous emissions, Appendix 3 of the ICAO Environmental Technical Manual, Volume II;

(h) for specification for HC analyser, Attachment A to Appendix 3 of the ICAO Environmental Technical Manual, Volume II; and

(i) for specification for fuel to be used in aircraft turbine engine emission testing, Appendix 4 of the ICAO Environmental Technical Manual, Volume II.

References throughout these Certification Specifications to the ICAO Environmental Technical Manual, Volume II, refer to ICAO Doc 9501 — Environmental Technical Manual, Volume II — Procedures for the Emissions Certification of Aircraft Engines, First Edition 2010.

IV. Draft Decision for amending CS-36

Certification Specifications for Aircraft Noise

CS-36

Amendment ~~2~~3

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Book 2

Acceptable Means of Compliance and Guidance Material

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GM 36.1 Aircraft noise

Guidance material for the application of the certification specifications for aircraft noise is presented in:

(a) for equations for the calculation of noise levels as a function of take-off mass, Attachment A to ICAO Annex 16~~ to the Chicago Convention~~, Volume I;

(b) for evaluating an alternative method of measuring helicopter noise during approach, Attachment D to ICAO Annex 16 ~~to the Chicago Convention~~, Volume I;

(c) for applicability of noise certification standards for propeller-driven aeroplanes, Attachment E to ICAO Annex 16, Volume I;

~~(d) for equivalent procedures for subsonic jet aeroplanes, Chapter 2 of the International Civil Aviation Organisation (ICAO) Environmental Technical Manual;~~

~~(e) for equivalent procedures for propeller-driven aeroplanes over 8,618 kg, Chapter 3 of the ICAO Environmental Technical Manual;~~

~~(f) for equivalent procedures for propeller-driven aeroplanes not exceeding 8,618 kg, Chapter 4 of the ICAO Environmental Technical Manual;~~

~~(g) for equivalent procedures for helicopters, Chapter 5 of the ICAO Environmental Technical Manual;~~

~~(h) for evaluation methods, Chapter 6 of the ICAO Environmental Technical Manual;~~

~~(i) [Reserved];~~

~~(j) for control of noise certification computer programme software and documentation related to static to flight projection processes, Chapter 8 of the ICAO Environmental Technical Manual;~~

~~(k) for calculation of confidence intervals, Appendix 1 of the ICAO Environmental Technical Manual;~~

~~(l) for identification of spectral irregularities, Appendix 2 of the ICAO Environmental Technical Manual;~~

~~(m) for a procedure for removing the effects of ambient noise levels from aeroplane noise data, Appendix 3 of the ICAO Environmental Technical Manual;~~

~~(n) for reference tables and figures used in the manual calculation of Effective Perceived Noise Level, Appendix 4 of the ICAO Environmental Technical Manual;~~

~~(o) for worked examples of calculation of reference flyover height and reference conditions for source noise adjustments for certification of light propeller driven aeroplanes, Appendix 5 of the ICAO Environmental Technical Manual;~~

~~(p) for noise data corrections for tests at high altitude test sites, Appendix 6 of the ICAO Environmental Technical Manual;~~

~~(q) for reassessment criteria for the recertification of an aeroplane to Annex 16 to the Chicago Convention, Volume 1, Chapter 4, Appendix 8 of the ICAO Environmental Technical Manual; and~~

~~(r) for the use of DGPS-based time space position information tracking systems, Appendix 10 of the ICAO Environmental Technical Manual.~~

(d) for general guidelines, Chapter 2 of the ICAO Environmental Technical Manual, Volume I;

(e) for technical procedures applicable for noise certification of more than one type of aircraft, Chapter 3 of the ICAO Environmental Technical Manual, Volume I;

(f) for guidelines for subsonic jet aeroplanes, propeller-driven aeroplanes over 8 616 kg, and helicopters evaluated under ICAO Annex 16, Volume I, Appendix 2, Chapter 4 of the ICAO Environmental Technical Manual, Volume I;

(g) for guidelines for propeller-driven aeroplanes not exceeding 8 616 kg evaluated under Appendix 6 of ICAO Annex 16, Volume I, Chapter 5 of the ICAO Environmental Technical Manual, Volume I;

(h) for guidelines for helicopters not exceeding 3 175 kg evaluated under Appendix 4 of ICAO Annex 16, Volume I, Chapter 6 of the ICAO Environmental Technical Manual, Volume I; and

(i) for guidelines for aircraft recertification, Chapter 9 of the ICAO Environmental Technical Manual, Volume I.

References throughout these Certification Specifications to the ICAO Environmental Technical Manual, Volume I refer to ~~the ICAO Environmental Technical Manual on the Use of Procedures in the Noise Certification of Aircraft, ICAO/CAEP/7 approved revision, 2 April 2007 (based on ICAO Doc 9501 AN/929; Third Edition - 2004)~~ICAO Doc 9501 — Environmental Technical Manual, Volume I — Procedures for the Noise Certification of Aircraft, First Edition 2010.

Appendix B - Attachments

HH NPA 2011-08 FAA Comments 110816 General.pdf
Attachment #1 to comment #29

HH NPA 2011-08 FAA Comments 110816.pdf
Attachment #2 to comment #31

HHHH NPA 2011-08 FAA Comments 110816 P13.pdf
Attachment #3 to comment #30