

JAR-25
Comment/Response Document
NPA 25G-255
Flight Manual, General (AMJ 25.1581)

1 Background

NPA 25G-255 was drafted on the basis of draft FAA AC 25.1581, first issued in 1989. It was intended that the resulting advisory material and any rule change should be harmonized with the FAA as much as practicable. NPA 25G-255 was sent out for comments in January 1992.

The NPA text sent out for comments did erroneously not include the formal proposal for the rule change to amend ACJ 25.1581 and to add the new AMJ 25.1581. The valid proposal is as follows:

1 Replace the existing ACJ 25.1581(a) with the following:

*ACJ 25.1581(a)
Flight Manual – General (Acceptable Means of Compliance)
See JAR 25.1581(a).*

For guidance material with respect to the contents, submittal and approval, reference should be made to AMJ 25.1581. The flight manual should be presented in the English language.

2 Introduce AMJ 25.1581 Aeroplane Flight Manual.

2 Comments Received

The full list of respondents to the consultation was as follows:

*Industry Associations: AEA
AIA
AIAC
SBAC*

Individual Manufacturers: Dassault Aviation

*Regulatory Agencies: CAA Denmark
CAA UK
DGAC
RAI
Transport Canada*

Individual Persons: Brian L. Perry

3 Responses to Comments

3.1 General

The comments received ranged from wording improvements to detailed comments against specific proposals.

In parallel, FAA incorporated changes in the draft AC of the same subject resulting from comments received during their consultation period. For the purpose of harmonization, changes were considered mutually for incorporation in both documents. In addition, to improve clarity and readability, numerous wording improvements were made. Given the number of resulting changes in

**Comment And Response Document on
NPA 25G-255: Aeroplane Flight Manual, General (AMJ 25.1581)**

<i>Paragraph page</i>	<i>Text as published in NPA</i>	<i>Comment</i>	<i>Response</i>
<i>all</i>	<i>numerous occurrences</i>	<i>Terminology is very american. Replace “airplane” by “aeroplane”, replace “operations manual” by “operating manual” etc.</i>	<i>Acknowledged. Established JAA wording will be used as much as possible. Replace “operation manual” by “operations manual”. The “operating manual” is the manual used to operate the aeroplane in service.</i>
<i>all</i>	<i>numbering system</i>	<i>Numbering system is extremely difficult to follow through.</i>	<i>Acknowledged. US legal system does not allow for improvement. However, a table of contents was added.</i>
<i>all</i>		<i>This AMJ does not address what should be the relationship between an individual aeroplane and its Flight Manual. – one book for each individual aeroplane, or – one book for a fleet of aeroplanes. Same for revision status of the AFM and the modification status of the aeroplane.</i>	<i>Not accepted. It is clear and current practice, for each aeroplane to have its individual AFM. For general purposes, envelope manuals have been established.</i>
		<i>There is no paragraph about fuel consumption in this document.</i>	<i>Acknowledged. However, there is no rule requiring information on fuel consumption in the AFM.</i>
<i>all</i>	<i>numerous occurrences</i>	<i>Define “accepted” and “approved”. In Canada these terms are considered as being synonymous.</i>	<i>“Approved” means to be “by signature”. “Accepted” means recognized or acknowledged for that purpose, but not signed.</i>
<i>2 - 1 -</i>	<i>2. RELATED <u>JOINT</u> AVIATION REGULATION (<u>JAR</u>) SECTIONS.</i>	<i>Add cross reference to JAR OPS.</i>	<i>Accepted. Revise text to read: “Additional related JAR regulations are operational rules</i>

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			<p>of JAA-countries (not defined as a joint code). <u>They will be superseded by JAR-OPS, when adopted.</u>”</p> <p>Additionally, revise headline to correctly quoting JARs:</p> <p>“2. RELATED JOINT AVIATION REQUIREMENTS (JAR).”</p>
<p>3.b. - 1 -</p>	<p>b. Flight Crew Operating Manual (FCOM). A document developed by a manufacturer <u>that</u> describes in detail the characteristics and operation of the airplane and system(s). <u>This document is developed to assist the operators in producing their Operations Manual.</u></p>	<p>Delete last sentence since misleading. The manufacturers FCOM may be used by the crew as it is.</p> <p>Sometimes, FCOM is established to be applied by the users with no operational manual needs.</p>	<p>Accepted. Revise text to read: “b. Flight Crew Operating Manual (FCOM). A document developed by a manufacturer that describes, in detail, the characteristics and operation of the aeroplane <u>or its</u> systems.”</p>
<p>3.e. - 2 -</p>	<p>e. Airplane Flight Manual Warnings, Cautions, and Notes. ... The following definitions should not be confused with the color requirements prescribed in 25.1322 for warning, caution, and advisory lights installed in the cockpit.</p> <p>(1) Warning. An operating procedure, technique, etc., <u>which</u> may result in personal injury or loss of life if not carefully followed.</p> <p>(2) Caution. An operating procedure, technique, etc., <u>which</u> may result in damage to equipment if not carefully followed.</p>	<p>Definition of WARNING and CAUTION is different to AMJ 25.1322 para 3. Confusion suggested.</p> <p>Delete the word “carefully”, since it adds ambiguity.</p> <p>same.</p>	<p>Not accepted.</p> <p>AMJ 25.1322 classifies the required crew actions with respect to the lights in the cockpit.</p> <p>AMJ 25.1581 classifies information in the manual with respect to possible consequences.</p> <p>For harmonization, replace “which” by “that”.</p> <p>Accepted.</p>
<p>3.e - 2 -</p>	<p>(1) Warning. An operating procedure, technique, etc., <u>which</u> may result in personal injury or loss of life if not carefully followed.</p> <p>(2) Caution. An operating procedure,</p>	<p>Suggest the following definitions:</p> <p>Warning: Emphasizes information of immediate flight safety importance.</p> <p>Caution: Provides information to prevent</p>	<p>No change.</p> <p>Any other wording is not excluded and may be acceptable as well.</p> <p>Commenter’s words are acceptable. For</p>

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	<p>technique, etc., <u>which</u> may result in damage to equipment if not carefully followed.</p> <p>(3) Note. An operating procedure, technique, etc., considered essential to emphasize. Information contained in notes may also be safety related.</p>	<p>misuse of systems which could directly affect their function or serviceability.</p> <p>Note: Expands on information which has already been provided.</p>	<p>harmonization, replace “which” by “that”.</p>
<p>3.g. - 2 -</p>	<p>g. Revisions. A <u>revision is a</u> change to the content of the AFM through the addition, deletion, or modification of material.</p>	<p>Difference between mandatory and optional revisions is to be defined.</p>	<p>Not accepted.</p> <p>There is no reference to optional revisions within the AMJ.</p> <p>Delete “revision is a”.</p>
<p>3.h. - 2 -</p>	<p>h. Appendices and Supplements. <u>Appendices and supplements</u> are additions to the AFM <u>which</u> may or may not supersede existing AFM material.</p> <p>(1) Appendix. An <u>appendix is</u> an addition to the AFM, that is required by the installation of optional equipment or specific operations (engine inoperative ferry, reduced thrust takeoff, configuration deviation list (CDL), etc.).</p> <p>(2) Supplement. A <u>supplement consists of</u> information <u>which</u> supersedes or is in addition to the basic AFM. This information may be a result of issuance of a Supplemental Type Certificate (STC), or approved changes to AFM limitations, procedures, or performance without an STC. Approval may be granted to the Type Certificate (TC) or STC holder, or operator.</p>	<p>Appendices should give additional information not related to every day usage of the aeroplane. Supplements should give supplementary information to that contained in the main body of the AFM but related to it. They should be used to give data on the use of optional installations, data which the flight crew has the discretion to use on a particular occasion or not.</p> <p>Supplements can be generated by others than the TC holder. Appendices are not so likely to be produced by others.</p> <p>Define “supplement” similar to definition of “appendix” in this AMJ. Supplement is for optional equipment or unique operations and may supersede or supplement the basic AFM data.</p>	<p>Not accepted.</p> <p>Policy of categorizing information as supplement or appendix varies between manufacturers. No guideline is expected to be capable to cover all the existing policies.</p> <p>However, delete last sentence of (2). Introduce minor editorial changes to harmonize text.</p> <p>See above.</p> <p>See above.</p>
<p>3.i.</p>	<p>i. <u>JAA-Approval</u>. The application of <u>JAA</u></p>	<p>JAA certification procedures apply only to</p>	<p>Not accepted.</p>

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- 2 -	<i>certification procedures and the approval of the relevant JAA National Authority (JAANA).</i>	<i>AFMs. This definition should not be used to describe JAA approval of other manuals.</i>	<i>This para only defines the term “JAA Approval”. Which manuals are to be approved is stated elsewhere within JAR.</i>
4.b. - 3 -	<i>b. As the commercial transport continued to develop ...</i>	<i>Amend para to clarify the approval required for operating procedures developed from, but different to, the approved source data in the AFM.</i>	<i>These operating procedures are approved by the responsible operating authority of the specific operator. See 6.c(1). However, for overall clarity, entire paragraph 4 was rewritten intensely.</i>
4.b. - 3 -	<i>b. ... which meets the intend of § 25.1585.</i>	<i>Typing error in last line.</i>	<i>Correct but text was rewritten.</i>
4.c. - 3 -	<i>c. ... This information supplements, or is in lieu of, parts of the conventional hardcopy AFM, and is incorporated in the AFM by reference to an approved source of such data. ...</i>	<i>The problem concerning the data source approbation makes another problem appear about the updated data.</i>	<i>Acknowledged.</i>
5.a. - 3 -	<i>a. Section 25.1581 of JAR provides that the JAA approved information be clearly identified and segregated from any unapproved material that may be presented under the same cover. Unapproved material must not be mixed with the JAA-approved information.</i>	<i>JAR 25.1581 clearly allows mixing of approved and unapproved material. Use original wording of 25.1581 here, delete last sentence since it contradicts regulations already in place.</i>	<i>Accepted. Revise sentence to read: “a. Section 25.1581 of the JAR requires that JAA approved information be segregated, identified, and clearly distinguished from each unapproved part of the AFM. Unapproved material should be labeled that it is for guidance information only, and must be located in a different section than the approved material.”</i>
5.b(1) - 4 -	<i>(1) Each page of the approved portion should bear the notation, “*** Approved”, a unique date and/or revision number for that page, the manufacturer’s name, the airplane model, and any appropriate document identification</i>	<i>Delete “manufacturer’s name” replace “airplane model” by “airplane type or model” since this reflects standard common practice, allowing for several models using a common AFM.</i>	<i>Accepted. Revise text to read: “(1) Each page of the approved portion should bear the notation, “*** Approved”, a unique date of approval or revision number for that page, the</i>

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	number. <u>“***” is the applicable approving authority.</u> ...		aeroplane <u>type or model designation</u> , and an appropriate document identification number. <u>“***” stands for the applicable approving authority.</u> ...”
5.b(2) - 4 -	(2) All AFM’s, revisions, appendices, and supplements requiring <u>JAA</u> approval must be submitted using approval procedures acceptable to the <u>JAA</u> . A log of currently approved pages in the AFM should be furnished by the manufacturer in each copy of the manual. A location should be provided on the log for approval signature and the date.	Do the Authorities really wish to approve each log of effective pages ?	Not accepted. JAA will approve the Log of Pages of the envelope AFM. However, the location of the signature could be on an approval page as well. Therefore, revise last sentence to read: “A location should be provided on the log for <u>the approval signature and the approval date</u> . <u>Alternatively, a specific approval page can be furnished for the approval signature and the current revision status.</u> ”
5.b(3) - 4 -	(3) When revisions are incorporated, a means of indicating those parts of the text <u>and/or data</u> that have been changed should be provided. ...	Delete “and/or data”.	Not accepted. Each and every change should be indicated. It is up to the manufacturer to choose an appropriate means. For clarity, replace “text <u>and/or data</u> ” by “information”.
5.b(5) - 4 -	(5) Appendices and supplements may be developed by either the Type Certificate (TC) holder, Supplemental Type Certificate (STC) applicant, or operator, and <u>should be submitted for evaluation and approval according to JAA certification procedures</u> . Usually, the TC holder writes appendices to the AFM and an STC applicant, or operator supplements the AFM. However an STC applicant may elect to produce a completely	This permits operators to raise appendices and supplements. Will they have the knowledge and facilities to support AFM work ? Will they be able to substantiate all the data? Replace “holder” by “applicant” to be	No change. It is up to the approving authority to decide on this. Delete the word “either”. Delete “which then may contain appendices written by the STC holder” since too specific and not necessary. Accepted.

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	<i>new AFM, which then may contain appendices written by the STC holder.</i>	<i>consistent with the paragraph wording.</i>	<i>Replace “holder” by “applicant”.</i>
5.e. - 5 -	<i>e. Airplane Flight Manual Units. The AFM units should be consistent with the flight deck instrumentation, placards, and other measuring devices for a particular aeroplane. <u>As specified for the basic airplane, the AFM should be given in units of the International unitary system (SI). This does not apply to the units of measurement related to:</u> <u>– airspeed: knots.</u> <u>– altitude: feet.</u> <u>– vertical speed: feet per minute.</u> <u>– navigational dist.: nautical miles. ...</u></i>	<i>TC policy requires both, SI and Imperial units (lb, ft) until SI units become the only national units. This is likely to remain a TC difference from AMJ. AFM should use the same units as the available data sources to avoid errors. I.e. in the JEPPESEN manual runway length is given in feet. It is unwise and costly to provide two kinds of manuals with different sets of units. Allow for flexibility.</i>	<i>No change. TC policy is acceptable. No change, see above. To correctly refer to the SI system, revise text to read: “...particular aeroplane. <u>The AFM should be given in SI units (International System of Units). This does not apply ...</u>” Rest unchanged.</i>
5.e. - 5 -	<i>... However, the charts should be constructed to minimize any misunderstanding or interpolation problems by, for example, using a transfer scale so that principal values of each of the units are on major grid lines or index marks.</i>	<i>Delete “by, for example ... index marks”, since other types of presentations have been used successfully for many years.</i>	<i>Not accepted. Any other means is not excluded and may be acceptable as well.</i>
6.a. - 5 -	<i>a. Introductory Section.</i>	<i>Suggest list of abbreviations.</i>	<i>Accepted. Add after (5): <u>“(6) List of abbreviations.”</u></i>
6.a(1) - 5 -	<i>(1) Title page. The title page should include the manufacturer’s name and the airplane model designation, together with the commercial designation or name, if any, assigned to the airplane. Provision should be made for the inclusion of the approval date of the basic document and the signature,</i>	<i>Print the AFM reference/ document number on title page if not on every page.</i>	<i>Accepted. Revise text to read: “(1) Title page. The title page should include the manufacturer’s name, ___ the aeroplane model designation, ___ the commercial designation or name, if any, assigned to the aeroplane, <u>and an appropriate document</u></i>

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	<i>name and title of the <u>JAA</u> approving official.</i>		<i><u>identification number.</u> Provision ...”</i>
<i>6.a(2) - 5 -</i>	<i>(2) Log of revisions including revision highlights, if appropriate.</i>	<i>Delete paragraph since this feature does not serve the purpose of the AFM to present current data.</i>	<i>Not accepted. The log of revisions enables to decide whether the manual is up to date. The revision highlights draw attention to the amended parts. For clarity, split this item into two and renumber the following items accordingly: “(2) Log of revisions. (3) Revision highlights, if appropriate.”</i>
<i>6.a(3) - 5 -</i>	<i>(3) Log of pages (including all necessary information to determine applicability of pages for a given airplane modification standard).</i>	<i>Delete “for a given airplane modification standard” since AFM does not define modification standards.</i>	<i>Not accepted. Text is intended to be applicable to envelope manuals. For clarity, revise text to read: “Log of pages (including all information necessary to determine which pages apply to a given aeroplane model (i.e., hardware build)).”</i>
<i>6.b(1)(ii) - 6 -</i>	<i>(ii) If the maximum weight used in meeting the takeoff or landing noise requirements <u>is less than the structural or customer option maximum weight limit, the lesser weight must be stated as the maximum certificated weight. Multiple noise-limited gross weight pairs (takeoff and landing) for one configuration (hardware build) are not allowed. Only one set of gross weight limits that pertain to a particular configuration may be established for a particular airplane.</u></i>	<i>“for one configuration (hardware build)” needs clarification. If flap angle is changed, is this an other configuration ?</i>	<i>Accepted. Rewrite (ii) to read: “(ii) <u>Only one set of noise limited takeoff and landing weights may be established for a specific aeroplane model (i.e., hardware build).</u>”</i>
<i>6.b(2)(i)</i>	<i>(i) Landing Flap Restriction.</i>	<i>replace “prevent” by “prohibit” since a</i>	<i>Not accepted.</i>

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- 6 -	... A placard must be placed in the airplane, and appropriate other means must be installed, to prevent normal use of the restricted flap setting.	placard will not prevent restricted use.	Placard prohibits and the other means prevent using the restricted flap setting. For clarity, revise text to read: “...must be installed (<u>e.g., crushable guard on the restricted portion of the flap selection quadrant</u>), to prevent <u>using</u> the restricted flap setting <u>for normal operations</u> .”
6.b(3)(i) - 7 -	(i) Operations. (A) Maximum takeoff <u>and</u> landing and zero-fuel weight limits. (B) Minimum in-flight gross weight.	Add limitation: Maximum In-flight weight, landing flaps.	Not accepted. Unusual limitation. May be added if applicable. For clarity, revise (A) to read: “(A) Maximum takeoff, <u>landing</u> , and zero-fuel weight limits.”
6.b(3)(i)(B) - 7 -	(B) Minimum in-flight gross weight.	What is the definition and relevance of minimum in-flight gross weight ?	Minimum weight is defined in JAR 25.25(b) and determined in accordance with flight test demonstrations. Delete the word “gross”.
6.b(3)(i)(F) - 7 -	(F) Maximum tailwind. Maximum tailwind component for takeoff and landing shall be limited to 10 knots, unless it has been demonstrated in tailwind greater than 15 knots that airplane handling characteristics, engine (forward and reverse thrust) performance, and system operation (such as autothrottle) are acceptable and there are no unsafe features. <u>If</u> airworthiness approval has been granted for takeoff and landing in tailwinds in excess of 10 knots, the AFM should contain a XX knot tailwind limitation	Reference to the test conditions could be located in the Flight Test Guide.	Accepted. Revise text to read: “(F) Maximum tailwind. <u>The</u> maximum <u>allowable</u> tailwind component for takeoff and landing <u>should normally</u> be limited to 10 knots. <u>If</u> airworthiness approval has been granted for takeoff and landing in tail-winds <u>greater than</u> 10 knots, the AFM should <u>provide the limiting tailwind value</u> , accompanied by a statement such as the following:

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	<i>accompanied by a statement such as the following:</i>		
6.b(3)(i)(F) - 7 -	<i>(F) ... “The capability of the airplane has been satisfactorily demonstrated for takeoff and manual landing with tailwinds up to XX knots. This finding does not constitute operational approval___to conduct takeoffs and landings with tailwind components in excess of 10 knots.”</i>	<i>Is it a rule restriction limiting the operational aspect at 10 kt ? The required note seems to preclude takeoffs and landings with tailwind components in excess of 10 kt. This statement is not necessary since pilots do not require special training for high tailwind (unlike i.e. CAT II or steep approach).</i>	<i>Question should be forwarded to JAR-OPS people. FAR do include such a rule limit. Usually, operational approval is required to conduct such operations. “Replace “in excess” by “greater than” and “takeoffs and landings” by “takeoffs <u>or</u> landings”. No change but results from FAR, see above.</i>
6.b(3)(i)(G) - 7 -	<i>(G) Maximum demonstrated crosswind.</i>	<i>There is no exigency about the crosswinds in the case of one engine failure.</i>	<i>Correct. Present regulation does not require combination of max crosswind and one engine out.</i>
6.b(3)(i)(G) - 7 -	<i>(G)(2) If the maximum crosswind component demonstrated under § 25.237 is not considered to be limiting for either takeoff or landing operations, the demonstrated crosswind value may be presented in a section other than the Limitations Section.</i>	<i>Maximum demonstrated crosswind should be regarded as a limitation by virtue of the fact that nothing higher has been shown. Amend text to state: “The maximum crosswind component demonstrated for takeoff or landing must be presented in the Limitations Section.”</i>	<i>Not accepted. If maximum demonstrated crosswind is considered limiting it will be located in the limitations section. See FTG page 552 section 30 e(1)(iii)(B). JAR-OPS rules may need to be developed. For clarity, revise text to read: “(2) If the maximum crosswind <u>value</u> demonstrated under JAR 25.237 is considered___to be <u>not</u> limiting for <u>both</u> takeoff and landing operations, ...</i>
6.b(3)(i)(H) - 7 -	<i>(H) Runway Slope. ... Limitations for runway slopes greater than ±2 percent may be acceptable if specific flight tests and data analysis validation for the effects of higher</i>	<i>Replace “tests and data” by “tests and/or data” since the effect of runway slope on performance can be determined through analysis.</i>	<i>Not accepted. For clarity, revise text to read: “... Limitations for runway slopes greater</i>

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	slopes is shown.	This AMJ does not mention slope limitations in approach.	than ± 2 percent may be <u>approved</u> if <u>the effects of the larger slopes are validated in a manner acceptable to the JAA.</u> Correct, but no change. This para is on runway slope. There is no JAR 25 para defining approach slope. This is an JAR-AWO matter.
6.b(4) - 8 -	(4) Center-of-Gravity Limits. Indicate in tabular or graphic form the c.g. limits for takeoff and landing, zero fuel weight, and, if desired, for any other practicably separable flight condition. ...	Consider taxi weight too, since weight commonly ranges from maximum taxi to minimum inflight weight.	Accepted although there is no rule requiring taxi CG limits. For clarity, revise text to read: “(4) Center-of-Gravity Limits. Indicate, <u>by using tables or graphs</u> , the center of gravity (c.g.) limits <u>for taxi, takeoff and landing</u> , zero fuel weight, and, if desired, for any other practicably separable flight condition....”
6.b(4) - 8 -	... Specific fuel usage limitations required to maintain the c.g. within limits should be included in the Limitations Section of the AFM.	Revise this sentence to read: “Specific fuel usage limitations ... should be included in the Limitations Section of the AFM, <u>or by reference in a separate weight and balance document.</u> ” since c.g. and fuel limits are currently presented in the WBM.”	Not accepted. Any flight procedure peculiar to the aeroplane must be covered by the AFM. See para 6.c. Sentence was deleted, since this subject is covered by revised 6.b(5).
6.b(5) - 8 -	(5) Fuel Limitations. ... Any other limitation associated with lateral imbalance, fuel loading, fuel management, fuel temperature, any associated altitude limits (e.g., boost pump(s) inoperative, fuel density range, fuel type, etc.) should also be included.	Delete example “boost pump(s) inoperative”. This could be placed in MMEL or within procedures sections. See 6.b(4). Extend sentence to read: “... should also be included <u>in the AFM, or by reference in a separate weight and balance</u> .”	Not accepted. Example describes accepted practice. Delete “fuel density range” from list. Not accepted. The W&B manual is not the appropriate location for the associated limitations.

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		<u>document.</u> ”	
6.b(6)(i) - 8 -	(i) State all limitations necessary to ensure safe operation of engines, propellers, fuel systems, and powerplant accessories, including auxiliary powerplants. (see §§ 25.1521 and <u>25A1521</u>). ...	Incorporate power setting charts by reference to avoid indiscriminate power setting until a powerplant limit is reached.	Not accepted. Operation according to the constraints of the performance section is mandatory.
6.b(6)(ii) - 9 -	(ii) ... “Icing conditions – Icing conditions exist when outside air temperature (OAT) on the ground and for takeoff, or total air temperature (TAT) in flight, is 10 degrees C or below, and visible moisture in any form is present (such as clouds, fog with visibility of one mile or less, rain, snow, sleet, and ice crystals). Icing conditions also exist when the OAT on the ground and for takeoff is 10 degrees C or below when operating on ramps, taxiways, or runways where surface snow, ice, standing water, or slush may be ingested by the engines, or freeze on engines, nacelles, or engine sensor probes.”	<ol style="list-style-type: none"> 1. Replace value “10°C” by a blank “_°C” since definition of icing conditions varies between manufacturers. 2. Replace “10°C” by “5°C” in accordance with propeller icing conditions. 3. Add Static Air Temperature (SAT) since used for some aircraft. 4. Separate the two sentences for better reading. 5. Add the following paragraph: “A primary ice detection system may be used as approved to detect icing conditions and to operate the engine or wing anti-ice system.” The Powerplant Limitation section does not take into account ice detection systems. 6. If such statement is necessary in the limitations section it should be a requirement of the JAR and not just of the associated advisory material. 	<ol style="list-style-type: none"> 1. Not accepted. 10°C should be regarded as standard. Lesser values may be acceptable but will need substantiation. 2. Not accepted, see above. 3. Not accepted. Depending on the system, SAT may read higher values than OAT when on the ground. OAT is readily available at any airport. 4. Accepted. 5. Not accepted. Ice detection systems are normally not approved as primary systems. 6. Comment noted. No change. § 25.1419 should be kept general. However, a definition of the term icing conditions is required.
6.b(7)(i) - 9 -	(i) ... decent ...	Typing error.	Accepted. Replace “decent” by “descent”.
6.b(7)(ii) - 9 -	(ii) Manoeuvring speed, V_A , together with a statement that full application of	For design purposes V_A is the maximum speed allowing <u>rapid</u> full displacements of	Not accepted. Wording is in line with requirement

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	<i>longitudinal, directional, and lateral flight controls, as well as maneuvers that involve angles-of-attack near the stall, should be confined to speeds below this value.</i>	<i>these controls. Above this speed it may not need <u>full</u> control displacement to achieve the design load.</i>	25.1583(a)(3).
6.b(7)(iv) - 9 -	<i>(iv) Landing gear operating speed, V_{LO}, together with a statement that this is the maximum speed at which it is safe to extend or retract the landing gear.</i>	Replace “safe” by “permitted”.	Not accepted.
6.b(7)(v) - 9 -	<i>(v) Landing gear extended speed, V_{LE}, together with a statement that this is the maximum speed at which the airplane can be safely flown with the landing gear extended and locked.</i>	Replace “can be safely flown” by “may be flown”.	Not accepted. Wording is in accordance with JAR 25.1583(a)(6).
6.b(7)(vi) - 9 -	<i>(vi) Any other limiting speeds for extendable devices other than landing gear, should be included as applicable (e.g., spoilers, thrust reversers, landing lights, ram air turbine (RAT), etc.).</i>	Include inflight openable windows.	Accepted, however, list is intended to give examples and may still be not complete.
6.b(9) - 10 -	<i>(9) <u>Kinds</u> of Operations. This subsection should contain a statement similar to the following: “This airplane is certificated in the transport category and is eligible for the following <u>kinds</u> of operations when the appropriate instruments and equipment required by the airworthiness and/or operating certificate are installed and approved and are in operable condition.”</i>	Does this “operating certificate” coincide to the JAR OPS Air Operator Certificate (AOC) ?	This statement is intended to point to operating regulations, which may differ within the countries. For clarity, replace “airworthiness and/or operating certificate” by “airworthiness and operating requirements”.
6.b(9)(ii) - 10 -	<i>(ii) Extended over-water operation.</i>	What does that mean ? Applicable JAR/FAR requirements ?	No change. That is an operation over water at a horizontal distance of more than 50 NM from the nearest shoreline (i.e., FAR 1.1, for

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			<i>equipment see FAR 121.339). Refer to optional ditching requirement 25.801. For operational ditching equipment see JAR-OPS.</i>
<i>6.b(9)(iv) - 10 -</i>	<i>(iv) Day and night VFR.</i>	<i>Separate “Day VFR” and “Night VFR”, since italian operating rules do not permit night VFR.</i>	<i>Not accepted. Part 25 aeroplanes usually are approved for night VFR. Operating rules are not affected.</i>
<i>6.b(9)(vi) - 10 -</i>	<i>(vi) Reverse thrust taxi.</i>	<i>Delete this paragraph, since it is an operational issue and incompatible with the AFM.</i>	<i>Not accepted. Backing the aeroplane with reverse thrust may be considered a safety issue on some aircraft. For clarity, replace “Reverse thrust taxi” by “Backing the aeroplane with reverse thrust”.</i>
<i>6.b(11) - 10 -</i>	<i>(11) Systems and Equipment Limitations. All limitations applicable to equipment and systems installations and <u>which are</u> considered necessary for safe operation must be included. Examples of systems and equipment installations for which limitations may be appropriate include, but are not limited to, electrical, hydraulic, pneumatic cabin pressurization, air conditioning, airframe fire protection, airframe ice protection, auto braking systems, autopilot, autothrottle, flight director, yaw damper, anti-skid devices, performance or flight management system, etc.</i>	<i>The limitation with respect to the engine ice protection (para 6b(6)(ii)) is also applicable to some aircraft anti icing systems. Reference to the possibility of this limitation should be specifically included. Delete “pneumatic” since cabin pressure control systems are not limited to pneumatic control.</i>	<i>Not accepted. This guidance material does not cover all possible cases. Correct, but this was not intended. Misinterpretation is caused by a missing comma. However, for universality, revise text to read: “... but are not limited to, electrical, hydraulic, pneumatic, cabin pressurization, air conditioning, fire protection, ice protection, auto braking systems...” FAA discussion required.</i>
<i>6.c. - 10 -</i>	<i>c. Operating Procedures Section. The Operating Procedures Section of the AFM should contain, as a minimum, the essential</i>	<i>Add reference to use of navigation and communications systems, autoflight systems, etc..</i>	<i>Not accepted. Going into details is not considered necessary.</i>

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	<p>information, peculiar to the particular type or airplane model, <u>which</u> is needed for safe operation under normal and other-than-normal conditions. Procedures not directly related to airworthiness, or not under control of the <u>crew</u>, should not be included in the AFM.</p>		
<p>6.c(1) - 10 -</p>	<p>(1) Procedures Categories. Information should be presented for normal, non-normal and emergency procedures and be distinctly separated. ...</p>	<p>Allow manufacturers to determine specific category titles. Revise text to read: “Information should be presented for normal <u>and non-normal/ emergency</u> procedures and be distinctly separated. <u>Specific category titles are determined through airplane configuration and training requirements.</u>”</p>	<p>Not accepted. Interpretation will be retained.</p>
<p>6.c(1) - 10 -</p>	<p>(1) ... These procedures are provided as guidance and should not be construed as prohibiting the development of equivalent <u>approved</u> procedures.</p>	<p>By the definition of “JAA approved” in section 3 of this AMJ “equivalent approved procedures” would have to be certification procedures. JAA does not certify operating procedures of the airlines. Therefore, delete “approved” Statement is not required and could be misleading. Clarify that this statement does not apply to limitations, abnormal and emergency sections of AFM.</p>	<p>Not accepted. An operator may get approval by its operating authority. Otherwise, no deviation from AFM procedures is anticipated. For clarity, revise text to read: “...prohibiting the <u>operator from developing equivalent procedures.</u>” No change. Statement as is applies to all three kinds of procedures but not to limitations.</p>
<p>6.c(4)(i) - 11 -</p>	<p>(i) General. In deciding whether an operating procedure should be categorized as normal or as non-normal, the airplane system availability should be considered. ...</p>	<p>Revise text to read: “... the airplane system availability <u>in flight</u> should be considered.” Delete paragraph. Content of procedures</p>	<p>No change. A system failure leads to abnormal procedures. Not accepted.</p>

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		<p>should be based on peculiarities of the airplane and not on day-to-day routine operations.</p>	<p>Paragraph is intended to give guidance. For clarity, revise text to read: “<u>Classifying an operating procedure as normal or as non-normal should reflect whether the aeroplane’s systems are operating normally.</u>”</p>
<p>6.c(4)(ii) - 11 -</p>	<p>(ii) Other <u>accepted</u> Sources of Procedures Information. Large, public transports typically utilize other <u>sources</u> of procedures information for flight crew use instead of the AFM. Examples <u>are</u> manufacturer- or operator- produced <u>operating manuals</u>, <u>Quick Reference Handbooks (QRH)</u>, <u>Emergency or Abnormal Checklists</u>, etc. These documents are carried aboard the airplane and are used directly by the flight crew in lieu of the AFM. For these airplanes, it is considered acceptable to eliminate from the AFM such things as cockpit checklists, systems descriptions, and associated objective procedures provided this information is <u>presented in other documents which are reviewed and accepted</u>. The non-normal procedures section of the AFM for these types of airplanes should include, as a minimum, procedures dictated by the airplane’s systems and failure modes, <u>but</u> may also include those emergency procedures listed in paragraph 6c(5). Necessary normal procedures should be presented in the AFM, but the bulk of normal procedures may be concentrated in the FCOM (or other <u>accepted</u> sources of</p>	<p>Delete paragraph. Substantiation see 6.c(4) (i). Transport Canada uses the following statement for small transport airplanes which have a reference AFM and a complementary manufacturer’s FCOM: “The procedures in this AFM (normal, emergency and following failure) are the minimum required for certification. Full procedures are provided in the manufacturer’s FCOM. Approval of this AFM does not constitute authority to operate the aircraft without the FCOM or equivalent document being carried on the aircraft and immediately available for flight crew reference.”</p>	<p>Not accepted. Paragraph is intended to give guidance for part 25 aircraft. Proposal appreciated, but existing intention is retained in principle, unless JAR-OPS operations manual group advise otherwise. However, for clarity, revise text to read: “<u>(ii) Other Sources of Procedures Information. The flight crew of large transport category aeroplanes typically use other sources of operating procedures information other than the AFM. Examples of other sources of operating procedures information include manufacturer- or operator-produced operating manuals, Quick Reference Handbooks (QRH), System Pilot’s Guides, and Emergency or Abnormal Checklists. For these aeroplanes, items such as cockpit checklists, systems descriptions, and the associated normal procedures should not be presented in the AFM if they are provided in other documents acceptable to the JAA. Normal procedures that are necessary for safe operation should be presented in the AFM, but the remaining normal procedures should be placed in the manufacturer produced FCOM (or other acceptable sources of operating procedures information). The non-normal procedures section of the AFM for these types of aeroplanes should include, as a minimum,</u></p>

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	<p>information). Whenever all the procedures necessary for safe operation are not contained in the AFM, a statement referencing the <u>other accepted source</u> of information where the remaining procedures can be found, should be placed in the AFM procedures section.</p>		<p><u>procedures dictated by the aeroplane's system and failure modes, and may also include those emergency procedures listed in paragraph 6.c(5) of this AMJ. Whenever procedures are provided in an other source rather than the AFM, a statement should be placed in the appropriate procedures section of the AFM referencing where the detailed procedures information can be found.</u>"</p>
<p>6.c(4)(iii) - 12 -</p>	<p>(iii) AFM Used Directly. For those manufacturers and operators (generally small or private transports) that do not produce other <u>accepted sources of information</u> such as those listed in paragraph 6c(4)(ii), the AFM is the only <u>approved source of procedures information</u>. In this circumstance the AFM operating procedures information must be totally comprehensive, including information such as cockpit checklists, systems descriptions, and associated objective procedures.</p>	<p>Delete paragraph. Substantiation see 6.c(4)(i).</p> <p>Practicability questioned since AFM amendments may be necessary when systems are modified; too much descriptive text could be distractive, especially in an emergency.</p>	<p>Not accepted.</p> <p>Paragraph is intended to give guidance. However, wording was improved.</p> <p>Not accepted.</p> <p>An all comprehensive AFM is unlikely to occur for transport category aeroplanes. It is up to the manufacturer to decide upon manuals.</p> <p>System descriptions would form an extra section and do not blow up emergency procedures contents.</p>
<p>6.c(5)(iii) - 12 -</p>	<p>(iii) Smoke control. The following should be clearly stated in the AFM:</p> <p>(A) After conducting the fire and smoke procedures, even though the smoke has dissipated, if it has not or cannot be visibly verified that the fire has been put out, land at the nearest adequate airport.</p> <p>(B) After conducting the cargo compartment fire suppression or smoke evacuation procedures, regardless of the duration capability of the cargo fire extinguishing</p>	<p>The provision of detailed reactions for this situation and not for others listed and equally critical is inconsistent.</p> <p>Replace "adequate" by "suitable" to be in line with FAA definitions.</p> <p>Smoke evacuation is not required for cargo compartment. Revise (A) to read: “(A) After conducting the fire and/or smoke procedures, ...” (A) then covers all areas,</p>	<p>Not accepted.</p> <p>This is well established phrasing, however, wording was simplified by combining (A) and (B). See below.</p> <p>Accepted.</p> <p>Replace “adequate” by “suitable”.</p> <p>Accepted. Revise text to read: “(iii) Smoke control. The following should be clearly stated in the AFM: <u>After conducting the fire <u>or</u> smoke procedures, <u>land at the</u></u></p>

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	<i>system, land at the nearest adequate airport.</i>	<i>allowing deletion of (B).</i>	<i>nearest <u>suitable</u> airport, <u>unless it is visually verified that the fire has been extinguished.</u></i>
<i>6.c(5)(iv) - 12 -</i>	<i>(iv) Rapid decompression.</i>	<i>Structure is designed to make this failure condition extremely improbable. No emergency procedure is necessary.</i>	<i>Not accepted. This is not assured for all aeroplanes. There may be a reason other than structural.</i>
<i>6.c(5)(viii) - 13 -</i>	<i>(viii) Emergency Evacuation.</i>	<i>Evacuation procedure does not rely on flight crew skill. Clarification is needed on the adequacy of such a procedure. AFM should be limited to flight crew action. Emergency evacuation procedures will vary for each operator depending on their unique operations.</i>	<i>Not accepted. Flight crew has to prepare the aeroplane and initiate the evacuation, which is then performed by all the people on board. Not accepted. See above.</i>
<i>6.d. - 13 -</i>	<i>d. Performance Section. This section of the AFM contains the airworthiness performance limitations <u>and information</u>, necessary for operation in compliance with the <u>applicable performance requirements of JAR 25</u>, <u>applicable special conditions</u>, <u>and data required by applicable noise regulations</u>. ...</i>	<i>Delete “for operation”, since AFM is for showing compliance with JAR 25. It is not mandatory to include operating requirements.</i>	<i>Accepted, although the aeroplane should be operated according to the requirements it complies with. Revise text to read: “This section of the AFM contains the ___ performance limitations, <u>other data required by the applicable airworthiness and noise regulations</u>, and any special conditions that may apply. Additional information may be provided to assist the operator in complying with the operating rules or for implementing unique operational needs. ...”</i>
<i>6.d. - 13 -</i>	<i>d. ... If approval of performance <u>which</u> is intended for operation at a specific altitude is requested, the performance data in the AFM must be presented for a pressure altitude span of at least the specific altitude $\pm 1,000$ ft. ...</i>	<i>Replace “± 1000 ft” by “± 500 ft”, since 1000 ft is a practical altitude span and an increase should not be imposed.</i>	<i>Not accepted. ± 500 ft may be not enough to cover possible atmospheric variations. However, wording was improved.</i>

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6.d(1) - 13 -	(1) General. ... This section should also include definitions of terms used in the Performance Section (e.g. IAS, CAS, ISA, configuration, net and gross flight path, icing conditions, etc.), plus calibration data for airspeed (flight and ground), Mach number, altimeter, air temperature, and other pertinent information. ...	Refer to V_{SLG} , since the V_{SIG} rule changes are imminent. The inclusion of calibration data is of no benefit to the pilot.	Acknowledged, but no change unless rule change is adopted. Not accepted. Stalling speeds are usually given in CAS. Standby instruments usually need to be corrected from indicated to true or calibrated airspeed.
6.d(1)(i)(A) - 13 -	(A) Ground run, $0.8 V_{IMIN}$ to V_{2MAX} .	FAA draft AC refers to V_{RMAX} , whereas requirement 25.1323(b)(1) refers to V_{2MAX} . However, FAA guidance seems to be more logical.	Not accepted. AMJ should be in line with existing regulation.
6.d(1)(ii)(A) - 13 -	(A) Approach, $1.2 V_S$ to V_{FE} .	Since landing speed should not be less than $1,3 V_S$, cover the range $1,3 V_S$ to V_{FE} .	Not accepted. Here, V_S refers to the approach configuration, where V_S must not exceed $1.1 V_S$ of the landing configuration. JAR 25.121(d) refers.
6.d(1)iii(C) - 14 -	(C) Mach Number: From the lowest useful Mach number (generally in the range of $M = 0.4$ to 0.5) to V_{MO}/M_{MO} .	Reference to V_{MO} may be deleted.	Accepted. Revise text to read: “(C) Mach Number: From the lowest useful Mach number (...) to M_{MO} .”
6.d(1)iii(D) - 14 -	(D) Total Air Temperature: ...	Refer also to SAT if this is what is primarily displayed.	Accepted. Revise text to read: “(D) Total or Static Air Temperature: ...”
6.d(2) - 14 -	(2) Performance Procedures. ... The AFM should also include adequate information to enable the operator to establish compliance with § 25.1001 for each takeoff.	Delete the last sentence since it is too specific for guidance material and its intent is covered by 25.1585(a)(2).	Not accepted. Information is necessary.
6.d(3) - 14 -	(3) Thrust or Power Setting. Thrust or power settings should be provided for at least takeoff and maximum continuous, and the methods required to obtain the performance	See comment on 6.b(6)(i), power setting charts being considered, by reference, as limitations.	Not accepted. Operation according to the constraints of the performance section is mandatory. (See judgement on 6.b(6)(i).)

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	<p><i>shown in the AFM. If appropriate, these data may be required to be shown for more than one thrust setting parameter. If reverse thrust for taxi is proposed, thrust setting limits should be established considering contaminated runway, foreign object damage potential, environmental control system impact, airplane weight and c.g., cockpit visibility, effect of braking, etc.</i></p>		
6.d(5) - 14 -	<p><i>(5) Stall Speeds. ... If applicable, stall speed increments with accreted ice must be provided.</i></p>	<p><i>Delete the last sentence since there is no reference to stall speed increments with accreted ice in the AFM, nor a rule basis for determining these speeds.</i></p>	<p><i>Not accepted.</i></p> <p><i>Accounting for ice is strongly safety related. Applicability depends on certification basis (e.g., compliance with JAR 25.1419).</i></p>
6.d(6) - 14 -	<p><i>(6) Takeoff Speeds. ... The indicated V_1 and V_R Speeds should be based upon “ground effect” calibration data; The indicated V_2 speeds <u>may be based on position error corrections appropriate to the altitude although the AFM should schedule free air values. ...</u></i></p>	<p><i>Sentence is not understood.</i></p>	<p><i>Accepted. Revise text to read:</i></p> <p><i>“V_1 and V_R speeds should be based upon ground effect calibration data, <u>while</u> V_2 speeds <u>should</u> be based <u>upon</u> free air calibration data.”</i></p>
6.d(6) - 14 -	<p><i>(6) Takeoff Speeds. ... this variation <u>shall</u> not affect the scheduled field length by more than the greater of the incremental increase resulting from 1.5 knots or 100 ft.</i></p>	<p><i>Where does this 100 ft value come from ?</i></p>	<p><i>Results from experience. This is an acceptable tolerance.</i></p>
6.d(7) - 14 -	<p><i>(7) Takeoff Field Length. Takeoff field length <u>should</u> be shown in compliance with regulations (§§ 25.109, 25.113 and 25.1533).</i></p>	<p><i>Mention performance data according to AMJ 25X1591 (contaminated runways). This data need not to be certified.</i></p>	<p><i>Accepted. Revise text to read:</i></p> <p><i>“(7) Takeoff and Accelerate-Stop Distances. Takeoff and accelerate stop-distances complying with JAR 25.109, 25.113, <u>and 25X1591</u> must be provided. At the option of the applicant, and with concurrence by the JAA, additional data may be provided in the</i></p>

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			unapproved section of the AFM to provide guidance for operations on _____ other than smooth hard-surfaced runways.”
6.d(12) - 15 -	(12) Enroute Flight Path or Climb Data. The net flight path gradients prescribed in § 25.123 must be presented, together with associated conditions. ...	Transport Canada accepts <u>gross</u> enroute flight path gradient, provided that instructions for determining the <u>net</u> gradient and <u>net</u> ceiling were included.	No change. However, TC method is acceptable.
6.d(13) - 15 -	(13) Climb Limited Landing Weight. The climb limiting landing weight which is the most limiting weight showing compliance with § 25.119 and § 25.121 should be provided.	Replace “§ 25.121” by “§ 25.121(d)”.	Accepted. Revise text to read: “(13) Climb Limited Landing Weight. The climb limiting landing weight, which is the most limiting weight showing compliance with JAR 25.119 and 25.121(d), should be provided.”
6.d(18) - 15 -	(18) Landing Distance. The landing distance from a height of 50 ft must be presented either directly or with the factors required by the operating regulations, together with associated conditions and weights up to the maximum takeoff weight. ...	Landing distance as presented should include the appropriate factors. Transport Canada policy requires landing field lengths using FAR 121 factors. Actual landing distance may also be shown. This would likely remain a TC difference from the AMJ (and FAA AC).	Not accepted. To achieve an acceptable AFM for most countries, this paragraph describes a minimum standard. TC policy is acceptable.
6.d(18) - 16 -	(18) Landing Distance. ... For <u>all weather</u> operations, special landing performance data may also be required.	Delete this sentence since JAA regulation do not require special landing performance data for all weather operations.	Not accepted. JAR AWO 142 and 243 do require that data. Replace “special” by “additional”; delete “also”.
6.d(20) - 16 -	(20) Noise Data. ... The noise levels achieved during type certification should be included in the AFM and consist of only one takeoff, one <u>lateral</u> , and one approach noise level per configuration (hardware build) for each	Typing error. Replace “achieve” by “achieved”. Editor: See also comment on 6.b(1)(ii) concerning configuration (hardware build).	Accepted. Replace “achieve” by “achieved”. Revise text to harmonize with 6.b(1)(ii) as follows:

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	airplane.		“... one takeoff, one <u>sideline</u> , and one approach noise level___for each aeroplane <u>model</u> (i.e., hardware build).”
6.d(21) - 16 -	(21) Miscellaneous Performance Data. Any performance information or data not covered in the previous items that are required for safe operation because of unusual design features, operating or handling characteristics, should be furnished.	Mention minimum turnaround time based on fuse plug integrity considerations or on initial brake temperature considerations, since these aspects are sufficiently generic.	Accepted. Revise text to read: “... should be furnished. <u>For example, the maximum quick turn around weight should be provided.</u> ”
6.d. - 14 ... 16 -	16d. Performance Section.	Add performance data to verify all-engine takeoff flight path and the missed approach flight path (ICAO Doc. 8168). This data need not to be certified.	Not accepted. However, the comment is valid. This is considered to be an operational matter. There is no applicable airworthiness requirement at this time.
6.e(1) - 16 -	e. Loading Instructions. Instructions necessary to ensure loading of the airplane within the established limits of weight and center-of-gravity, to maintain the loading within such limits in flight, and to include such loading instructions in the AFM is required by § 25.1583(c). (1) Regulatory Requirements. The airplane loading instructions should contain all the information required to load the airplane within the established limits of weight and center-of-gravity and to maintain the loading within such limits. In accordance with § 25.1583(c), the loading instructions should either be presented in the AFM or, at the option of the applicant, be included in a separate report or document referenced in	Move the sentence “In accordance with § 25.1583(c) ... referenced in the Limitations Section.” to the end of section 6.e to provide coverage of the items in 6.e(2) and to be consistent with current practice.	Accepted. Rearrange the contents of para 6.e and 6.e(1) to read: “e. Loading Instructions. <u>JAR 25.1583 requires instructions necessary to ensure loading of the aeroplane within the established limits of weight and center-of-gravity, and to maintain the loading within such limits in flight to be presented either in the AFM or included in a separate <u>weight and balance</u> document referenced in the <u>AFM Limitations Section</u>. <u>If applicable, the loading instructions must refer to flight procedures that consider the change to the aeroplane’s center of gravity as fuel is consumed.</u>” (1) Loading Instructions Presented in a</u>

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	<i>the Limitations Section. If the loading instructions are presented in a separate document, the AFM Limitations Section should contain at least the following: ...</i>		<u>Separate Document.</u> <i>If the loading instructions are presented in a separate document, the AFM Limitations Section should contain at least the following: ...”</i>
6.e(1)(i) - 16 -	<i>(i) Maximum takeoff gross weight limits.</i>	<i>Add new item “Maximum taxi gross weight limits”.</i>	<i>Accepted.</i> <i>However, delete “gross” throughout 6.e(1). Revise text to read:</i> <u>“(i) Maximum taxi weight limits.”</u> <i>Renumber paragraphs (i) to (vi) as (ii) to (vii).</i>
6.e(1)(iv) - 16 -	<i>(iv) Minimum in-flight gross weight.</i>	<i>Append “if relevant”, since it is not always relevant or required.</i> <i>What is the definition and relevance of minimum in-flight gross weight ?</i>	<i>Not accepted.</i> <i>JAR 25.25(b) requires minimum weight limit.</i> <i>Minimum weight is defined in JAR 25.25(b). See judgement on 6.b(3)(i)(B).</i>
6.e(1)(vi) - 17 -	<i>(vi) Flight procedures required to maintain the airplane within loading limits.</i>	<i>: Delete this para as flight procedures are covered in the Operations Manual.</i>	<i>Not accepted.</i> <i>If CG control is mandatory, the procedure must be furnished in the AFM. However, for clarity, revise text to read:</i> <u>“(vii) <i>Information</i> required to maintain the aeroplane within <u>the above</u> limits.”</u>
6.e(2) - 17 -	<i>(2) Weight-and-Balance Data. ...</i>	<i>W&B information in the AFM should address only the weight limits in paras (i), (ii), (iii), and (ix). The other sub-paras are more relevant to the operators W&B manual. The principle certification limits are take-off, landing and zero fuel weight, and permitted CG range. Equipment and cargo distribution does not concern the manufacturer provided</i>	<i>No change.</i> <i>New text in 6.e and 6.e(1) as above does allow for that interpretation.</i>

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		<i>the operator does not exceed the certified weight and CG limits.</i>	
<i>6.e(2)(vii) - 17 -</i>	<i>(vii) Loading Schedule. The loading schedule should be included, if appropriate.</i>	<i>Terminology requires definition. Loading instructions in a separate document should be approved by authority.</i>	<i>Loading schedule = composition of graphs, tables or computations used by the operator to load a particular aeroplane in accordance with the weight and balance limits. No change. Status of Weight and Balance Manuals is not covered by this AMJ.</i>
<i>? - 17 -</i>		<i>In an AMJ, the MMEL should be mentioned even if there is no specifically limitation from it.</i>	<i>Not accepted. MMEL is not required for certification. MMEL is a separate document.</i>
<i>7.a. - 18 -</i>	<i>a. The part and/or combinations of parts permitted to be missing <u>and</u> the associated performance penalties and other limitations should be determined and presented in the same format as the Master Minimum Equipment List (MMEL).</i>	<i>Is this conception acceptable ?</i>	<i>Yes, it is.</i>
<i>7.c(1) - 18 -</i>	<i>(1) Only a single performance penalty for takeoff and a single performance penalty for landing will be permitted. ...</i>	<i>In view of modern computerization why not allow the choice of a single penalty or the various penalties appropriate to each phase of take-off ?</i>	<i>Not accepted. A single penalty is retained to keep it simple and reduces the risk of error.</i>
<i>7.d(2) - 18 -</i>	<i>(2) The associated limitations must be listed on a placard affixed in the cockpit on the pilot's instrument panel in clear view of the pilot.</i>	<i>Delete "on the pilot's instrument panel", to avoid cluttering of the instrument panel. "in clear view" would be sufficient.</i>	<i>Accepted. Revise text to read: "(2) The associated limitations must be listed on a placard affixed in the cockpit <u>in clear view of the pilot in command and other appropriate crew member(s).</u>"</i>
<i>7.d.7 - 19 -</i>	<i>(7) No more than three parts evaluated as having negligible penalties may be missing</i>	<i>Replace "further performance penalty at the rate of the threshold weight reduction (see</i>	<i>Partly accepted. Revise text to read:</i>

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	for takeoff without taking further performance penalty at the rate of the threshold weight reduction (see paragraph 8b(2)) per each additional negligible item.	paragraph 8b(2)) per each additional negligible item” by “a performance penalty”. The other items in 7.d are directly applicable for insertion in the AFM. However, para 8.b(2) is not included in the AFM. Change is proposed for clarity.	“(7) No more than three parts evaluated as having negligible penalties may be missing for takeoff without taking <u>a</u> performance penalty. When more than three such parts are missing, a performance penalty of either 0.05 percent of the maximum takeoff weight or <u>50 kg</u> , whichever is less, must be applied for takeoff, en route, and landing for each missing part.”
8. - 19 -	8. ACCOUNTABILITY OF PERFORMANCE DEGRADATION RELATIVE TO BOTH MINOR DESIGN CHANGES AND CDL ITEMS.	The information in this paragraph could be included in the Flight Test Guide.	Yes, but it is currently not included. This will be considered at a future revision to the AMJ when the FTG covers that point.
8.a. - 19 -	a. General. ... (e.g, installation of wing tip mounted emblem lights, missing flag hinge covers, etc.) ...	Typing error. Replace “flag” by “flap”.	Accepted. Replace “flag” by “flap”.
8.b(2) - 19 -	(2) Performance Penalty. ... If the resulting weight value is less than the smaller of 0.05 percent takeoff gross weight or <u>50 kg</u> , the performance degradation may be considered negligible. ...	The cutoff for a negligible weight penalty may be to conservative for smaller airplanes. If 0.05% is considered negligible, this will apply to both, small and large aircraft. Proposed to replace “... less than the smaller of ...” by “... less than the larger of ...”.	Not accepted. Deviation from established practice would cause disharmonization. Not accepted as above.
8.b(3) - 20 -	(3) Fuel mileage penalties may also be included in the CDL appendix or the type design aerodynamic configuration change supplement. If they are not included in the aforementioned appendix or supplement, other manufacturer documentation must make this information available to operators to correctly plan trip fuel requirements.	Delete this paragraph since this issue should be addressed in Part 121 rather than Part 25 and is, in fact, covered by i.e. Operations Manuals or Dispatch Deviations Guide.	Accepted. Delete paragraph (3).
9.	9. SPECIFICATION AND SUBMITTAL OF	Delete this paragraph since this AMJ is not	Deletion not accepted.

Paragraph page	Text as published in NPA	Comment	Response
- 20 -	<p>AFMs, REVISIONS, APPENDICES, AND SUPPLEMENTS. When an application is made for JAA certification the requirements for the submission of copies of the draft material will be discussed at the initial certification meeting. At <u>this</u> time a specification (see APPENDIX II of this AMJ) for the manual will be required <u>to identify intended compliance with this AMJ</u> or to <u>establish the proposed layout and content</u>. The time required for JAA review and approval of the manual should also be established at the initial meeting <u>and will be agreed by the Project Certification Manager</u>.</p>	<p>required for existing AFMs. Revisions to the AFM do not normally require making “application” for new or amended Type Certificate except in case of new models. When application is made, it is much to early in the design phase of an airplane to expect this detailed an AFM definition.</p>	<p>However, to clarify the intention, it is confirmed that the AMJ is not required for existing AFM, and revise text to read:</p> <p><u>“The format and contents of the AFM, revision, appendix, or supplement should be proposed by the applicant and accepted by the JAA well before submittal of AFM material. The time required for JAA review and approval, and the manner in which AFM material and supporting documentation (e.g. flight test results) will be submitted, should also be established well in advance of the actual submittal. Large submittals may be broken down into smaller packages of related material and submitted to the JAA as it becomes available.”</u></p>
10.a. - 20 -	<p>a. <u>JAA Approval. The JAA team will determine whether the limitations, operational procedures and performance information contained in the AFM provides for safe operation and are compatible with the airplane type design and the type certification basis. The AFM will be approved by the relevant National Authority. It should be noted that approval of the AFM does not constitute operational approval.</u></p>	<p>What is the JAA team ? It would appear appropriate if this term refers to a team working for the National Authority (Competent Authority) to JAA guidelines.</p>	<p>Accepted to clarify JAA team.</p> <p><u>“a. JAA Approval. The Joint Team, established according to the Joint Certification Procedures, will determine whether the limitations, procedures and performance information contained in the AFM provide for safe operation and are compatible with the aeroplane type design and the type certification basis. The AFM will be approved by the relevant National Authority. Approval of the AFM does not constitute operational approval.”</u></p>
10.b(1)(iii) - 21 -	<p>(iii) Type III Approvals. ... The <u>JAANA</u> assumes limited technical responsibility for the AFM in accordance with the written agreements made between the <u>JAANA</u> and</p>	<p>If the AFM receives no broad internal JAA co-ordination, how can the JAA sign it as satisfying the regulatory requirements of the FCAA ? In such cases would the technical</p>	<p>No change.</p> <p>Explanation: The FCAA states in the preamble or introduction that the manual satisfies the FCAA requirements. This is not</p>

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	<i>FCAA, and the AFM <u>receives no broad,</u> internal <u>JAA</u> coordination. ...</i>	<i>content have been assessed as accurate against those requirements ?</i>	<p><i>JAA responsibility. The AFM is signed by the JAANA on behalf of the FCAA.</i></p> <p><i>For clarity, revise text to read:</i></p> <p><i>“The JAANA assumes limited technical responsibility for <u>approving</u> the AFM, in accordance with the written agreement between the JAANA and FCAA. <u>The AFM is not subject to the approval coordination process described in paragraph 10.a of this AMJ.</u>”</i></p>

Appendix 1

Paragraph page	Text as published in NPA	Comment	Response
1 - 1 -	1. PURPOSE. This appendix presents guidelines for demonstration of compliance to the applicable certification requirements if generation of Airplane Flight Manual (AFM) information by <u>JAA</u> -approved software <u>on computers</u> is proposed to replace or supplement parts of the conventional, hardcopy AFM. ...	“Approved software”. Document RTCA DO-178/EUROCAE ED-12 discusses ‘Software Considerations in Airborne Systems and Equipment Certification’. Software forming part of the AFM should be treated in a similar way. This proposal will require very detailed consideration, but FAA and JAA should have the same policy for software control.	No change. Document RTCA DO-178/EUROCAE ED-12 is known. The failure probability required for critical airborne systems (i.e. flight control software) can only be achieved through redundancy. This is not considered necessary for the AFM. A JAA/FAA harmonized approach is sought. However, for clarity, wording was revised.
3.i - 2 -	i. <u>JAA</u> -Approval. The application of <u>JAA</u> certification procedures and the approval of <u>the relevant JAA National Authority (JAANA)</u> .	Certification procedures apply only to AFMs. This definition should not be used to describe approval of other manuals.	Not accepted. JAA approval is a general term and not confined to approval of AFMs. Delete paragraph since definition is contained in main body of this AMJ.
4.b(5) - 3 -	(5) Date of output data generation.	Delete this paragraph since provision of the approved program version on all output forms is sufficient.	Not accepted. Output date is considered useful.
4.c(3) - 3 -	(3) preclude calculations that generate <u>JAA</u> -approved results by: (i) extrapolation of data outside of performance bounds agreed to by the JAA and the applicant; and ...	Revise text to read: “...preclude calculations that <u>purport to generate JAA-approved results...</u> ” since the results cannot be JAA approved if calculated by unacceptable means.	Accepted. Revise text to read: “(3) preclude calculations that <u>would generate results identified as “JAA-approved”</u> by: (i) <u>Extrapolating data beyond computational bounds agreed to by the JAA and the applicant; or...</u>
4.c(3)(ii) - 3 -	(ii) use of unapproved methods.	Revise text to read: “use of unapproved <u>flight test analysis/AFM expansion methods</u> ”, since	Accepted. Revise text to read: “(ii) using unapproved <u>flight test analysis or.</u>

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		the term “unapproved methods” is not defined.	<u>AFM expansion methods</u> ”.
4.c(4) - 3 -	(4) provide at least the standard of transparency (e.g. understanding of performance relations and limitations) and accessibility of the data (e.g. usage time to generate a result), that is available by use of conventional AFM presentation;	Delete “and accessibility of the data (e.g. usage time to generate a result)” since usage time has never been an issue with the paper AFM. This is beyond the scope of this appendix.	Accepted. Revise text to read: “(4) Provide at least the standard of transparency (e.g., understanding of performance relations and limitations) <u>that is available from a conventional paper AFM presentation.</u> ”
4.c(5) - 3 -	(5) prevent mistakes or misunderstanding by a skilled user during data <u>generation</u> and <u>output interpretation</u> ;	Revise text to remove much of the undue responsibility that is currently implied: “(5) prevent mistakes or misunderstanding <u>to the extent possible</u> by a skilled user during data generation and output interpretation;”	Accepted to improve wording in accordance with JAR 25 language, which does not use “prevent” but “minimize”: “(5) <u>minimize</u> mistakes or misunderstanding by a <u>trained</u> user during data generation and <u>interpretation of output.</u> ”
5.d(2) - 4 -	(2) Independent of and in addition to performance presented in the computerized AFM, at least the following information <u>shall be presented in conventional form in the hardcopy AFM, unless this information is available to the flight crew aboard the airplane from an <u>JAA</u>-approved source intended for this purpose (e.g., Flightcrew Operating Manual):</u>	Delete this section (2) since it has no basis in JAR 25. 1. The designation of manuals to be available on board is covered in the operating rules. 2. Neither operating nor airworthiness regulations require the AFM to be available to be on-board. 3. AFM information may be incorporated into an FCOM, whether or not the AFM is computerized. 4. Computerizing some of the AFM information has not bearing on what information is needed on-board.	Not accepted. There is no logic to change. 1. Text does not define what manuals should be available but refers to other possible sources than the AFM. 2. Correct, but text requires the information to be available on-board. 3. Correct. No contradiction found in the text. 4. Text does not define what is needed at all, but what is considered to be accessible to the

<i>Paragraph page</i>	<i>Text as published in NPA</i>	<i>Comment</i>	<i>Response</i>
		<p>5. Presentation of “duplicate” information (computerized and paper) would lead to two “authoritative sources”, which may be not identical.</p> <p>6. The reason for the selection of required data to be made available on-board is not clear.</p> <p>The contents of the list may not impose requirements that are not covered by regulation.</p>	<p>flight crew. The rest may exist only in a computerized form.</p> <p>5. Two sources with different contents (i.e., different revision level) are not acceptable. The operator’s distribution process must avoid this. Concerning differences in accuracy (i.e., graphs), acceptable tolerances will be fixed during sensible discussions during the certification process.</p> <p>6. see 4. The requirements in the main body of this AMJ, concerning information to be furnished in the AFM, is understood to be valid for both, computerized and conventional AFMs.</p> <p>Response continued on next page.</p>
			<p>Revise text to read:</p> <p><u>“(2) The operating rules__require operators to carry, in each transport category aeroplane, either the AFM or an operator-prepared manual that contains all of the information required to be in the AFM. The computerized AFM is not intended for use on board the aeroplane. Thus, any portions of the AFM that are provided only in computerized (i.e., electronic) form may not be used to satisfy these operating requirements. This does not preclude printing out information calculated by the JAA approved computerized AFM and subsequently using the paper printout on board the aeroplane.</u></p>

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5.d(2) - 4 -	<p>(vi) <i>One Engine Inoperative En Route Flight Path Gradients.</i></p> <p>(vii) <i>Two Engines Inoperative En Route Flight Path Gradients, if applicable.</i></p> <p>(viii) <i>Approach/Landing Climb Weight Limits.</i></p>	<p><i>Gradient data is not valuable to pilots. The provision of Approach/Landing climb weight limits is no more valuable than second segment climb data, not listed here.</i></p>	<p><i>Paragraph was rewritten, see above.</i></p>
5.d(2)(xii) - 4 -	<p>(xii) <i>Noise characteristics.</i></p>	<p><i>Noise characteristics are of no use to pilots.</i></p>	<p><i>Paragraph was rewritten, see above.</i></p>
5.d - 5 -	<p>(6) <i>The applicant may request JAA-approval of supplementary computerized AFM applications (e.g. Optimized Runway Performance). This supplementary software application will not be required by the JAA for type certification.</i></p> <p>(7) <i>Operating Systems or programs designed for airplane operators to reformat JAA-approved data (...) will not receive airworthiness approval but may be JAA-approved under the operating rules.</i></p>	<p><i>Delete this paragraph since supplementary applications have no approval basis under JAR 25.</i></p> <p><i>Para (6) is confusing. It seems to suggest that JAA approval might be sought for airfield analysis which does not need JAA approval now and is mentioned in 5.d(7) as not needing JAA approval.</i></p> <p><i>Para (7) is ambiguous. Why does it say “may be JAA-approved under the operating rules”? What does “may” mean here if it is not acceptable to the operator ?</i></p>	<p><i>Accepted to delete (7) since ???.</i></p> <p><i>Distinguish “supplementary computerized AFM applications” in subpara (6) from “Operating Systems or programs designed for aeroplane operators to reformat JAA-approved data” in subpara (7) !</i></p> <p><i>Approval of supplementary applications would have appreciable effect for operators.</i></p> <p><i>Changing the Output format, that is identified as “JAA-approved” would render the approval invalid, unless this is done by means acceptable to the operational authority. However, an operator need not to have these reformatting systems.</i></p>
6.a(1) - 5 -	<p>(1) <i>The computation of hazardously misleading primary information such as takeoff V speeds, landing approach reference speeds, engine thrust, engine limit data or other related airplane performance data, should be improbable. ...</i></p>	<p><i>Add “as defined in JAR 25.1309” after “improbable” since JAR has a specific definition of improbable.</i></p> <p><i>Are the words “hazardously” and “improbable” the 25.1309 terms ? It is not possible to assign numerical probabilities to the occurrence of software errors. To be</i></p>	<p><i>Accepted.</i></p> <p><i>Revise text to read:</i></p> <p><i>“...should be improbable (as defined in JAR 25.1309)”</i></p>

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		clarified.	
6.a(1) - 5 -	(1) ... The AFM software application shall, as far as practicable, be designed to be protected from inadvertent, <u>or</u> deliberate, or unauthorized alterations.	Revise text to point more to a self-check feature: “The AFM software application shall <u>include self-check validity features into the programs to provide program verification and protection against deliberate, or inadvertent</u> alterations.”	Accepted Revise text to read: “...The AFM software application <u>should</u> , as far as practicable, be <u>protected</u> from inadvertent, deliberate, or unauthorized alterations. <u>For example, self-check features could be used to provide software verification and protection against deliberate or inadvertent alteration.</u> ”
6.a(6) - 5 -	(6) No unapproved software may be used to process data identified as “ <u>JAA</u> -approved” unless the use of these software elements is agreed to by the <u>JAA</u> . Operating systems (e.g. DOS or equivalent software) will not be approved, but will have to be specified and agreed <u>to</u> .	This requirements are impossible to accommodate. The onus is on the operator to use the software in a manner to preserve the integrity of the output. Such data may be required for reasons that need no approval. It would be restrictive to obtain JAA agreement. The difference between “approval” and “agreement” is not obvious.	Not accepted. Operators are made aware by the note required by § 4.a(2). This is an area for review. Delete paragraph (6), since the contents is covered by the note in § 4.a(2).
6.c - 6 -	c. Hardware and Software Environment. The computerized AFM software application may be <u>JAA</u> -approved independent of the hardware and software environment in which it is installed. ...	Replace “software application may be JAA-approved” by the stronger wording “software application should be JAA-approved”. Software application should be approved independently of the hardware environment.	Not accepted. There is no preference by the authorities. Therefore, “may” is retained. The manufacturers are to provide with a proposal how to demonstrate compatibility.
6.c(3) - 6 -	(3) If the computerized AFM is intended for a specific hardware/ software system, installation information that describes the specific hardware and software environment in which the computerized AFM software application must be installed. ...	Revise text to read: “If the computerized AFM is intended for a specific hardware/ software system, installation information that describes the specific hardware and software environment <u>of the computerized AFM software</u> ”	Not accepted. Para 6.c(3) is to be read in conjunction with 6.c.: 6.c “... The applicant should provide for below items ...”

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		<p>application must be <u>provided</u>.” to clarify the sentence.</p>	<p>6.c(3) “...installation information that describes the ... environment in which the ... application must be installed”. This specifies one item, and the applicability is defined through the if clause.</p>
<p>6.d(1) - 6 -</p>	<p>(1) ... For historical purposes, records should be maintained by the applicant which will permit the reproduction of the computerized AFM for any past approved revision levels.</p>	<p>Revise text to read: “For historical purposes, records should be maintained by the applicant <u>that</u> will permit the reproduction of the <u>same performance as shown in any past approved revision level of the computerized AFM, unless all affected airplanes are out of service.</u>” This allows for discarding of records for airplanes out of service, and for obsolete hardware/software systems which have been replaced in service. Historical purposes are not a valid reason for maintaining confusing records. It is not necessary to keep paper records at the moment. There is no gain obtained from this rule.</p>	<p>Accepted. Revise text to read: “... For historical purposes, <u>the applicant should maintain records from which the information from any approved revision level of the computerized AFM can be reproduced, unless none of the affected aeroplanes remain in operational service.</u>” Accepted as above.</p>
<p>6.e - 7 -</p>	<p>e. Submittal and Approval of Software. (1) The applicant will be considered the responsible party for all matters pertaining to computer software, including <u>submitting for and obtaining JAA</u>-approval. (2) Data structures and calculation models shall be discussed between the applicant and the <u>JAA</u> and be agreed. (3) The <u>JAA</u> may require to assess details of</p>	<p>Delete Sections 6.e(2) and (3). Move 6.e(1) into 6.e. to preserve proper outline format. Data structures and calculation models are a design issue. There is no regulatory basis for approval. Substantiation for proper functioning is covered in 4.c, and software integrity is covered in 6.a and 6.b.</p>	<p>Not accepted. As valid for flight test expansion for performance, agreed models and data structure should be used. Details are subject to negotiation with the airworthiness authority during project definition phase. For clarity, revise text to read: “(1) The applicant will be considered the responsible party for all matters pertaining to</p>

Paragraph page	Text as published in NPA	Comment	Response
	<p>program and data structures as deemed necessary to allow judgement about software integrity. Any hardware environment required to accomplish this, which is not readily available to <u>JAA</u> shall be provided by the applicant.</p>		<p><u>the computerized AFM software application, including submittal to the JAA and obtaining JAA approval.</u></p> <p>(2) <u>The applicant and the JAA shall discuss and agree on the data structures and calculation models.</u></p> <p>(3) <u>The applicant should provide any part of the hardware environment necessary for operating the computerized AFM that is not readily available to the JAA.</u></p>
6.f(1) - 7 -	<p>(1) Approval Plan that describes the software aspects of certification including time-schedules, an outline of the desired applications, design objectives for software and data integrity, and a statement to the effect of impact on flight safety.</p>	<p>:Delete “and a statement to the effect of impact on flight safety”. Computerization has no impact on flight safety. Types of information, and deriving methods will be the same as for conventional AFM and substantiation will be in a similar manner.</p>	<p>Accepted.</p> <p>Revise text to read:</p> <p>“Approval plan that describes the software aspects of certification including time-schedules, an outline of the desired applications, <u>and</u> design objectives for software and data integrity_.”</p>
6.f(3) - 8 -	<p>(3) Software Descriptions, including justifications that program structures and calculation models are appropriate to their intended function.</p>	<p>Delete this paragraph. Data structures and calculation models are a design issue. There is no regulatory basis for approval. Substantiation for proper functioning is covered in 4.c.</p>	<p>This document(s) need to be provided by the applicant, but will not be approved by JAA. See also text change to 6.f.</p>
6.f(4) - 8 -	<p>(4) Data Conformity Document, including justifications for data conformity of <u>aircraft</u> characteristics (e.g. tested performance data) and the developed software (e.g. <u>JAA</u>-approved data files) and/<u>or</u> generated output.</p>	<p>Delete this paragraph. The objective of the “data conformity document” is not clear. Flight test documentation is commonly provided to show derivation and JAA approval of the performance parameters used to expand AFM data, and to show conformity of expanded AFM data with the demonstrated flight test performance cases. Reference to</p>	<p>Confidence into the model data needs to be built up. For clarity, revise text to read:</p> <p>“(4) Data <u>verification</u> document, including a <u>description of the scope and depth of the review, analysis, and tests used to determine that the developed software and generated output accurately reflect the aeroplane performance characteristics. This description.</u></p>

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		such documentation should satisfy this requirement.	<u>should include the purpose of each test case and the set of inputs, expected results, test environment, and calculated results.</u> ”
7. - 8 -	7. PROVISIONS FOR <u>JAA</u> POST CERTIFICATION ACCESS TO COMPUTERIZED AFM. ... However, if the computerized AFM software application requires a hardware and software environment that is not available to the <u>JAA</u> , <u>then</u> the applicant should also provide <u>at</u> the appropriate <u>JAA</u> certification offices <u>the</u> necessary components for the hardware and software environment.	<p>Revise text to read:</p> <p>“However, if the computerized AFM software application requires a hardware and software environment that is not available to the JAA, then the applicant should also provide at the appropriate JAA certification offices <u>access to the necessary components to reproduce a representative</u> hardware and software environment.”</p> <p>The terminology “for the hardware” is inappropriate since the computerized AFM software will likely be designed to operate on a variety of COTS hardware.</p> <p>Do not misinterpret this section as to require the applicant to provide JAA with all possible hardware environments, with which the software could be operated.</p> <p>This requirement could prove to be unjustifiably costly. Providing access to such facilities at agreed locations should be adequate.</p>	<p>Accepted to clarify the sentence. Revise text to read:</p> <p>“... However, if the computerized AFM software application requires a hardware and software environment that is not available to the JAA, <u>the</u> applicant should also provide <u>the</u> appropriate JAA certification offices <u>with</u> the necessary components <u>to access the AFM software application.</u>”</p> <p>Agreed. This is not intended.</p>

Appendix 2

<i>Paragraph page</i>	<i>Text as published in NPA</i>	<i>Comment</i>	<i>Response</i>
<i>all - all -</i>	<i>Appendix 2</i>	<i>Delete Appendix 2. Reasons taken from Section 9 of the main body: This AMJ is not required for existing AFMs. Revisions to the AFM do not normally require making “application” for new or amended Type Certificate except in case of new models. When application is made, it is much to early in the design phase of an airplane to expect this detailed an AFM definition.</i>	<i>Not accepted. This guidance information is intended to allow early judgement about the AFM for a new model and is not excessive. What information would be to much detailed ?</i>

