

Public Comment Log

AC 20-153B "Acceptance of Aeronautical Data Processes and Associated Databases"

| # | Commenter | Page Number | Paragraph Number | Referenced Text | Comment/Rationale or Question | Proposed Resolution | Comment Type (Conceptual, Editorial, or Format) | Disposition |
|---|---|-------------|------------------|---|--|--|---|--|
| 1 | EASA, Carmen Bonillo-Martinez and Anastasiya Terzieva | 2, 3 | 3.1, 4 | <p>“New applications for LOA or new airworthiness approval applications made after the publication date of this AC must utilize the means provided in this AC, or an equivalent means. Note: This AC requires aircraft manufacturers, avionics manufacturers, or systems integrators to use the airworthiness guidance in paragraph 12 of this AC for all new LOAs, major changes to existing LOAs, as well as all new airworthiness approvals and changes.” As currently written, AC 20-153B requires updating to DO-200B for any new installation of existing equipment, even if the equipment and associated DQR have not changed.</p> | <p>Anticipated date of applicability of EASA rule is as from 1 January 2019. AMC/GM to refer only to EUROCAE ED-76A/RTCA DO-200B would be thereafter. Security aspects are addressed in the existing drafted regulations. To ensure harmonization, alternative means specific to DO-200B can be addressed in AMC/GM, if necessary.</p> | <p>Please harmonize.</p> | <p>Conceptual</p> | <p>Accepted. Made changes to 3.1 and 4 to extended grace period for new LOA applications to harmonize with intent of EASA rule. 36-month period for alternate means to accommodate any conceivable project in the pipeline for development. Thereafter, new standard should be used for new applications. Previous LOAs will remain honored unless there is a major change to LOA.</p> |
| 2 | Embraer | | | <p>General</p> | <p>DO-200B (and previous versions) sets the principles for many aeronautical data processes (aeronautical data chain, DQRs, data provider, tool qualification, and others). Embraer suggests, in the same sense DO-178 has AC 20-171 to provide guidance on alternative means to it, a minimum guidance should be indicated as required for an alternative means to DO-200B. This additional guidance could be an annex to the AC or even a new one.</p> | <p>To create an additional guidance with minimum requirements on alternative means to DO-200B.</p> | <p>Conceptual</p> | <p>Partially Accepted. See comment #1. An alternative means is provided in comment #1. As always, this AC describes an acceptable means, but not the only means.</p> |

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| 3 | Embraer | 6 | | Figure 2 | The flowchart presented in Figure 2 states that if DO-200B process is not proposed, use of AC20-115C or alternative means, may be used. AC20-115C recognizes DO-178C as an acceptable means, but not the only means, for showing compliance with the applicable airworthiness regulations for the software aspects only of airborne systems and equipment certification. However, the aeronautical databases, are not part of the airborne systems or equipment certification, as the aeronautical databases are not "certifiable". Additionally, DO-178C states a Parameter Data Item (PDI) as "A data set that influences the behavior of the software without modifying the Executable Object Code and is managed as a separate configuration item is called a parameter data item.". The flowchart presented in Figure 2, provides the idea that an aeronautical database may be developed and approved as a PDI (following AC20-115C), however, an Aeronautical Database is not intended to "influence the behavior of the software" and is not part of an airborne system or equipment certification. So the reference to AC20-115C may cause confusion or misinterpretation. As any alternative mean is allowed from the first paragraph of AC-20-153B, we suggest to remove the reference to AC20-115C in Figure 2. The flowchart must only include "alternative means". If the user decides to propose an alternative means based in aspects of AC20-115C, or DO-178C, this is part of an alternative mean and details must be provided by the user if AC20-115C will be followed in full or only some parts. | We suggest to remove the reference of AC 20-115C in Figure 2. | Conceptual | Partially Accepted. See comment #1. An alternative means is provided in comment #1. As always, this AC describes an acceptable means, but not the only means. |
| 4 | Rockwell Collins | 16 | 12.1 | "Typically, the data format accuracy and resolution are in the original RTCA/DO-178C, or previous versions ..." | This text needs a comma after "format" | Typically, the data format, accuracy and resolution are in the original RTCA/DO-178C, or previous versions ..." | Editorial | Accepted. |
| 5 | Rockwell Collins | including pp. 11-15 | 10.1.4.4; 10.2.6; 10.2.7; 11.2.3 | Release statement section talks about stating DQR deviations. | Doesn't a DQR deviation constitute a situation where one would "no longer uphold its terms and conditions" and require surrender/withdrawal of the LOA? | Clarification is needed that would answer the following questions: In what situations could we have a database released under an LOA that has deviations from the DQRs? Is this only talking about data errors discovered after initial release? | Conceptual | Accepted. 10.2.6 Item says to provide information on "known deviations" and in item 2 gives examples "...e.g., deletion of procedures due to source / processing errors (i.e., completeness change), etc.)." This is clearly not a license to deviate from user DQRs, but it has been standard practice to notify users when data has been removed from the expected data (i.e., completeness). You are still expected to meet DQRs. |
| 6 | Rockwell Collins | 6 | Figure 2 | block calling out System verification req'd (9.2.3/9.3.3) | Figure 2, block calling out System verification req'd (9.2.3/9.3.3) uses 'Pass' whereas rest of diagram uses 'Yes' and 'No' | Change 'Pass' to 'Yes' for consistency | Editorial | Not Accepted. The use of "pass" emphasizes that to pass this decision point, the test must be passed. |

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| 7 | Sheryl D'Amato, Performance Software | general | | See attachment | The word "that" has been removed in about 40 places from the previous version and this has hurt the readability of the document. | Put it back. See attachment for suggestions. | Editorial | Not Accepted. Use of the word "that" in these cases is optional and does not necessarily add clarity to these clauses. |
| 8 | Sheryl D'Amato, Performance Software | general | | Look for text that has a comma followed by a clause at the end of the sentence. For example: 9.2.1.2 Define the data process techniques and procedures (i.e., Quality Management (QM) process) from origination of the data through loading the data into the application, of ensuring the quality of the data. | It's obvious that clauses were added to the end of many sentences as an after-thought. Many of these are confusing to read and interpret. | Merge added on clauses into the sentences properly. See attachment for suggestions. | Editorial | Partially Accepted. Incorporated suggestions with proposed resolutions as appropriate. |
| 9 | Sheryl D'Amato, Performance Software | | 7.1 | Because an organization may perform one or all of the functions comprising the aeronautical data chain, it may be responsible for data preparation and data transmission for more than one chain link. | I found this text more confusing than informative. | | Editorial | Not Accepted. No constructive correction offered. |
| 10 | Sheryl D'Amato, Performance Software | | 6.1 | .support implementation, and assess change of data processing quality assurance and data quality management. | The proposed is the phrasing the DO-200B used. I think it's more clear. | assess change and support implementation of data quality management | Editorial | Accepted. |
| 11 | Sheryl D'Amato, Performance Software | | 3.3 | 3.3 This AC requires data suppliers to provide a release statement (reference paragraph 10.2.6 of this AC) with each database distribution for all new and existing LOAs , as well as all new airworthiness approvals and changes . | Does this mean that companies with existing LOAs need to start doing this now? Maybe a list of such things should be highlighted to alert companies who were planning on ignoring this AC until they convert to DO-200B. | | Conceptual | Accepted. See comment #1. Changes were made to 3.1 to reflect honoring of previous LOAs. The terms and conditions of those stand unless a major change is made to force an update. However, the FAA may propose an update to these terms at a later date. This issue was also a harmonization item and other authorities may require release statements and security program details in the future for cross-honoring of LOAs. |
| 12 | Sheryl D'Amato, Performance Software | | 3.2 | Adapted RTCA/DO-330, Software Tools Qualification Considerations, to provide better structure and consistency for database production tool qualification, as well as harmonizing means with other domains, | Unclear what "as well as harmonizing means with other domains" refers to." | | Editorial | Accepted. |

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| 13 | Honeywell | 3 | 4 | New applications for LOA or new airworthiness approval applications made after the publication date of this AC must utilize the means provided in this AC, or an equivalent means. | Multiple organizations have active projects underway that are working towards submitting application for LOA based on AC 20-153A criteria. The current cancellation text creates an undue burden on the industry to complete these applications prior to AC 20-153B being released. | New applications for LOA or new airworthiness approval applications made 18 months after the publication date of this AC must utilize the means provided in this AC, or an equivalent means. | Conceptual | Previously Accepted. See comment #1 and changes made under 3.1 and 4. |
| 14 | Honeywell | 3 | 4 | This AC requires aircraft manufacturers, avionics manufacturers, or systems integrators to use the airworthiness guidance in paragraph 12 of this AC for all new LOAs, major changes to existing LOAs, as well as all new airworthiness approvals and changes. | The note in this section could be interpreted that any changes to an airworthiness approval would require the applicant to follow AC 20-153B criteria. This is inconsistent with the typical approach for minor changes and could potentially create undue burden on applicants to show compliance to a new set of objectives. | This AC requires aircraft manufacturers, avionics manufacturers, or systems integrators to use the airworthiness guidance in paragraph 12 of this AC for all new LOAs, major changes to existing LOAs, as well as all new airworthiness approvals and major changes. | Conceptual | Previously Accepted. See comment #1 and changes made under 3.1 and 4. |
| 15 | Honeywell | 17 | 12.4.1 | The aircraft manufacturer, avionics manufacturer or systems integrator can also reference the DQRs in the ICAs. | The text in section 12.4.1 states, "...systems integrator can also reference...". However, the objective 3-11 in appendix 3, uses the language "...systems integrator must reference..." | The text in 12.4.1 should be updated to change "can also" to "must" to align with objective matrix. Alternatively, the requirement should be removed from the objective matrix if the intent was a recommendation, rather than a requirement. | Editorial | Accepted. |
| 16 | Honeywell | 12 | 10.2.4 | You must perform periodic internal audits as described in RTCA/DO-200B, section 3, with the maximum time between audits not to exceed one year. | The LOA sample letters in appendix 2 indicate that the periodic audits must include both DO-200B and AC 20-153B objectives. Since the intention is for both sets of objectives to be used for the periodic audits, text in section 10.2.4 should be clarified on this point. | replace with "You must perform periodic internal audits of both AC 20-153B and RTCA-200B as described in RTCA/DO-200B, section 3, with the maximum time between audits not to exceed one year." | Conceptual | Accepted. |

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| 17 | Honeywell | 12 | 10.2.4 | Scheduling of periodic audits should use a risk-based approach to determine the appropriate intervals considering such factors as the type of LOA, maturity of the FAA/data supplier relationship, and evidence the data supplier's internal audit program is performing adequately. | It is not clear from the text that this sentence is referring to periodic FAA audits. | One of the following solutions should be considered: 1) Split section 10.2.4 into 2 paragraphs, starting the second paragraph at "Additionally, the FAA..." 2) Change the text to "Scheduling of periodic FAA audits..." | Editorial | Partially Accepted. Title now reads "Auditing." Text now reads "Scheduling of periodic FAA audits..." |
| 18 | Honeywell | 15 | 11.2.3 | Changes to DQRs and Identification of Non-Compliant Data. | Why are these two topics combined together? | Suggest moving "Non-compliant Data" text to a new section, 11.2.4 | Editorial | Not Accepted. No constructive reason for correction offered. This is 3rd version of this AC with this structure. |
| 19 | Honeywell | 15 | 11.3 | Tailored data is aeronautical data originated by an operator / end-user under their sole responsibility and for their exclusive use...There are currently no established data requirements for tailored data. | The text makes it sound like the data supplier has no responsibility for tailored data. At a minimum, a data process should be ensuring that the integrity of the tailored data is maintained through their process and that the distributed data that includes tailored data meet agreed to requirements (i.e., timeliness, completeness, and or format). | add the sentence, "A data supplier must process the tailored data in accordance with the operator / end-user requirements to ensure integrity and quality are maintained." | Conceptual | Not Accepted. The data supplier has no responsibility for tailored data related to this standard or compliance. There may be a contractual responsibility to a user for the data, but there are no data quality requirements, integrity, or standardization aspects applied via this guidance or standard. Tailored data is simply out of scope. |
| 20 | Honeywell | 16 | 12.2 | An aircraft manufacturer, avionics manufacturer or systems integrator must use the requirements defined in section 2 of RTCA/DO-200B as a means to implement a "QM" process and to define the DQRs for the aeronautical database. | As written, this requirement seems to require all design approval holders to implement a process that covers all of the DO-200A objectives, even if the intention is for a Type 2 LOA holder to provide database updates instead of the design approval holder. The necessary "QM" activities for the DAH are already covered in sections 12.2, 12.3, and 12.4 for managing the DQRs. | replace with "An aircraft manufacturer, avionics manufacturer or systems integrator must use the requirements defined in section 2 of RTCA/DO-200B as a means to implement a "QM" process and guidance found in RTCA/DO-200B, appendix B, to define the DQRs for the aeronautical database. | Conceptual | Partially Accepted. Requirements are found in section 2. The material in appendix B is guidance to help provide detail and explain how to meet the requirements in section 2. Deleted reference to QM process. |
| 21 | Honeywell | 17 | 12.3.1 | "TC or STC design" | According to section 3.1, design approval may be provided via TSOA, TC, or STC. Section 12.3.1 only covers TC or STC; it leaves out TSOA. The section should be updated to include TSOA. | replace "TC or STC design" with "TSOA, TC, or STC" in two places. | Editorial | Accepted. |

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| 22 | Honeywell | 16 | 12.2 | DO-272D | Typo - missing forward slash | Change "RTCA DO-272D" to "RTCA/DO-272D" | Editorial | Accepted. |
| 23 | Honeywell | 17 | 12.3.1 | DO-178C | Typo - missing dash | Change "RTCA/DO 178C" to "RTCA/DO-178C" in 2 places. | Editorial | Accepted. |
| 24 | Honeywell | 14 | 11.2.12 | The DPAL is determined by the integrity requirement of the data through allocation of risk using a preliminary system safety assessment of the system architecture (reference RTCA/DO-200B, appendix C, section C.2). | DO-200B may not provide enough detail for all applicants and specific references to AC 25.1309-1, AC 23.1309-1, ARP 4754A, and ARP 4761 may be helpful in those cases. | replace with "The DPAL is determined by the integrity requirement of the data through allocation of risk using a preliminary system safety assessment of the system architecture (reference RTCA/DO-200B, appendix C, section C.2, AC 25.1309-1, AC 23.1309-1, ARP 4754A, and ARP 4761)." If this change is not accepted, consider if the references to these AC and ARP documents is really needed in section 14 of AC 20-153B. | Editorial | Accepted. |
| 25 | Honeywell | | 14.3.4 | DO-236 | DO-236 is not referenced within AC 20-153B. | Suggest removing DO-236 from the AC. | Editorial | Accepted. |
| 26 | Honeywell | | 14.3.7 | DO-283B | DO-283B is not referenced within AC 20-153B | Suggest removing DO-283B from the AC. | Editorial | Accepted. |
| 27 | Honeywell | | 14.3.7 | DO-283B | Typo - missing RTCA | Change "DO-283B" to "RTCA/DO-283B" | Editorial | Accepted. |
| 28 | Honeywell | All | level 4 | For example, section 9.1.2.1 | The level 4 subsections appear to be indented oddly from the rest of the AC. | Suggest aligning level 4 (and below) subsections with the other sections in the AC. | Format | Not Accepted. Formatting is in accordance with FAA Order 1320.46D, Appendix A. |
| 29 | Honeywell | 13 | 11.2.1.1 | "...provided via an official government source (as recognized by the FAA), or an authoritative source (as recognized by the FAA)..." | What process is used by the FAA to recognize a source as an official government or authoritative source? How are these sources determined, confirmed, or established? Is there a list of FAA recognized source providers. | The AC should be updated to include information on what criteria/process the FAA uses to recognize an official government source or an authoritative source. | Conceptual | Not Accepted. There currently is no stated FAA policy on how to accept or recognize an authoritative source. Such policy is outside the scope and authority of this office, but would be an FAA responsibility. Until such time that the data provider side of the FAA determines said policy, validation of non-AIP data must be done by an originator. |

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| 30 | Honeywell | 16 | 12.1 | "Typically, the data format accuracy and resolution are in the original RTCA/DO-178C..." | Missing commas | Change text to "Typically, the data format, accuracy, and resolution are in the original RTCA/DO-178C..." | Editorial | Accepted. |
| 31 | Honeywell | 12 | 10.2.6 | LOA status (e.g., current, suspended, expired, etc.). | Section 3.3 requires a release statement to be provided all new airworthiness approvals and changes. For DO-200B processes accepted under TSOA, TC, STC, it is not clear what should be included for item 1 of the release statement. | replace item with "1. LOA, TSOA, TC, or STC status (e.g., current, suspended, expired, etc.)" | Conceptual | Partially Accepted. There is no "Release Statement" requirement absent an LOA. Change management without an LOA would be documented under the airworthiness approval process. Deleted references to airworthiness approvals in section 3.3 instead to handle this driver. |
| 32 | Honeywell | 12 | 10.2.6 | The release statement must include: | The release statement is missing key characteristics necessary to associate the statement with specific databases. | adding the following items to the release statement: • Identification of applicable LOA, TSOA, TC, or STC (i.e., LOA number, TSOA letter number, STC number, etc.) • Identification of release date or date the release statement was generate • If the release statement does not cover all of the database products covered by the LOA, then the release statement should also identify which databases are applicable. | Conceptual | Partially Accepted. Changed to "...broadcast the identified LOA status..." in 10.2.6 and Appendix 3, Objective 1-13. |
| 33 | Honeywell | 15 | 11.3 | Therefore, a data supplier must not distribute tailored data to entities other than the operator / end-user requesting the data. | In some cases, the end-user will provide the tailored data to a Type 1 supplier, who in turn provides the tailored data to a Type 2 supplier, when then distributes the database to the end-user. The current language in the AC seems to preclude the Type 1 LOA holder from providing tailored data to a Type 2 LOA holder. | replace with "Therefore, a Type 2 data supplier must not distribute tailored data to entities other than the operator / end-user requesting the data and a Type 1 data supplier must ensure that tailored data is sufficiently identified to allow the Type 2 supplier to meet this distribution constraint." | Conceptual | Partially Accepted. Changed to "...data suppliers (i.e., both Type 1 and Type 2 LOA) must ensure tailored data is not distributed to entities other than the operator / end-user requesting the data..." in both 11.3 and Appendix 3, Objective 2-9. |
| 34 | Honeywell | 17 | 12.4.1 | Configuration control processes must include traceability between the DQRs and a database specification. | The intent of the phrase "database specification" is not clear in this context. The phrase is not used anywhere else in AC 20-153B. | The AC should be updated to clarify what is intended by this requirement for traceability between DQRs and database specification. | Conceptual | Accepted. Added "(e.g., a database definition document describing content, format, structure, and having a unique identification)..." to define database specification. |

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| 35 | Honeywell | n/a | n/a | n/a | DO-200B table D-11 states, "The tool qualification liaison process is not performed alone, but in the framework of the liaison process of recognition of compliance to this standard." AC 20-153B provides 3 frameworks (LOA, TSOA, TC/STC), however it doesn't describe how TQ fits within these frame works. | White paper provided separately describing the issue and proposed text to be added to AC 20-153B. | Conceptual | Accepted. Adapted white paper submission and included as new 11.4. |
| 36 | Honeywell | 8 | 9.2.1 | In addition to the documentation submitted as part of the TSO application, you must present documentation for the following: | The bulleted list of documentation required for TSO application does not include the DO-200B compliance plan or the set of authorized plans that are required for LOA application. Without a DO-200B compliance plan, with matrix, how will applicant show compliance to DO-200B and how will the cert authority find compliance? | add the following bullet to section 9.2.1: • Define the compliance documentation as described in RTCA/DO-200B, section 2.2. This includes a compliance plan as described in RTCA/DO-200B, section 2.2.1, as well as all documentation supporting your compliance as described in RTCA/DO-200B, section 2.2.2. | Conceptual | Partially Accepted. Changed to "...as part of the compliance documentation (reference RTCA/DO-200B, section 2.2) submitted you must address the following..." in both 9.2.1.2 and 9.3.1. |
| 37 | Honeywell | 18 | 13.1.1 | A Type 2 LOA confirms this is valid for the compatible equipment listed on the LOA. | The text should be expanded to describe an acceptable means for TSOA, TC, or STC scenarios. | add the following sentence after the referenced text, "For non-LOA applications, such as TSOA, TC, or STC, where the database and the DQRs are identified as part of the type design, a service bulletin or service information letter providing for the update of the database confirms that the DQRs are defined and appropriate for the intended use." | Conceptual | Not Accepted. An LOA is a documentary instrument to provide evidence of compliance already verified by the national authority. The evidence of compatibility would be found in the compliance documentation for these other types of acceptance, but a singular piece of evidence is not necessary or required by this means. |
| 38 | Honeywell | 18 | 13.1.4 | The operator / end-user must have procedures established to report to its Type 2 data supplier any discrepancy or error in the data having a potential safety effect on.... | Per this AC, the data supplier may be the TSOA, TC, or STC applicant without a Type 2 LOA. The referenced text should be made more generic to accommodate the various types of data suppliers. | replace with, "The operator / end-user must have procedures established to report to its Type 2 data supplier any discrepancy or error in the data having a potential safety effect on...." | Editorial | Not Accepted. A Type 1 data supplier is not going to be dealing directly with an end-user / operator. |

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| 39 | Garmin | 1 | 1.1 | "This AC describes an acceptable means, but not the only means, for showing compliance with the applicable airworthiness regulations for equipment with an installed aeronautical database. This AC is not mandatory and is not a regulation. However, if you use the means described herein, you must follow it in all respects." | This statement is not consistent with the standard text specified in FAA Order 1320.46D Chapter 3 paragraph 6.a.(2). FAA Order 1320.46D, FAA Advisory Circular System, is applicable to "...anyone who prepares and issues ACs" (ref. Chapter 1 paragraph 2). Furthermore, the last sentence is overly restrictive, especially since the second sentence states that the AC is not mandatory and is not a regulation. | For consistency with FAA Order 1320.46D, suggest revising to: "This AC is not mandatory and does not constitute a regulation. This AC describes an acceptable means, but not the only means, for showing compliance with the applicable airworthiness regulations for equipment with an installed aeronautical database. However, if you use the means described in the AC, you must follow it in all important respects." | Conceptual | Accepted. |
| 40 | Garmin | 1 | 1.1 | "The term "must" indicates mandatory requirements when following the guidance in this AC. The terms "should" and "recommend" indicate recommended guidance, but are not required for meeting the objectives of this AC. The term "objectives" identifies requirements when used in this AC." | We applaud the FAA for including definitions for what "must", "should", and "recommend" mean within the AC. However, many instances of the term "must" within this draft AC do not seem to be based on a clear regulatory requirement. FAA Order 1320.46D, FAA Advisory Circular System, is applicable to "...anyone who prepares and issues ACs" (ref. Chapter 1 paragraph 2). Order 1320.46D Chapter 3 paragraph 7.f states: The Office of Management and Budget (OMB), Bulletin for Agency Good Guidance Practices (72 FR 3432), Section II.2.g and II.2.h further clarify that (emphasis added; italics in original): "2. Standard Elements: Each significant guidance document shall: g. Include the citation to the statutory provision or regulation (in Code of Federal Regulations format) which it applies to or interprets; and h. Not include mandatory language such as "shall," "must," "required" or "requirement," unless the agency is using these words to describe a statutory or regulatory requirement, ..." (Note: These OMB Bulletin for Agency Good Guidance Practices principles are acknowledged by FAA Order 8100.16 Chapter 2 paragraphs 2-2 and 2-2.c and FAA Order FS 8000.96 Chapter 2 paragraph 2.4.) While there are a few instances that directly reference specific CFRs (such as 21.50(b) in paragraph 12.5 and 91.503 in paragraph 13.1), other instances are to general CFRs (such as part 21 subpart O in paragraph 9.2.1.1 and "applicable 14 CFR part 23/25/27/29 sections for installed aeronautical databases" in paragraph 9.3.1). Furthermore, the majority of instances where "must" is used have no CFR reference whatsoever. | In accordance with OMB Good Guidance Practices (GGP) Section II.2.g and Order 1320.46D Chapter 3 paragraph 10.a, which states: "a. Place references in the text where they will be most useful" it is suggested to include all regulatory requirement references where the AC is using "must" to convey a regulatory requirement. Such references will enable the reader to connect the appropriate regulatory requirement and to indicate the basis for the AC using the verb "must". In accordance with OMB GGP Section II.2.h, if a clear regulatory requirement cannot be referenced, change "must" to "should". Additionally, with respect to the definitions of "must" and "should", Garmin recommends use of the text in the table included as an attachment at the end of this comment log table. Garmin further recommends that the FAA standardize inclusion of these definitions within all ACs via an update to Order 1320.46D. | Conceptual | Not Accepted. This being a 20-series AC, the installation guidance put forth out of this office primarily stems from a regulatory basis under XX.1301 and XX.1309. As such, it would be pedantic to continuously cite the general authority of this office. Therefore, a general statement of "...compliance with the applicable airworthiness regulations..." for the equipment installation concerns is generally made. Otherwise, as advised by our division legal office, we stated our definitions and that is how they are to be used throughout the document. The term "must" indicates mandatory requirements when following the guidance in this AC and will remain. |
| 41 | Garmin | 1 | 1.2.3 | "...appendix 3 contains an objectives matrix capturing the mandatory requirements of this AC." | Paragraph 1.1 states "this AC is not mandatory and is not a regulation." The quoted portion of paragraph 1.1 and the quoted reference from paragraph 1.2.3 seem to contradict one another. | Remove the word "mandatory" from the referenced sentence in paragraph 1.2.3. | Conceptual | Not Accepted. See previous comment. |

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| 42 | Garmin | 2 | 3.1 | "RTCA/DO-200A is no longer valid for new applications for LOA or new airworthiness approval applications made after the publication date of this AC." | <p>Companies may be preparing "new applications for LOA or new airworthiness approval applications" when this AC gets published. If DO-200A becomes immediately invalid on the date of this AC publication, it could throw a wrench into a lot of development / work for companies just missing an arbitrary date.</p> <p>Further, FAA stated at the June 2014 SC-217 meeting in Memphis that they had no intent to mandate DO-200B by any particular time and that its use would be encouraged, but not forced. Later, it was restated at the Sept. 2014 meeting in Cologne that the FAA intended to acknowledge DO-200A or DO-200B for the foreseeable future.</p> <p>Additionally, the paragraph 11.2.1.1 Note, referencing non-US data suppliers, states that "The FAA recognizes approvals by the CAA through bi-lateral agreement or EASA LOA / Data Supplier Certificate (EASA LOAs / Data Services Provider Certificates demonstrating RTCA/DO-200A / RTCA/DO-200B (or EUROCAE ED-76 / EUROCAE ED-76A) are acceptable). The approval by the CAA may be acceptable and should be equivalent to the FAA acceptance defined in this AC." without specifying any date by which a DO-200A-based non-US LOA no longer would be considered equivalent to the FAA acceptance defined in this AC.</p> <p>The proposed text not only mandates a rapid transition from DO-200A to DO-200B for projects undergoing a change classified as major after the release of AC 20-153B, but is unanticipated given the FAA's consistent comments suggesting otherwise during DO-200B's committee work.</p> | <p>Change retirement of DO-200A to 18 months past the publication date of this AC in line with typical policy regarding the effectivity of newly issued revisions to TSOs. Recommend revising the reference text to:</p> <p>"RTCA/DO-200A is no longer valid for new applications for LOA or new airworthiness approval applications made 18 months past the publication date of this AC."</p> | Conceptual | Partially Accepted. See comment #1. |
| 43 | Garmin | 3 | 4 | "Note: This AC requires aircraft manufacturers, avionics manufacturers, or systems integrators to use the airworthiness guidance in paragraph 12 of this AC for all new LOAs, major changes to existing LOAs, as well as all new airworthiness approvals and changes." | <p>The intent of this note is unclear. It states that all new LOAs, major changes to existing LOAs, and all new airworthiness approvals must use guidance in paragraph 12, but it is unclear why paragraph 12 was singled out. An earlier statement in paragraph 3.1 states that RTCA/DO-200A is no longer valid for new LOAs or airworthiness approvals, and since that effectively cancels the use of AC 20-153A for such projects, all such projects must reference AC 20-153B, and do so in its entirety, not just in relation to paragraph 12.</p> <p>Also, the note specifies that major changes to existing LOAs are in-scope to the statement being made, whereas the similar statement in paragraph 3.1 did not mention major changes to existing LOAs. It is unclear whether this is intentional or not.</p> | <p>Consider combining the similar statements made in paragraph 3.1 and the note in paragraph 4 to one single statement to avoid confusion. In such a statement, clarify whether or not AC 20-153A's cancellation/AC 20-153B's effectivity applies to major changes to existing LOAs or only new LOAs and airworthiness approval projects.</p> | Conceptual | Partially Accepted. See comment #1. |

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AC 20-153B "Acceptance of Aeronautical Data Processes and Associated Databases"

| # | Commenter | Page Number | Paragraph Number | Referenced Text | Comment/Rationale or Question | Proposed Resolution | Comment Type (Conceptual, Editorial, or Format) | Disposition |
|----|-----------|-------------|------------------|---|--|--|---|--|
| 44 | Garmin | 3 | 6.1 | <p>"This includes the interface to a data supplier, receipt of the data, processing of the data, database distribution, and the interface to a customer (user)."</p> | <p>DO-200B section 1.5.5.1 states that the activities performed within the Data Origination and End-use functional links are outside the scope of its requirements. They are only mentioned in DO-200B section 1 to give the reader a full view of the aeronautical data chain while stopping short of imposing requirements on actors participating in either of these functional links.</p> <p>The draft AC 20-153B paragraph 6.1 referenced text could be read to suggest that DO-200B's scope of requirements does include "the interface to an end-user," which is an activity that takes place after the application integration functional link is complete, and therefore is not covered by the DO-200B standard.</p> <p>Garmin acknowledges that there are requirements in AC 20-153B that are above and beyond DO-200 and apply to end-users (operators), but also recognizes that the only activities for which an end-user would ever read or require compliance with AC 20-153B are when they are formatting or altering data in some way before using it (which is extremely rare). In such cases, they are essentially acting as another data supplier/processor in the aeronautical data chain. Therefore, it is not the other actions of an end-user, such as routine card programming and database loading activities that are meant to be subject to the requirements of DO-200B and/or AC 20-153B.</p> | <p>To avoid confusion as to the scope of both DO-200B and AC 20-153B, suggest modifying the referenced text by adding the underlined text to read:</p> <p>"This includes the interface to a data supplier, receipt of the data, processing of the data, database distribution, and the interface to the next processor. It is not the intent of RTCA/DO-200B to ensure the quality of Contracting State-originated data addressed through other means such as ICAO standards, nor is it the intent of RTCA/DO-200B to impose any requirements on end-users that are not performing activities typically handled by data suppliers and application integrators, such as formatting and alteration."</p> | Conceptual | <p>Not Accepted.</p> <p>While the "...activities performed within the Data Origination and End-use functional links..." are outside the scope of the scope of DO-200B, the "interfaces" or "connections" to those links have always been in scope.</p> |
| 45 | Garmin | 5 | 8.2 | <p>"It is important to emphasize the database integrity requirement for navigation data is typically driven by the operation (e.g., RNAV and RNP) while for other types of databases (e.g., airport, terrain, and obstacle), the database integrity is determined at the time of airworthiness approval (e.g., per a performance standard or user requirements)."</p> | <p>Garmin is unsure that a clear distinction indeed exists between the origins of navigation data integrity requirements and the origins of integrity requirements of other types of databases, such as airport map, terrain, and obstacle. The typical functions making use of each of those databases are derived from industry standard performance requirements and primary navigation is really no different than airport map or terrain awareness functions, in that sense. Garmin's primary concern with the referenced text is that it is misleading and thus would be better left out to avoid causing confusion.</p> | <p>Remove the referenced text.</p> | Conceptual | <p>Partially Accepted.</p> <p>Deleted "e.g" at end to help with confusion. The integrity requirement is either driven by an operation or as determined through a functional hazard assessment at time of airworthiness approval. If not by those factors, then what else? Databases other than navigation will likely migrate into operational.</p> |

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| # | Commenter | Page Number | Paragraph Number | Referenced Text | Comment/Rationale or Question | Proposed Resolution | Comment Type (Conceptual, Editorial, or Format) | Disposition |
|----|-----------|-------------|------------------|---|--|---|---|---|
| 46 | Garmin | 5 | 9 | "1. Obtain a database LOA." | The spirit of the notes listed under items 2 and 3 of paragraph 9 pertain also to item 1. The concept expressed in the notes, that databases failing to meet DQRs that result in no safety affect do not need to obtain FAA acceptance, is equally true for appliances that generally have their databases covered by a database LOA. In fact, there is no need to obtain a LOA for such databases, so it would be appropriate to state that here. | Revise the reference text as follows: "1. Obtain a database LOA. Note: It is not necessary for an applicant to obtain a database LOA for an aeronautical database when its failure to meet the DQRs has no safety effect (i.e., routine assurance-level data, Visual Flight Rules (VFR)-only navigation database, etc.)." | Conceptual | Accepted. Moved to higher level. |
| 47 | Garmin | 6 | Figure 2 | Second decision box on left-hand column of flow diagram that says "DO-200B process?" | It was initially unclear what decision was being referred to by this box based simply on the text "DO-200B?" It wasn't until reading the box to the right and noting its reference to AC 20-115C that it became clearer that the decision seemed like it was really referring to whether or not the database was being certified as part of a DO-178B/C airborne software approval. | Suggest changing the text in the referenced decision box to "DO-178B/C approval?" Then, flip flop the "yes" and "no" decision lines. | Conceptual | Not Accepted. The suggestion doesn't necessarily work. The point of this AC is that DO-200B is now the FAA accepted means of compliance, not DO-178B/C. |
| 48 | Garmin | 7 | 9.1.1 | "[A type 1 LOA] applies to data suppliers, operators / end-users, avionics manufacturers, or others." | It is unclear why operators / end-users would ever seek a type 1 LOA. As was explained in Garmin's comment on paragraph 6.1, the only edge case where an operator / end-user would ever seek an AC 20-153A LOA is if they are performing alteration and/or formatting to their data. This would presumably take place before loading it in the box, in which case the alteration or formatting would need to show compatibility with a specific avionics system. Such a scenario would require the granting of a Type 2 LOA, not a Type 1 LOA. | Suggest modifying the referenced text by removing the struck-through text: "[A type 1 LOA] applies to data suppliers, operators / end-users, avionics manufacturers, or others." | Conceptual | Not Accepted. The more relevant definition is that a "Type 1 LOA has no identified compatibility with an aircraft system or equipment." While not required currently, there are cases to be made for its applicability to folks supplying "Type 2" suppliers, which can include data suppliers, operators / end-users, avionics manufacturers, or others. |

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| 49 | Garmin | 9 | 9.2.3 | "Without a database LOA, database updates are a change to the TSO article." | Similar to the spirit of Garmin's comment pertaining to paragraph 9, as well as the existing notes in paragraph 9 items 2 and 3, this statement should not apply to databases when, failing to meet DQRs, result in a failure classified as no safety effect. Suggest clarifying this statement to specify that it only applies to databases more critical than those without a safety effect. | Change the referenced text to: "Without a database LOA, updates to a database with a failure effect other than no safety effect are a change to the TSO article." | Conceptual | Accepted. |
| 50 | Garmin | 10 | 9.3.3 | "Without a database LOA, we consider database updates a change to the installation approval." | Similar to the spirit of Garmin's comment pertaining to paragraph 9, as well as the existing notes in paragraph 9 items 2 and 3, this statement should not apply to databases when, failing to meet DQRs, result in a failure classified as no safety effect. Suggest clarifying this statement to specify that it only applies to databases more critical than those without a safety effect. | Change the referenced text to "Without a database LOA, we consider updates to a database with a failure effect other than no safety effect to be a change to the installation approval." | Conceptual | Accepted. |
| 51 | Garmin | 11 | 10.1.4.3 | "Compatibility. For a Type 2 LOA, you must include a list of systems for which you will ensure compatibility with intended use including make, model, series, and part numbers (hardware, software, and database) by demonstrating (e.g., using system verification tests, sampling checks, etc.) the DQRs are consistent with the intended function of the associated equipment (see paragraph 12 of this AC)." | The requirements for the compatibility list may call for system identification beyond what is necessary to uniquely identify a system. It is not always necessary to specify make/model/series names, as well as part numbers, to correlate databases to their compatible systems (generally, part numbers alone are sufficient). Additionally, several avionics manufacturers utilize an arbitrary Appliance Project Identifier (API) number to group collections of closely related systems of a same family under one umbrella, and in such cases, this will be the most appropriate and efficient way to identify compatibility between databases and systems. | Suggest modifying the referenced text by removing struck-through text and adding underlined text in the following: "Compatibility. For a Type 2 LOA, you must include a list of systems for which you will ensure database compatibility with intended system function. use including make, model, series, and part numbers (hardware, software, and database) Correlation between the particular databases and compatible systems should be based on a configuration identifier (such as a part number or TSO appliance project identifier) as agreed upon with the local ACO who will issue the LOA. Compatibility is accomplished by demonstrating (e.g., using system verification tests, sampling checks, etc.) the DQRs are consistent with the intended function of the associated equipment (see paragraph 12 of this AC)." | Conceptual | Partially Accepted. Changed to part/model number consistent with TSO identification guidance. |
| 52 | Garmin | 11 | 10.1.4.4 | "...and distribute correction action to all effected parties..." | | Change 'effected' to 'affected'. | Editorial | Accepted. |

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| 53 | Garmin | 11 | 10.1.4.4 | Last sentence: "Examples of data errors with potential to adversely affect safety include, but are not limited to final approach segment (FAS) data block changes, path and terminator "leg type" coding, as well as critical and essential data elements (assurance levels 1 and 2)." | <p>By including Assurance Level 2 with no qualifying criteria, the referenced text encompasses almost every single data element in Garmin's navigation database, since Assurance Level 2 reaches down to "minor" safety effects. This goes back to the fact that Assurance Level 2 is used for both "major" and "minor" safety effects, which causes a lot of problems in statements like this.</p> <p>While it may not be the intent to reach down into minor safety effects, as written, that is what the text says.</p> | <p>Suggest qualifying the requirement for reporting to include those data elements tracing to a "major" safety effect:</p> <p>"...as well as all critical data elements and those essential data elements associated with a "major" safety effect."</p> | Conceptual | Partially Accepted. Deleted "(assurance levels 1 and 2)". |
| 54 | Garmin | 15 | 11.2.2 | "Your data security provisions must describe both the technical and organizational controls you implement to ensure you receive data from known sources and to prevent intentional corruption during processing and exchange of data. Provisions for data security must describe how you identify, assess, and mitigate security threats and prevent unauthorized access to data or tools. Moreover, there are two important concepts applicable to the rigor of your data security provisions. First, the higher the DPAL the more rigorous controls and protocols you will need to implement. Additionally, to protect data developed with higher item development assurance levels (IDAL), security provisions need to address any mixing of data processed at lesser DPALs and any potential vulnerability affecting the more critical data (see 11.2.1.2)" | <p>DO-200B introduces the concept of data security to the aeronautical data processing domain for the first time in section 2.4.6. There was much debate during the security discussions in SC-217 and significant pushback from some members of the committee to impose arbitrary security requirements. The compromise that was reached by the committee was that security would be addressed, but the only requirement regarding it would be to document what an LOA holder has chosen to do to safeguard the security of its data. There are no actual requirements for security rigor based on any particular criteria, and this omission was intentional.</p> <p>The referenced text crosses the threshold and implies that there are criteria (DPAL, specifically) against which security rigor must be implemented. While the requirements are relative instead of absolute, they still force an LOA holder to implement graduating security rigor as the failure effect associated with the DPALs increase. Auditors will be forced to arbitrarily decide if a holder's security measures in relation to any given DPAL are appropriate, and it will be based strictly on opinion. This is the type of scenario that the compromise struck in SC-217 was meant to prevent.</p> | Remove the entire referenced text, as it is contrary to the SC-217 committee understanding. All text of paragraph 11.2.2 before the referenced text is OK. | Conceptual | Not Accepted. Just as un-intentional corruption requires the concept of increasing levels or rigor to protect against the data's contribution to hazardous safe use, so must intentional corruption. |

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|----|-----------|-------------|------------------|---|--|---|---|--|
| 55 | Garmin | 17 | 12.4.1 | <p>"The aircraft manufacturer, avionics manufacturer or systems integrator can also reference the DQRs in the ICAs."</p> | <p>ICAs are required at the installation level (i.e., TC/STC). Avionics manufacturers may or may not develop a STC to go along with their equipment. Avionics manufacturers should include guidance within their installation manual for what should be included in an ICA but there should not be an expectation that the avionics documentation (e.g., the documentation submitted with a TSOA) will include an ICA.</p> <p>Furthermore, few aspects of the DQRs are actually relevant to an operator in the context of an ICA. In reality, completeness and timeliness, and format indirectly via the database part number, are the only aspects of the DQRs that are relevant to an operator in the context of the ICA. The other characteristics of data quality are set by the avionics manufacturer and not relevant to the ICA.</p> | <p>Revise the referenced text to:</p> <p>"The aircraft manufacturer, avionics manufacturer or systems integrator can also reference the relevant DQRs in the installation documentation that can be used to support the development of ICAs if they are required."</p> | Conceptual | <p>Partially Accepted. Modified previous change from Honeywell pointing out requirement consistent with 12.5. Added alternative for installation documentation.</p> |
| 56 | Garmin | 18 | 12.5 | <p>"Instructions for Continued Airworthiness (ICA) (Title 14 of the Code of Federal Aviation Regulations (14 CFR) § 21.50(b)). If the aircraft manufacturer, avionics manufacturer or systems integrator do not identify the database as part of the type design (i.e., RTCA/DO-178C compliance), and if database assurance is required, the ICAs must require the data meet the database assurance objectives (e.g., RTCA/DO-200B) and comply with the DQRs for the target hardware. For example, for an aeronautical database with a Type 2 LOA, a statement in the ICAs accomplishes this by directing the operator / end-user (before installing an aeronautical database) to review the release statement (reference paragraph 10.2.6 of this AC), thereby verifying database assurance and acknowledging any deviations to the DQRs or data alterations."</p> | <p>14 CFR 43.3(k) allows pilots to make updates of databases in installed avionics under specific conditions. Most GA avionics developed over the past 25 years can support the conditions specified by 43.3(k) (e.g., initiated from the flight deck, performed without disassembling the avionics unit, and performed without use of tools and/or special equipment). In such situations, the existing ICAs make no mention of database updates because there is no need for anyone other than the pilot to perform the database update.</p> <p>Additionally, the requirement for the operator / end-user "to review the release statement" before installing an aeronautical database is new. Since there are already 10s of 1000s of GA aircraft that do not have an ICA that mentions anything about database updates, it is impractical to expect that an ICA will be created for the sole purpose of reviewing the release statement, particularly for pilots operating under Part 91 (i.e., not operating under a certificate).</p> <p>See also Garmin's comments on paragraph 12.4.1. Also related are Garmin's comments on paragraph 12.6.</p> | <p>Revise this paragraph to acknowledge that an ICA is required only if a database update cannot be performed under the conditions in 14 CFR 43.3(k).</p> <p>Additionally, revise the AIM to include the necessity for a certificated operator to review the release statement prior to installing an aeronautical database. But in keeping with the notion of the FAA safety continuum, do not require pilots operating under Part 91 to review the release statement because it has not been required to this point and there is absolutely no evidence that it will improve safety by imposing such a burden. Modifying the AIM rather than an aircraft-specific ICA is also reasonable from the perspective that the need to review the release statement is a "system wide" characteristic and not an aircraft- specific characteristic.</p> | Conceptual | <p>Accepted. Aligned with previous comment. The objective for the release statement is to communicate LOA status and any deviations/alterations so the operator / end-user can satisfy their responsibility for ensuring the data meets the quality requirements for its intended function. The release statement may be in the form of an enclosed document, an electronic posting with the download files, or on the web. As such, you previously and correctly pointed out that the end-user is typically concerned with the DQRs of "timeliness" and "completeness," so this is what the release statement is communicating. It does not need to be anything more than a posted statement on the web or ftp site if that is the way you</p> |

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| 57 | Garmin | 18 | 12.6 | <p>"12.6 Aircraft Flight Manual. You must document any assumptions related to database assurance in the aircraft flight manual.</p> <p>Example: The approval of the XXX application is based on the XXX database provider obtaining a Type 2 Letter of Acceptance (LOA) (or an equivalent means of compliance as defined by airworthiness authorities) and the operator / end-user complying with the requirements of AC 20-153B, paragraph 13."</p> | <p>This AC further expands upon the FAA's perpetual expansion of AFM content. The FAA has sometimes justified specifying A/RFM(S) content via 2x.1301. Garmin struggles with the use of 2x.1301 as the basis for requiring an A/RFM(S). Many systems, both required and non-required, are installed in aircraft that meet 2x.1301 and do not require an A/RFM(S). In many cases A/RFM(S) specified content is really more appropriate for inclusion in a pilot's guide and there is no reason to burden the installation by including such content in the A/RFM(S).</p> <p>The FAA has also justified specifying A/RFM(S) content via 2x.1581(a)(2). However, 2x.1581(a)(2) is included in Subpart G, Operating Limitations and Information, that also includes more specific regulations for airspeed limitations, maneuvering speed, flap extended speed, minimum control speed, weight and center of gravity, minimum flight crew, kinds of operation, and maximum operating altitude. All of these more specific regulations are relative to the aircraft "design, operating, or handling characteristics" and potential limiting effects on aircraft operation, not equipment operation. i.e., in Garmin's view, 2x.1581(a)(2) was never intended to be used as a catch-all for applicable operating limitations. Including equipment operating limitations or "assumptions", as specified in the referenced paragraph 12.6 text, in the A/RFM(S) that does not affect the aircraft "design, operating, or handling characteristics" may actually obscure the primary purpose of an A/RFM(S), which is to provide the pilot with basic information required to safely fly the aircraft.</p> <p>Revising the operating procedures and/or operating limitations in the A/RFM(S) requires approval by the FAA (ref. 2x.1581(b)). This is an added expense in terms of installation shop time and aircraft downtime.</p> <p>Unnecessary A/RFM(S) content creates added expense and time, which are barriers to achieving installations and actually reduce safety by impeding the installation of safety enhancing equipment. The unnecessary A/RFM(S) content can also come in conflict with changes to operational guidance or interfere with flexibility that Part 91K, Part 135 and Part 121 operators would normally be allowed. Correcting A/RFM(S) content is always treated as an airplane modification which is particularly</p> | <p>Suggest changing:</p> <p>"Aircraft Flight Manual. You must document any assumptions related to database assurance in the aircraft flight manual."</p> <p>"You must document any assumptions related to database assurance in the equipment operating instructions or aircraft flight manual."</p> | Conceptual | Not Accepted. Per AC 23-8C, the interpretation of § 23.1581 states that a POH is an AFM as long as the title page also includes a statement indicating that the document is in accordance with GAMA Pub 1 and is approved by the FAA. TSO is not installation approval, so this directs the operator to their responsibilities. |
| 58 | Garmin | 18 | 13.1 | <p>"The end user (operator) is ultimately responsible for ensuring the data meets the quality requirements for its intended application (14 CFR 91.503)."</p> | <p>14 CFR 91.503 is only applicable to large and turbine-powered multi-engine aircraft and fractional ownership aircraft operations, so it governs only a portion of the end-users that this statement is intending to reference.</p> | <p>Suggest removing the FAR reference within the parenthesis or providing appropriate FAR references justifying the applicability to the much larger number of operator / end-users that are not governed by 91.503.</p> <p>Additionally, if the 91.503 reference remains, suggest changing it to be more specific since the general reference to the entire 91.503 encompasses many items that have nothing to do with aeronautical data; e.g.:</p> <p>"(14 CFR 91.503(a) and 91.503(d))"</p> | Conceptual | Accepted. |
| 59 | Garmin | 18 | 13.1.1 | <p>"The operator / end-user is responsible for ensuring the DQRs are defined and appropriate for the intended use."</p> | <p>This statement reads as if the operator / end-user is actually defining the DQRs. In reality, they do so in regards to completeness and timeliness, as 13.1.2 rightly states, but the other 5 characteristics of data quality are set by the avionics manufacturer.</p> | <p>Add the underlined text to the referenced text as follows:</p> <p>The operator / end-user is responsible for ensuring that the DQRs are were defined by the avionics/application manufacturer and appropriate for the intended use.</p> | Conceptual | Accepted. |

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| 60 | Garmin | 18 | 13.1.3 | <p>"Prior to updating aeronautical databases in installed avionics, the operator / end-user must review the release statement from its supplier to confirm the validity of RTCA/DO-200B compliance and acknowledge any report of deviations to the DQRs or any modification to the data by alteration."</p> | <p>The phrase "and acknowledge" in the referenced text may be read to mean that a user must somehow confirm with another organization that DQR deviations and modifications listed within the release statement are understood. It is unclear if this is the intent of the statement or not, but if it is, such an arrangement would be impractical for a GA data supplier that services thousands of database distributions every cycle.</p> <p>Additionally, it is unclear by what regulation/requirement the operator will be mandated to perform this review. Most operators will never read or be aware of AC 20-153B, so while it is clear that a data supplier must make a release statement per requirements of holding an LOA, there is no parallel requirement against which to make an operator review and/or acknowledge it. Such operator responsibilities do not belong in a 20-series AC like AC 20-153B. Instead, such operator responsibilities more appropriately belong in a 90-series AC (e.g., AC 90-100A, AC 90-105, or AC 90-101 for RNAV and RNP operations). Or possibly a 40-series AC that makes reference to 14 CFR 43.3(k), which allows pilots to make updates of databases in installed avionics under specific conditions.</p> <p>See also Garmin's comment regarding paragraph 13.2.</p> | <p>Suggest modifying the referenced text by removing the struck-through text, adding the underlined text, and replacing the bracketed text with the specific regulation/guidance reference as follows:</p> <p>"Prior to updating aeronautical databases in installed avionics, [xxx regulation/requirement] requires an operator / end-user review the release statement from its supplier to confirm the validity of the supplier's RTCA/DO-200B compliance and acknowledge review any report of deviations to the DQRs or any modification to the data by alteration."</p> | Conceptual | <p>Not Accepted. See previous comment. Acknowledgement could take the form of stating on the release statement that downloading and installing the database means you have acknowledged.</p> |
| 61 | Garmin | 19 | 13.2 | <p>"Operators / end-users formatting and altering data. If the operator / end-user is performing data preparation and data transmission (i.e., formatting or altering information within an aeronautical database provided by the Type 2 LOA holder), then in order to demonstrate RTCA/DO-200B compliance, the operator must comply with paragraphs 10 and 11 of this AC and obtain an LOA, or an equivalent means."</p> | <p>Garmin agrees with the statements in 13.2 and further feels that they represent the only scenario in which DO-200B and/or AC 20-153B would ever apply to an operator or end-user. In such a case, the operator is in fact acting as a data supplier while performing the formatting or altering, and it would be those activities alone which would drive the requirement to obtain an AC 20-153B LOA.</p> | <p>Suggest moving 13.2 to be the first paragraph of paragraph 13. Then, elaborate further to state that "the remainder of paragraph 13 is only applicable to end-users / operators that are performing this type of formatting or altering."</p> | Conceptual | <p>Not Accepted. This is placed at the end of this paragraph because this would be a special case versus the norm.</p> |
| 62 | M.GUCEMAS (THALES AVIONICS SAS) | 2 | 3.1 | <p>RTCA/DO-200A is no longer valid for new applications for LOA or new airworthiness approval applications made after the publication date of this AC.</p> | <p>"New applications" is not enough clear. It is assumed that design changes are not concerned.</p> | <p>Referenced text should be completed : "RTCA/DO-200A is no longer valid for new applications for LOA or new airworthiness approval applications made after the publication date of this AC but may remain valid for design changes"</p> | Conceptual | <p>Previously Accepted. See comment #1.</p> |

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|----|---------------------------------|-------------|----------------------|---|---|--|---|---|
| 63 | M.GUCEMAS (THALES AVIONICS SAS) | 3 | 4 | Reference to "RTCA, Inc. Document (RTCA/DO)-200B" | This advisory circular revision refers only to DO-200B. However, applicants for operational or airworthiness approval change still using an old DO-200 revision as guidance could not use this AC revision. | In §4 CANCELLATION following note should be added : "AC20-153 and AC20-153A may remain effective for applicant for operational or airworthiness approval design change using DO-200 or DO-200A" | Conceptual | Not Accepted. You can maintain a previous means, which will be kept in historical reference. This AC is the new means. |
| 64 | M.GUCEMAS (THALES AVIONICS SAS) | 5 | 8.4 | A database LOA (Type 2) is the recommended means to manage an aeronautical database under an airworthiness approval (e.g., TC, STC, TSOA, etc.), rather than applying for a design change for the installed equipment | An aeronautical database accepted by FAA under a LOA type 2 is not managed under airworthiness approval but under operational approval, then it is not exact to write that LOA type 2 is the recommended mean to manage a database under airworthiness approval | It is suggested to modify referenced text as follows : "A database LOA (Type 2) is the recommended means to avoid managing an aeronautical database under an airworthiness approval (e.g., TC, STC, TSOA, etc.) therefore allowing to avoid applying for a design change of the installed equipment at each database update" | Conceptual | Partially Accepted. Added text "...at each database update." An LOA is an FAA Aircraft Certification document where we have verified a compliance and recognized it. It may be used toward operational approvals, but it is by no means an operations document. |
| 65 | M.GUCEMAS (THALES AVIONICS SAS) | 7 | 9.1.2.2 | Regardless, identity requires formal documentation (e.g., agreement to DQRs by all participants, licensing agreement, etc.) | In order to be aligned with equivalent EASA guidance (refers to GM2 DAT.OR.105 (a) (1) from outcome of EASA Thematic meeting 01 Dec 2015), a data supplier should not be able to achieve identity of its data quality requirements by design equivalency without specific arrangement with the design approval holder | It is suggested to modify referenced text as follows : "Regardless, identity requires formal documentation arrangement between all participants (e.g., mutual DQR agreement letter , licensing agreement, etc.)" | Conceptual | Accepted. |
| 66 | M.GUCEMAS (THALES AVIONICS SAS) | 11 | 10.1.4.3 | We also recommend sampling checks be performed periodically to confirm continued compatibility. | In order to be aligned with equivalent EASA guidance (refers to GM2 DAT.OR.105 (a) (1) from outcome of EASA Thematic meeting 01 Dec 2015), it should be precised that sampling checks should be done on individual data sets. | Referenced text should be replaced by : "The Provider may also perform tests to ensure that the database works as intended with the application by performing sampling checks on individual data sets (e.g. in a simulation/test bench environment)." | Conceptual | Accepted. |
| 67 | M.GUCEMAS (THALES AVIONICS SAS) | 14 | 11.2.1.3 11.2.1.4 | Acceptable techniques for the verification and validation of airport map data are in RTCA/DO-272D, section 3.10. Acceptable techniques for the verification and validation of terrain and obstacle data are in RTCA/DO-276C, sections 6.1.4 and 6.1.5. | Acceptable techniques for the verification and validation to Airport Map, to terrain and to obstacle data are provided in complement to general requirements Similarly, DO-201A should be referenced for application of verification/validation requirements to NavDB (refers to section 2.1.7.1) | Add equivalent acceptable techniques for NavDB, referencing DO-201A. | Editorial | Accepted. |

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AC 20-153B "Acceptance of Aeronautical Data Processes and Associated Databases"

| # | Commenter | Page Number | Paragraph Number | Referenced Text | Comment/Rationale or Question | Proposed Resolution | Comment Type (Conceptual, Editorial, or Format) | Disposition |
|----|---------------------------------|-------------|------------------|--|---|---|---|---|
| 68 | M.GUCEMAS (THALES AVIONICS SAS) | 16 | 12.2 | For navigation databases, this definition could include data elements with corresponding... for terrain awareness and warning systems. As part of the design approval, ... of terrain on attitude indicator). For airport data, RTCA DO-272D sections 2 and 3 define a minimum set of DQRs used for airport map displays | This section mixes general requirements for the DQR definition and non exhaustive examples dedicated to specific types of database. | Quality requirements for specific databases should be separated with bullets from the general part. | Editorial | Not Accepted. This is an issue we are trying to address with an update to DO-201A since the specification for what constitutes navigation data has been an issue. |
| 69 | AIRBUS | 2 | 3.1 | "RTCA/DO-200A is no longer valid for new applications for LOA or new airworthiness approval applications made after the publication date of this AC." | Airbus strongly disagree to make AC 20-153B and RTCA/DO-200B applicable to any new airworthiness approval applications. Indeed, AC20-153B cannot override an aircraft certification basis which has been frozen at TC. If the applicable certification basis already refers DO-200A, any new airworthiness approval application should be carried out in accordance with RTCA/DO-200A. | Remove the wording " <i>new airworthiness approval applications</i> " from the sentence and modify the sentence as follows : "RTCA/DO-200A is no longer valid for new applications for LOA or new airworthiness approval applications made after the publication date of this AC, <u>except if already part of the applicable aircraft certification basis.</u> " | Editorial | Accepted. |
| 70 | AIRBUS | 2 | 3.3 | "This AC requires data suppliers to provide a release statement (reference paragraph 10.2.6 of this AC) with each database distribution for all new and existing LOAs, as well as all new airworthiness approvals and changes." | Only the data supplier can provide a release statement with each database distribution. This requirement cannot be applicable to an OEM which cannot control neither such release statement nor database distribution. Many design changes about a system/function using a database have no impact on the database (no DQR change, use of the database unchanged, ...). This requirement for new airworthiness approvals and changes is new compared to AC20-153A (§10.a.(6) - page 10) without rationales. | Remove the wording " <i>as well as all new airworthiness approvals and changes.</i> " from the sentence as follows : "This AC requires data suppliers to provide a release statement (reference paragraph 10.2.6 of this AC) with each database distribution for all new and existing LOAs, as well as all new airworthiness approvals and changes. " | Editorial | Previously Accepted. |

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AC 20-153B "Acceptance of Aeronautical Data Processes and Associated Databases"

| # | Commenter | Page Number | Paragraph Number | Referenced Text | Comment/Rationale or Question | Proposed Resolution | Comment Type (Conceptual, Editorial, or Format) | Disposition |
|----|-----------|-------------|------------------|---|--|--|---|--|
| 71 | AIRBUS | 3 | 4 | "CANCELLATION. This AC cancels AC 20-153A, issued on September 20, 2010. However, LOAs issued under AC 20-153 or AC 20-153A remain effective after the publication date of this AC, unless they are superseded, surrendered, withdrawn by the holder, or terminated by the FAA. New applications for LOA or new airworthiness approval applications made after the publication date of this AC must utilize the means provided in this AC, or an equivalent means. Note: This AC requires aircraft manufacturers, avionics manufacturers, or systems integrators to use the airworthiness guidance in paragraph 12 of this AC for all new LOAs, major changes to existing LOAs, as well as all new airworthiness approvals and changes." | Criteria to supersede, surrender, withdraw LOAs issued under AC 20-153 or AC 20-153A are not defined. Airbus strongly disagree to make AC 20-153B applicable to any new airworthiness approval applications. Indeed, AC20-153B cannot override an aircraft certification basis which has been frozen at TC and cannot make DO-200B as applicable. If the applicable certification basis already refers DO-200A, any new airworthiness approval application should be carried out in accordance with RTCA/DO-200A. | Replace the text with: "New applications for LOA or new airworthiness approval applications made after the publication date of this AC must utilize the means provided in this AC, or an equivalent means, <u>except if the database approval process is already covered by the applicable aircraft certification basis.</u> Note: This AC requires aircraft manufacturers, avionics manufacturers, or systems integrators to use the airworthiness guidance in paragraph 12 of this AC for all new LOAs, major changes to existing LOAs, as well as all new airworthiness approvals and changes. " | Editorial | Partially Accepted. Clarified applicability going forward. |
| 72 | AIRBUS | 3 | §7.1 | "Aeronautical data chain is a series of interrelated links where each link provides a function facilitating the origination, transmission and use of aeronautical data..." | All the phases of the process defined in DO-200B (origination, transmission, preparation, integration, end use) could be listed | List all the phases of the process defined in DO-200B (origination, transmission, preparation, integration, end use) | Editorial | Accepted. |
| 73 | AIRBUS | 5 | 9 | General: Use of "we" and "you"... | Use of "we" and "you" makes the reading complicate and is source of misinterpretation. For example, "you" could mean data provider, avionics manufacturer, OEM... "Authorities" or "FAA" and "Applicant" could be used instead of "we" and "you" to facilitate the reading. | Replace "we" and "you" by a more precise wording | Editorial | Not Accepted. Use of pronouns to address readers directly is in the FAA's style guides and part of FAA's Plain Language Program. |
| 74 | AIRBUS | 7 | 9.1 | "Type 1 LOA are based on requirements agreed upon between a data supplier and their customer..." | Could Type 1 LoA be based on requirements provided by the LoA holder, with no link to any customer? (when a customer choose this database provider, he must then "adapt" his requirements with the LOA Type 1 DQRs). | Suggest adding at the end of §9.1.1: <u>"Data requirements can be defined by the Data supplier and accepted by their customer or can be agreed upon between them"</u> | Conceptual | Accepted. |

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AC 20-153B "Acceptance of Aeronautical Data Processes and Associated Databases"

| # | Commenter | Page Number | Paragraph Number | Referenced Text | Comment/Rationale or Question | Proposed Resolution | Comment Type (Conceptual, Editorial, or Format) | Disposition |
|----|-----------|-------------|------------------|--|--|---|---|--|
| 75 | AIRBUS | 7 | 9.1.2.2 | "Type 2 LoA who can establish its data requirements are identical to those defined by the design approval holder" | The term "identical" looks demanding. The LoA DQR should be compatible with the ones from the Design Approval holder. In any case, the traceability between design approval holder DQR and Applicant DQR should exist. | Change the sentence as follows : "Type 2 LoA who can establish its data requirements are consistent to those defined by the design approval holder" | Conceptual | Not Accepted. This is legacy language that is modeled after PMA for consistency. |
| 76 | AIRBUS | 8 | 9.1.2.4 | "For organizations working for you, the processes they use, as well as the records they maintain, must be under your control and accessible in order to hold a Type 2 LOA" | It seems to be in contradiction with §9.2.1.2 "You may use an LOA from previous data chain participant as evidence the data received meets the agreed DQRs" | Proposal of change : "For organizations working for you, the processes they use, as well as the records they maintain, must be under your control and accessible in order to hold a Type 2 LOA except if they hold an LOA themselves. " | Conceptual | Not Accepted. Processes must be under your control regardless. |
| 77 | AIRBUS | 8 and 9 | 9.2.1.2 and 9.3 | "Define the DQRs..." | Suggestion to list all documentation required in DO-200B or to refer to DO-200B for documentation to be addressed | | Editorial | Previously Accepted. |
| 78 | AIRBUS | 9 | 9.3.1 | "Define the verification methods for all data and validation methods for data not coming from authoritative source (reference paragraph 11.2.1)." | Definition of authoritative source should be given. More particularly, ARINC or SITA Data Service Providers (DSP) should be confirmed by FAA as authoritative sources. Indeed, databases used for ACARS messages routing (list of VHF frequencies, ...) rely on reliable services used daily by many aircraft. FAA has accepted ARINC and SITA DSPs as authoritative sources in the frame of the A350 TC. | Authoritative sources to be listed or examples of authoritative sources to be provided (eg., ARINC and SITA DSPs). | Conceptual | Not Accepted. This is an airworthiness AC and the recognition of authoritative source will have to come from the data provider side of the FAA and other regulators. |

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AC 20-153B "Acceptance of Aeronautical Data Processes and Associated Databases"

| # | Commenter | Page Number | Paragraph Number | Referenced Text | Comment/Rationale or Question | Proposed Resolution | Comment Type (Conceptual, Editorial, or Format) | Disposition |
|----|-----------|-------------|------------------|--|---|--|---|--|
| 79 | AIRBUS | 11 | 10.1.4.3 | "Compatibility. For a Type 2 LOA, you must include a list of systems for which you will ensure compatibility with intended use including make, model, series, and part numbers (hardware, software, and database) by demonstrating (e.g., using system verification tests, sampling checks, etc.) the DQRs are consistent with the intended function of the associated equipment." | Such demonstration of consistency between DQR and the intended function is not done by the LOA type 2 applicant (generally, a database supplier), but by the OEM/DAH when certifying the system. Indeed, the intended function is defined by the OEM/DAH and the OEM/DAH produces a DQR in order that the intended function be fulfilled by the system when using the database. The LOA type 2 applicant must verify compliance of their database with the DQR. | Replace the text with: "Compatibility. For a Type 2 LOA, the applicant must list the equipment models and part numbers where compatibility has been demonstrated. The LOA type 2 applicant must verify compliance of their database with the DQR. In addition, the LOA type 2 applicant should ensure, through an appropriate arrangement, that the OEM/DAH (or an applicant for an approval of that specific design) is responsible for demonstrating that the DQRs are consistent with the intended function of the system/application (e.g. using design review, system verification tests, sampling checks, etc.)." | Conceptual | Partially Accepted. Changed 2nd sentence to read "This is always done through an appropriate arrangement with the original equipment manufacturer (OEM) / DAH at time of first listing on the LOA or when proposing additions to the compatible equipment list." |
| 80 | AIRBUS | 11 | 10.1.4.3 | "We also recommend sampling checks be performed periodically to confirm continued compatibility" | The added value of those sampling checks is questionable. DO-200B process is per principle intended to demonstrate that the compatibility is maintained as long as the database complies with its DRQ and with the DO-200B process. Periodic compatibility tests can be difficult and expensive to be set up when the database supplier is different from the avionics manufacturer (or application integrator) | Delete this sentence | Conceptual | Not Accepted. System verification checks have always been the way substantiation of a databases consistency and support for intended function has been proven. We are also recommending periodic sampling be done because numerous in-service problems have indicated it is imperative to do this sort of verification by application. |
| 81 | AIRBUS | 11 | 10.1.4.4 | "Your procedure must describe how to communicate without undue delay (within 72 hours of detection/knowledge) change in LOA status and any confirmed data errors having potential to adversely affect the safety of operational use." | The 72 hours timeframe is very stringent and not always practicable. It should be limited to unsafe conditions (catastrophic or hazardous) in the same spirit as Part 21 §21.3. | Replace the text with: "Your procedure must describe how to communicate without undue delay (within 72 hours of detection/knowledge in case of unsafe condition) change in LOA status and any confirmed data errors having potential to adversely affect the safety of operational use." | Conceptual | Not Accepted. This is harmonized language with EASA. Point in fact, our requirement used to be 24 hours in AC 20-153A. |
| 82 | AIRBUS | 12 | 10.2.1 | "The initial reporting of confirmed safety-related errors or defects must be timely and prompt (within 72 hours of detection/knowledge) to ensure swift resolution." | The 72 hours timeframe is very stringent and not always practicable. It should be limited to unsafe conditions (catastrophic or hazardous) in the same spirit than Part 21 §21.3. | Replace the text with: "The initial reporting of confirmed safety-related errors or defects must be timely and prompt (within 72 hours of detection/knowledge in case of unsafe condition) to ensure swift resolution." | Conceptual | Not Accepted. This is harmonized language with EASA. Point in fact, our requirement used to be 24 hours in AC 20-153A. |

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AC 20-153B "Acceptance of Aeronautical Data Processes and Associated Databases"

| # | Commenter | Page Number | Paragraph Number | Referenced Text | Comment/Rationale or Question | Proposed Resolution | Comment Type (Conceptual, Editorial, or Format) | Disposition |
|----|-----------|-------------|------------------|---|---|---|---|---|
| 83 | AIRBUS | 14 | 11.2.2 | "Data Security. Your data processing procedures must define the means of confirming data you receive is not corrupted, your means to protect stored data from corruption, and what methods you provide the user to verify the data they receive from you is not corrupted." | Security is an end-to-end concept. A LOA type 2 applicant (e.g., database supplier) cannot control the security measures put in place by the different users (OEM, avionics manufacturers, operators). The LOA Type 2 applicant can provide the user with methods to verify that the data is not corrupted, but such verification will be carried out by the user only if required by an airworthiness regulation or an aircraft certification basis or an operational regulation applicable to the user. Indeed, on many legacy aircraft, there are no security measures (e.g. on-board databases/FLS digital signature checker) because security considerations were not part of the initial aircraft certification basis. Therefore, it is proposed to limit such requirement only to OEM and/or end-users (operators) for which an applicable airworthiness regulation or an applicable certification basis or an operational regulation require security protection. | Replace the text with: "Data Security. Your data processing procedures must define the means of confirming data you receive is not corrupted, your means to protect stored data from corruption, and what methods you provide the user to verify the data they receive from you is not corrupted <u>when required by an applicable regulation or an applicable aircraft certification basis.</u> " | conceptual | Not Accepted. These data security requirements were asked for by FAA/EASA and implemented at the component level in this standard. This is now a requirement going forward and a key difference from DO-200A. |
| 84 | AIRBUS | 12 | §10.2.6 | "You must provide a release statement..." | The signature of the release statement should be performed by a person taking responsibility for this statement. | Replace the text with: "The release statement must include: 4- A signature by a database production responsible." | Conceptual | Not Accepted. This would be an onerous and redundant requirement when there are already approved plans and procedures under the quality system which are approved by the appropriate personnel. |
| 85 | AIRBUS | 16 | 12.1 | "Many aircraft and avionics manufacturers obtained approval for systems prior to the issuance of this AC and may not have previously identified its DQRs. For such systems, the data supplier must identify the DQRs demonstrated as consistent with the intended function of the avionics (e.g., using system verification tests, sampling checks, etc.) prior to obtaining a Type 2 LOA." | The given examples "(e.g., using system verification tests, sampling checks, etc.)" are only based on tests and therefore are too much restrictive. Recent certification has shown that design review has been an acceptable means for FAA to demonstrate consistency of the DQR with the intended function. | Replace the text with: "[...] For such systems, the data supplier must identify the DQRs demonstrated as consistent with the intended function of the avionics (e.g., using <u>database design review, peer review</u> , system verification tests, sampling checks, etc.) prior to obtaining a Type 2 LOA." | Conceptual | Not Accepted. In-service problems have indicated it is imperative to do this sort of verification by application vice a design review. |

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AC 20-153B "Acceptance of Aeronautical Data Processes and Associated Databases"

| # | Commenter | Page Number | Paragraph Number | Referenced Text | Comment/Rationale or Question | Proposed Resolution | Comment Type (Conceptual, Editorial, or Format) | Disposition |
|----|-----------|-------------|------------------|--|---|---|---|--|
| 86 | AIRBUS | 16 | §12.1 | "Typically, the data format accuracy and resolution are in the original RTCA/DO-178C..." | Need for clarification | Replace the text with: "Typically, the high level data requirements are defined in the equipment software requirements, part of DO178C documentation. These data requirements are refined in RTCA/DO-201A, RTCA/DO-272D or RTCA/DO-276C (for example accuracy, resolution)" | Editorial | Partially Accepted. Changed last sentence to read "Typically, you find definition of the data format, accuracy, and resolution in the high-level data requirements in the original equipment software documentation when using RTCA/DO-178C, or previous versions. These data requirements are refined in RTCA/DO-201A, RTCA/DO-272D, or RTCA/DO-276C with the corresponding assurance level integrity requirements assigned." |
| 87 | AIRBUS | 16 | 12.2 | "For terrain and obstacle data, RTCA/DO-276C, section 3 defines a minimum set of DQRs used for terrain awareness and warning systems. [...] For airport data, RTCA DO-272D sections 2 and 3 define a minimum set of DQRs used for airport map displays." | AC 20-153B prescribes a specific issue of DO-276 and DO-272. The wording should allow flexibility to use previous versions of those documents or other guidance materials or other specifications in accordance with the applicable aircraft certification basis. Indeed, recent certification (e.g. A350) has shown a certification basis (CRIs and/or IPs) or certification documents showing compliance with the certification basis, referring materials different from RTCA/DO-276C . AC20-153B cannot override an aircraft certification basis which has been frozen at TC. | replace the text with: "For terrain and obstacle data, RTCA/DO-276C, section 3 may be used as a minimum set of DQRs, for terrain awareness and warning systems. [...] For airport data, RTCA DO-272D sections 2 and 3 may be used as a minimum set of DQRs for airport map displays." | Conceptual | Accepted. |
| 88 | AIRBUS | 13 | 11.2.1.1 | "Likewise, for data published in the AIP, provided via an official government source (as recognized by the FAA), or an authoritative source (as recognized by the FAA), the responsibility to validate the incoming data meets the DQRs is discharged (we refer to these types of suppliers / publications as authoritative source)" | Definition of authoritative source should be given. More particularly, ARINC or SITA Data Service Providers (DSP) should be confirmed by FAA as authoritative sources. Indeed, databases used for ACARS messages routing (list of VHF frequencies, ...) rely on reliable services used daily by many aircraft. FAA has accepted ARINC and SITA DSPs as authoritative sources in the frame of the A350 TC. | Authoritative sources to be listed or examples of authoritative sources to be provided (e.g. ARINC and SITA DSPs) | Editorial | Not Accepted. This is an airworthiness AC and the recognition of authoritative source will have to come from the data provider side of the FAA and other regulators. |

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AC 20-153B "Acceptance of Aeronautical Data Processes and Associated Databases"

| # | Commenter | Page Number | Paragraph Number | Referenced Text | Comment/Rationale or Question | Proposed Resolution | Comment Type (Conceptual, Editorial, or Format) | Disposition |
|----|-----------|-------------|------------------|---|--|---------------------|---|--|
| 89 | AIRBUS | NA | NA | General | This new version of the AC is easier to read thanks to more references to DO-200B instead of duplication of DO-200B content. | NA | NA | Accepted. Thank you. |
| 90 | GE | 3 | Section 4 | "...or new airworthiness approval applications..." | need clarification what this means. Does this mean an aircraft our FMS has never been on before? Or is it just applicable to non-LOA holders (reference 9.3)? | TBD | Conceptual | Not Accepted. An airworthiness approval is an installation approval or a TSO approval for an airworthy article. Adding new systems to an existing LOA may necessitate the use of the alternative means depending on whether or not it is a major change. |
| 91 | GE | 4 | Section 5 | whole paragraph | We would propose to explicitly call out applications or data types that are supported by this AC. There should also be a statement to consult with the FAA if a desired data type is not listed. The AC can then be updated if necessary, or folks can proceed with FAA approval. We get requests to be compliant with Performance Data and MagVar and would like stronger language to state that DO-200 does not apply. | (see comment) | Conceptual | Not Accepted. Not sure why airborne systems databases (i.e., performance, Mag Var) would confuse. These are approved as part of type design and should not be confused with aeronautical databases. We are pretty generous with the "other databases" category for new and novel applications. Additionally, last sentence of paragraph 2 reads "This AC does not apply to software programming pins (for option selectable software), configuration files, aircraft personality modules, registries, or other lookup tables used by airborne systems and equipment to adapt equipment to the aircraft (i.e., airborne system databases)." |
| 92 | GE | 7 | Section 9.1.2.2 | "Regardless, identity requires formal documentation (e.g., agreement to DQRs by all participants, licensing agreement, etc.). When under license or using design equivalence, the design approval holder remains responsible for demonstrating (e.g., using system verification tests, sampling checks, etc.) the DQRs are consistent with the intended function of the equipment (see paragraph 12 of this AC)." | What is meant by "formal documentation"? Our DQRs are derived from Aircraft level requirements / SCDs from OEMs (Boeing, Airbus, Lockheed, etc.) | TBD | Conceptual | Accepted. Changed documentation to agreement. |

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| # | Commenter | Page Number | Paragraph Number | Referenced Text | Comment/Rationale or Question | Proposed Resolution | Comment Type (Conceptual, Editorial, or Format) | Disposition |
|----|-----------|-------------|------------------|--|---|---------------------|---|---|
| 93 | GE | 10 | Section 10.1.2 | "For a Type 2 LOA, the application must identify the compatible systems (make, model, series, and part number (hardware and software))." | remove the parenthetical. Comment about 10.1.4.3 will address the compatibility requirement. | | Editorial | Partially Accepted. Changed to "part/model numbers (hardware, software, and database)" for consistency. |
| 94 | GE | 10 | 10.1.4 | "For a Type 2 LOA, you must include substantiation of the DQRs, demonstrating the aeronautical data will support the intended function of the installed equipment and are part of the airworthiness approval documentation." | What is meant by substantiation? How do we demonstrate? Isn't it the opposite? Wouldn't the approval of the intended function substantiate the DQRs? | TBD | Conceptual | Not Accepted. This is legacy language. Substantiation is related to you, the applicant, demonstrating through system verification that the DQRs are consistent with and support the intended function of the associated equipment. |
| 95 | GE | 10 | 10.1.4.3 | "you must include a list of systems for which you will ensure compatibility with intended use including make, model, series, and part numbers (hardware, software, and database)" | don't call out make, model, series and part number, as not all systems have such attributes. Additionally, it might be a pure SW->SW interface, so we'd recommend simply saying "...including unique identifying information" | (see comment) | Conceptual | Partially Accepted. Previously corrected in a comment. |
| 96 | GE | 10 | 10.1.4.3 | "by demonstrating the DQRs are consistent..." | same comment as above | (see comment) | Conceptual | Not Accepted. See above. |
| 97 | GE | 12 | 10.2.6 | whole section | why is this section necessary if 10.2.8 exists? | TBD | Conceptual | Not Accepted. A change in LOA status is a communication requirement that does not necessarily coincide with a distribution of data. It may need to be immediate. A release statement is a communication that comes with a data distribution and not only conveys the current status, but communications any deviations and alterations in the distribution. |
| 98 | GE | A3-2 | | | 1-14, 1-15, and 1-16 are more details versions of 1-13. Suggest removing 1-13. | (see comment) | Editorial | Not Accepted. The objectives matrix captures all the requirements from the AC to meet compliance, of which these are necessary. |
| 99 | GE | A3-6 | 3-14 | | who does this objective apply to? Is "target hardware" applicable here? | (see comment) | Conceptual | Partially Accepted. Changed sentence to read "...if database assurance is required (i.e., database has a safety effect)..." to clarify. These objectives are fulfilled by the applicant. In this case, the target hardware is for the ICA. This is merely stating that for aeronautical databases, the data must meet the DQRs. |

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|-----|--------------------|-------------|-------------------------|---|---|---|---|--|
| 100 | Airbus Helicopters | 9 | 9.3.1. | <i>"There are three types of installed databases: (1) aeronautical databases, (2) airborne system databases, and (3) other databases, which are not part of the type design of the aircraft (e.g., Electronic Flight Bag (EFB) Type A and B, Electronic Checklist (ECL), user modifiable, etc.)."</i> | This classification might be misleading, especially the concept of "other databases" might lead to various interpretations. For example, "Tailored data" as discussed in § 11.3 are typically aeronautical databases (class 1), although they are not part of the aircraft type design (therefore, they could be considered as class 3). | Suggestion is: - either restrict the class 3 to data used by non-installed equipment (EFBs), - or remove this concept of classes and simply define the concept of aeronautical database (e.g. use the definition of "Aeronautical data" from ICAO Annex 15) | Editorial | Partially Accepted. This is language straight out of FAA Order 8110.49. Changed the second sentence to read "This AC provides guidance related only to "aeronautical databases"..." clarify. |
| 101 | Airbus Helicopters | 9 | 9.3.1. | <i>"This AC [...] highlights your responsibility for showing compliance to all applicable 14 CFR part 23/25/27/29 sections for installed aeronautical databases."</i> | The applicable 14 CFR part 23/27/25/29 sections are not listed. | Insert applicable regulations, e.g. for airworthiness regulations: 2X.1301, 2X.1309, 2X.1529, 2X.1581 and possibly 2X.1322 (by reference to caution display in case of database validity expiration). | Editorial | Not Accepted. These edits are not necessary and do not conform to acceptable format. |
| 102 | Airbus Helicopters | 14 | 11.2.2 | <i>"Your data processing procedures must define the means of confirming data you receive is not corrupted"</i> | The responsibility of ensuring that the data is not corrupted should be allocated at each step to the producer of the data, not to the user. This is in line with the principles set-up in ICAO Annex 15, § 3.3.3.2: <i>"The integrity of aeronautical data shall be maintained throughout the data process from survey/origin to distribution to the next intended user"</i> | Suggestion to clarify the first part of the sentence is: <i>"Your data processing procedures must include the performance of integrity checks developed by the sender to confirm the lack of data corruption during transfer"</i> | Conceptual | Not Accepted. The actual responsibility for "receiving" without corruption is placed on the "receiver" of the data. The determination of corruption is not distributed or allocated along the data chain. |
| 103 | Airbus Helicopters | 15 | 11.2.3.2 (vs. 11.2.1.2) | 11.2.1.2: <i>"you must employ partitioning and protection to ensure the higher DPAL data set utilizes the higher rigor".</i> 11.2.3.2: <i>"If you deliver non-compliant data with RTCA/DO-200B compliant data, then the agreed-upon DQRs should identify this data as assurance Level 4"</i> | Shall one conclude from these two paragraphs that level 4 data and DPAL 3 data should be partitioned? If yes, it would be a design constraint not justified by a safety consideration (both data classes should be employed as 'no safety effect'). | Suggestion is to add in §11.2.3.2: <i>"There is no need to ensure physical partitioning between DPAL 3 and DPAL 4 data without safety effect".</i> | Conceptual | Not Accepted. Suggestion is too prescriptive. There may be other means acceptable to ensure routine and non-compliant data can be used, and simply stating that physical partitioning may or may not be needed may not be an absolute. |
| 104 | Airbus Helicopters | 16 | 12.3. | <i>"The system certification documentation defines [...]"</i> | The wording "system certification documentation" indicates that a system may receive an FAA certificate. Currently FAA does NOT issue such certificates. | Change the wording from "system certification documentation" to "system [installation] compliance demonstration documentation" | Conceptual | Partially accepted. Changed to "The system compliance and installation documentation defines..." |

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AC 20-153B "Acceptance of Aeronautical Data Processes and Associated Databases"

| # | Commenter | Page Number | Paragraph Number | Referenced Text | Comment/Rationale or Question | Proposed Resolution | Comment Type (Conceptual, Editorial, or Format) | Disposition |
|-----|--------------------|-------------|------------------|---|---|--|---|--|
| 105 | Airbus Helicopters | 17 | 12.4.2. | <i>"The aircraft manufacturer, avionics manufacturer or systems integrator must evaluate changes to the DQRs to determine whether they have a major, minor, or no effect on the system's intended function. The LOA holder must demonstrate its processes ensure this evaluation occurs."</i> | <p>Whether DQRs are chosen by the database producer (according to standards applicable for each type of data) or specified by the aircraft / avionics manufacturer (based on the criticality of the intended function), they have to be traceable to system functional requirements and it is the responsibility of the aircraft / avionics manufacturer or systems integrator to ensure the consistency (see section 12.1).</p> <p>It is unclear how the process of the LOA holder can ensure that the impact of changes in the DQRs are assessed by the aircraft / avionics manufacturer or systems integrator.</p> <p>Moreover, the wording "<i>major, minor, or no effect on the system's intended function</i>" is misleading.</p> | <p>Suggestion is to replace the quoted sentences by the following:</p> <p><i>"The LOA holder must demonstrate its processes ensure that DQRs and changes thereof are communicated to the users. The aircraft manufacturer, avionics manufacturer or systems integrator must evaluate changes to the DQR to determine whether they are still consistent with the system's intended function."</i></p> | Conceptual | Partially Accepted. Deleted last sentence and amended requirement in objectives. |
| 106 | Boeing | 1 | 1.1 | "1.1 This AC describes an acceptable means, but not the only means, for showing compliance with the applicable airworthiness regulations for equipment with an installed aeronautical database. This AC is not mandatory and is not a regulation. However, if you use the means described herein, you must follow it in all respects. The term "must" indicates mandatory requirements when following the guidance in this AC. The terms "should" and "recommend" indicate recommended guidance, but are not required for meeting the objectives of this AC. The term "objectives" identifies requirements when used in this AC." | We suggest including a note to this section in order to acknowledge and recognize current policy which allows some technologies that now require an LOA for data with no corresponding requirement levied on the hosting software (e.g. Type B AMM functions). Hence, no design / production / airworthiness approval would always be expected. | "1.1 This AC describes an acceptable means, but not the only means, for showing compliance with the applicable airworthiness regulations for equipment with an installed aeronautical database. This AC is not mandatory and is not a regulation. However, if you use the means described herein, you must follow it in all respects. The term "must" indicates mandatory requirements when following the guidance in this AC. The terms "should" and "recommend" indicate recommended guidance, but are not required for meeting the objectives of this AC. The term "objectives" identifies requirements when used in this AC. Note: As allowed by recent policy changes, some technologies now require a Letter of Acceptance (LOA) for data with no corresponding requirement levied on the hosting software (e.g. Type B AMM functions). In these contexts, no design/production/airworthiness approval would be expected." | Editorial | Not Accepted. This is an AC for installed systems. The fact that portable systems may use database integrity is outside our scope. Additionally, AC 20-159 has been cancelled. |

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| # | Commenter | Page Number | Paragraph Number | Referenced Text | Comment/Rationale or Question | Proposed Resolution | Comment Type (Conceptual, Editorial, or Format) | Disposition |
|-----|-----------|-------------|------------------|--|--|--|---|---|
| 107 | Boeing | 2 | 3.1 | <p>"3.1 This AC provides a means for organizations to obtain FAA acceptance of their aeronautical data processes demonstrating compliance with RTCA/DO-200B. An LOA issued by the FAA or database acceptance as part of the equipment design approval under TSOA, TC, or STC substantiates the terms and conditions, and meets the objectives of this AC. RTCA/DO-200A is no longer valid for new applications for LOA or new airworthiness approval applications made after the publication date of this AC."</p> | <p>We believe adding the words "as applicable" will provide consistency to current policies where no design/production/airworthiness approval would always be expected. Refer to comment #1. The highlighted statement does not seem to be harmonized with EASA. DO-200A will still be an Accepted Means of Compliance (AMC) in the new EASA DAT-Provider Regulation.</p> <p>For example: "GMI ATM/ANS.OR.A.035 Demonstration of compliance GENERAL – DAT PROVIDERS In order to demonstrate compliance with the applicable requirements, the DAT provider should produce a compliance matrix/checklist detailing how its data production processes relate to EUROCAE ED-76A/RTCA DO-200B 'Standards for Processing Aeronautical Data', dated June 2015. EUROCAE ED-76/RTCA DO-200A might be considered also for the demonstration of compliance." In addition, we noted that this proposed AC contains a note on page 14, paragraph 11.2.1.1 that states: "...The FAA recognizes approvals by the CAA through bi-lateral agreement or EASA LOA / Data Supplier Certificate (EASA LOAs / Data Services Provider Certificates demonstrating RTCA/DO-200A / RTCA/DO-200B (or EUROCAE ED-76 / EUROCAE ED-76A) are acceptable). The approval by the CAA may be acceptable and should be equivalent to the FAA acceptance defined in this AC."</p> | <p>"3.1 This AC provides a means for organizations to obtain FAA acceptance of their aeronautical data processes demonstrating compliance with RTCA/DO-200B. An LOA issued by the FAA or database acceptance as part of the equipment design approval under TSOA, TC, or STC (as applicable) substantiates the terms and conditions, and meets the objectives of this AC. RTCA/DO-200A is no longer valid for new applications for LOA or new airworthiness approval applications made after the publication date of this AC."</p> | Editorial | Previously Accepted. |
| 108 | Boeing | 5 | 8.2 | <p>"...It is important to emphasize the database integrity requirement for navigation data is typically driven by the operation (e.g., RNAV and RNP) while for other types of databases (e.g., airport, terrain, and obstacle), the database integrity is determined at the time of airworthiness approval (e.g., per a performance standard or user requirements)."</p> | <p>Our addition is intended to be consistent with comment #1.</p> <p>We recommend revising the text (see Proposed Resolution).</p> | <p>"...It is important to emphasize the database integrity requirement for navigation data is typically driven by the operation (e.g., RNAV and RNP) while for other types of databases (e.g., airport, terrain, and obstacle), the database integrity is determined at the time of airworthiness or operational authorization (as applicable) approval (e.g., per a performance standard or user requirements)."</p> | Format | Not Accepted. See previous comment disposition (Boeing comment #1). |

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AC 20-153B "Acceptance of Aeronautical Data Processes and Associated Databases"

| # | Commenter | Page Number | Paragraph Number | Referenced Text | Comment/Rationale or Question | Proposed Resolution | Comment Type (Conceptual, Editorial, or Format) | Disposition |
|-----|-----------|-------------|------------------|---|---|---|---|---|
| 109 | Boeing | 5 | 8.3 | <p>“8.3 The objective of the database LOA is to provide evidence your aeronautical data processes meet the objectives of this AC, and in the case of a Type 2 LOA (see paragraph 9.1.2), it also provides installation eligibility privileges with the associated installation approval. Further, the LOA affords users an assurance of integrity based on increasing levels of process rigor. With the database LOA, we evaluate the data quality requirements and data processes used by you, rather than treating a database as a part approval, or having you verify the vast amount of data in a database. Verification of robust data processes allows updates to the data on aircraft without having to go through the change approval process.”</p> | <p>Our addition is intended to be consistent with comment #1. We recommend revising the text (see Proposed Resolution).</p> | <p>“8.3 The objective of the database LOA is to provide evidence your aeronautical data processes meet the objectives of this AC, and in the case of a Type 2 LOA (see paragraph 9.1.2), it also provides installation eligibility privileges with the associated installation approval (as applicable). Further, the LOA affords users an assurance of integrity based on increasing levels of process rigor. With the database LOA, we evaluate the data quality requirements and data processes used by you, rather than treating a database as a part approval, or having you verify the vast amount of data in a database. Verification of robust data processes allows updates to the data on aircraft without having to go through the change approval process.”</p> | Format | <p>Not Accepted. See previous comment disposition (Boeing comment #1).</p> |
| 110 | Boeing | 5 | 9 | <p>“9 FAA ACCEPTANCE OF AERONAUTICAL DATABASES. There are three separate ways to gain FAA acceptance of your aeronautical database associated with a TSO, TC, STC, or LOA project utilizing this AC (See Figure 2):”</p> | <p>We believe our addition will add clarifications regarding airport moving map. The proposed language does not reflect LOA for airport moving map when deployed as a Type B, “non-airworthiness” function.</p> | <p>“9 FAA ACCEPTANCE OF AERONAUTICAL DATABASES. Note: As allowed by recent policy changes, some technologies now require LOA for data with no corresponding requirement levied on the hosting software (e.g. Type B AMM functions). In these contexts, no design/production/airworthiness approval would be expected. There are three separate ways to gain FAA acceptance of your aeronautical database associated with a TSO, TC, STC, or LOA project utilizing this AC (See Figure 2):”</p> | Editorial | <p>Not Accepted. See previous comment disposition (Boeing comment #1).</p> |

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| # | Commenter | Page Number | Paragraph Number | Referenced Text | Comment/Rationale or Question | Proposed Resolution | Comment Type (Conceptual, Editorial, or Format) | Disposition |
|-----|-----------|-------------|------------------|--|--|--|---|---|
| 111 | Boeing | 10 | 10.1.4 | <p>"10.1.4 Data package. The application data package must include authorized versions of all of the plans and procedures for the processing of aeronautical data and quality management requirements. For a Type 2 LOA, you must include substantiation of the DQRs, demonstrating the aeronautical data will support the intended function of the installed equipment and are part of the airworthiness approval documentation. The complexity of the data package will vary depending upon the critical nature of the data as it relates to the product in which it will be loaded. The data package must include, but is not limited to, the following:"</p> | <p>Our addition is intended to be consistent with comment #1. We recommend revising the text (see Proposed Resolution).</p> | <p>"10.1.4 Data package. The application data package must include authorized versions of all of the plans and procedures for the processing of aeronautical data and quality management requirements. For a Type 2 LOA, you must include substantiation of the DQRs, demonstrating the aeronautical data will support the intended function of the installed equipment and are part of the airworthiness approval documentation (if required). The complexity of the data package will vary depending upon the critical nature of the data as it relates to the product in which it will be loaded. The data package must include, but is not limited to, the following:"</p> | Format | Not Accepted. See previous comment disposition (Boeing comment #1). |
| 112 | Boeing | 13 | 11.2 | <p>The "Tool Qualification" text that currently exists in revision A of this AC was deleted from the draft version.</p> | <p>Roles (Tool User / Tool Developer), activities, and artifacts described by DO330 for the qualification of COTS are not familiar in the database production domain. TQLs 3 and 4 present a challenge when a COTS developer is asked for supporting development artifacts and may present issues with proprietary information. Certification packages that are available to support tool qualification in the airborne domain are typically not available to COTS used in data production due to various tool types and implementations used.</p> | <p>We suggest to include the text that is in AC 20-153A, paragraph 16, or a similar text describing the need to comply with DO200B Section 2.4.5 and Appendix D for guidance on how to perform Tool Qualification using DO330. In addition, we suggest to add a statement regarding how qualification of COTS in the database production domain may require alternate means.</p> | Editorial | Previously Accepted. See comment #35. |
| 113 | Boeing | 13 | 11.2.1.1 | <p>"11.2.1.1 You may receive data from any data supplier in the aeronautical data chain. If a data supplier has complied with the requirements of RTCA/DO-200B, evidenced by FAA LOA, the responsibility to validate the incoming data meets the DQRs is discharged (reference RTCA/DO-200B, section 1.5 and 2.3.3 (3))...."</p> | <p>We believe it will provide clarity.</p> | <p>We suggest to reconsider the highlighted statement and take into account data suppliers that are still on an existing LOA and, therefore, do not comply with the requirements of RTCA/DO-200B but solely DO-200A.</p> | Editorial | Accepted. |

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|-----|-----------|-------------|------------------|---|--|--|---|---|
| 114 | Boeing | 13 | 11.2.1.1 | <p>"11.2.1.1 You may receive data from any data supplier in the aeronautical data chain. If a data supplier has complied with the requirements of RTCA/DO-200B, evidenced by FAA LOA, the responsibility to validate the incoming data meets the DQRs is discharged (reference RTCA/DO-200B, section 1.5 and 2.3.3 (3)). Likewise, for data published in the AIP, provided via an official government source (as recognized by the FAA), or an authoritative source (as recognized by the FAA), the responsibility to validate the incoming data meets the DQRs is discharged (we refer to these types of suppliers / publications as authoritative source)..."</p> | <p>In order to avoid confusion and misinterpretation, we suggest adding specific "source" definitions and examples. It is not clear what the differences are between "data published in the AIP, provided via an official government source" and "authoritative source." In addition, we could not find the definition of "Authoritative source" within the document. We recommend to include a definition of "Non-authoritative source," and a note as to how the reader will determine if the source has been recognized by the FAA.</p> | <p>We ask the FAA to add specific definitions to what data published in the AIP provided via an official government source is, what an authoritative source is, what a non-authoritative source is, and what is recognized by the FAA.</p> <p>In addition we ask the FAA to provide a list or reference to a list of data suppliers and government and authoritative sources that have complied with RTCA/DO-200B.</p> | Editorial | <p>Partially Accepted. Inserted "(reference RTCA/DO-200B, appendix A)" for definition.</p> |
| 115 | Boeing | 14 | 11.2.1.3 | <p>"11.2.1.3 Acceptable techniques for the verification and validation of airport map data are in RTCA/DO-272D, section 3.10."</p> | <p>We believe our suggestion to include a reference for Type B functions for specification will add clarity.</p> | <p>"11.2.1.3 Acceptable techniques for the verification and validation of airport map data are in RTCA/DO-272D, section 3.10, and for Type B functions, reference Type B Electronic Flight Bag (EFB) Software Application(s) Displaying Own-ship Position Limited to Airport Moving Map for Surface Operations: Aircraft Operator Checklist and FAA Principal Inspector (PI) Job Aid available within the Flight Standards Information Management System (FSIMS)."</p> | Editorial | <p>Not Accepted. This AC is for installed systems. EFB policy for Type B Applications is beyond scope.</p> |

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| # | Commenter | Page Number | Paragraph Number | Referenced Text | Comment/Rationale or Question | Proposed Resolution | Comment Type (Conceptual, Editorial, or Format) | Disposition |
|-----|-----------|-------------|------------------|---|---|--|---|---|
| 116 | Boeing | 15 | 11.3 | "11.3 Tailored data. Tailored data is aeronautical data originated by an operator / end-user under their sole responsibility and for their exclusive use. The accountability for this data, and its subsequent update, remains solely with the operator / end-user. There are currently no established data requirements for tailored data. Therefore, a data supplier must not distribute tailored data to entities other than the operator / end-user requesting the data." | In order to ensure that the tailored data meets the intended purpose of the end user, we suggest including the additional text to clarify that the burden of accountability lies on the originator of that data and not the data supplier. | "11.3 Tailored data. Tailored data is aeronautical data originated by an operator / end-user under their sole responsibility and for their exclusive use, and thus can be considered an authoritative source. The accountability for this data, and its subsequent update, remains solely with the operator / end-user and thus verification, validation, and corruption detection requirements are applicable to the data originator and not the data supplier. There are currently no established data requirements for tailored data. Therefore, a data supplier must not distribute tailored data to entities other than the operator / end-user requesting the data." | Format | Partially Accepted. Tailored data from an operator / end-user is not authoritative source. |
| 117 | Boeing | 15 | 12 | "12 WHAT IS THE RELATIONSHIP BETWEEN RTCA/DO-200B AND AIRWORTHINESS APPROVAL?" | We suggest to add an additional note for text clarification. | "12 WHAT IS THE RELATIONSHIP BETWEEN RTCA/DO-200B AND AIRWORTHINESS APPROVAL? Note: Not all deployment-environment framework is required to be assessed as part of airworthiness approval. For example, Type B functions that may still require data-LOA." | Format | Not Accepted. This AC is for installed systems. EFB policy for Type B Applications is beyond scope. |
| 118 | Boeing | 16 | 12.1 | "...Typically, the data format accuracy and resolution are in the original RTCA/DO-178C, or previous versions, documentation and the corresponding assurance level integrity requirements specified in RTCA/DO-201A, RTCA/DO-272D, or RTCA/DO-276C." | Data format accuracy and resolution are not specified by RTCA/DO-178, although it is acknowledged that DO-178 does establish expectations regarding format accuracy and resolution of the DQRs. We suggest rewording the text for clarification purposes. | "...Typically, the data format DQR accuracy and resolution are established in general terms within the original RTCA/DO 178C, or previous versions., documentation and Aeronautical data format accuracy and resolution is established in the corresponding assurance level integrity requirements specified in RTCA/DO-201A, RTCA/DO-272D, or RTCA/DO-276C." | Format | Previously Accepted. |

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|-----|-----------|-------------|------------------|--|--|---|---|---|
| 119 | Boeing | 16 | 12.3 | "12.3 Intended Function. The DQRs must be consistent with the intended function of the equipment identified as part of the normal design approval. One or more of the data characteristics can affect the equipment. The system certification documentation defines the system functions and any dependencies on the data (i.e., DQRs)..." | We suggest adding the above text for further clarification. | "12.3 Intended Function. The DQRs must be consistent with the intended function of the equipment identified as part of the normal design approval, as applicable. One or more of the data characteristics can affect the equipment. The system certification documentation defines the system functions and any dependencies on the data (i.e., DQRs)..." | Format | Not Accepted. This AC is for installed systems. EFB policy for Type B Applications is beyond scope. |
| 120 | Boeing | ALL | ALL | No specific text. | Additional information and clarification. | We suggest including an acronym description list on an additional page at the end of the document. | Format | Not Accepted. All acronyms are initially spelled out per agency format. |
| 121 | Boeing | ALL | ALL | No specific text. | Airport Mapping Data and Aerodrome Mapping are specific and more accepted terms. | We suggest using the terms Airport Mapping Data or Aerodrome Mapping Data where appropriate. | Format | Accepted. Standardized to "airport mapping" generally. |