European Union Aviation Safety Agency

Notice of Proposed Amendment 2021-03

in accordance with Articles 6(3), 7 and 8 (Standard procedure: public consultation) of MB Decision No 18-2015

Regular update of the Certification Specifications for Simulator Data — CS-SIMD

RMT.0688

EXECUTIVE SUMMARY

The objective of this Notice of Proposed Amendment (NPA) is to provide stakeholders with additional guidance on the processes, procedures, and requirements related to operational suitability data (OSD) for simulator data. The guidance is based on best practice and experience gained since the initial issue of the Certification Specifications and Guidance Material for Simulator Data (CS-SIMD) in 2014. The scope of the NPA was extended to include flight simulation training devices (FSTDs) for which a qualification standard is not laid down in Regulation (EU) No 748/2012 (the 'Initial Airworthiness Regulation'). Such a standard needs be defined in special conditions.

To this end, this NPA proposes to:

— extend the applicability of CS-SIMD to categories of aircraft other than aeroplanes and helicopters;

— provide further guidance on the interaction between the data provider and the European Union Aviation Safety Agency (EASA), their responsibilities and tasks;

— describe the different steps of the process and flow of data from data gathering by the data provider until the determination of the validation data as finally used in the master qualification test guide (MQTG);

— clarify the means for substantiating the scope of validation source data (VSD);

— create diagrams to visualise the various validation data road map (VDR) approval processes, including cases where interim qualification steps are necessary; and

— clarify the terminology and provide additional guidance on its use.

The proposed amendments are expected to facilitate the applicants' compliance with the OSD requirements for simulator data (SIMD) and improve efficiency by rendering the process of evaluating applications for OSD certification more comprehensible. Overall, the proposed amendments are expected to have a moderate safety benefit and no social or environmental impacts.

Action area:	Regular updates (Design and production)
Related rules:	CS-SIMD, Regulation (EU) No 748/2012
Affected stakeholders:	— Applicants for aircraft type certificates (TCs) for which qualified full flight simulators (FFSs) for aeroplanes, helicopters or other categories of aircraft, as well as flight training devices (FTDs) for helicopters, are used in the pilot type-rating training; and
	— applicants that deal with changes to an already approved definition of the scope of VSD.
Driver: Efficiency/proportionality	**Rulemaking group:** No
Impact assessment: No	**Rulemaking Procedure:** Standard

● EASA rulemaking process milestones

Start Terms of Reference	**Consultation** Notice of Proposed Amendment	**Decision** Certification Specifications, Acceptable Means of Compliance, Guidance Material
1	2 Today	3
16.10.2019	2.3.2021	2022/Q1

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1. About this NPA

1.1. How this NPA was developed

The European Union Aviation Safety Agency (EASA) developed this NPA in line with Regulation (EU) 2018/1139[1] (the 'Basic Regulation') and the Rulemaking Procedure[2]. This rulemaking activity is included in the European Plan for Aviation Safety (EPAS) 2021-2025 under Rulemaking Task (RMT).0688. The text of this NPA has been developed by EASA. It is hereby submitted to all interested parties for consultation[3].

1.2. How to comment on this NPA

Please submit your comments using the automated **Comment-Response Tool (CRT)** available at **http://hub.easa.europa.eu/crt/**[4].

The deadline for the submission of comments is **6 April 2021**.

1.3. The next steps

Following the closing of the public commenting period, EASA will review all the comments received. Based on the review of the comments, EASA will issue a decision amending the Certification Specifications and Guidance Material for Simulator Data (CS-SIMD).

The comments received on this NPA and the EASA responses to them will be reflected in a comment-response document (CRD). The CRD will be published on the EASA website[5].

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[1] Regulation (EU) 2018/1139 of the European Parliament and of the Council of 4 July 2018 on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency, and amending Regulations (EC) No 2111/2005, (EC) No 1008/2008, (EU) No 996/2010, (EU) No 376/2014 and Directives 2014/30/EU and 2014/53/EU of the European Parliament and of the Council, and repealing Regulations (EC) No 552/2004 and (EC) No 216/2008 of the European Parliament and of the Council and Council Regulation (EEC) No 3922/91 (OJ L 212, 22.8.2018, p. 1) (https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1535612134845&uri=CELEX:32018R1139).

[2] EASA is bound to follow a structured rulemaking process as required by Article 115(1) of Regulation (EU) 2018/1139. Such a process has been adopted by the EASA Management Board (MB) and is referred to as the 'Rulemaking Procedure'. See MB Decision No 18-2015 of 15 December 2015 replacing Decision 01/2012 concerning the procedure to be applied by EASA for the issuing of opinions, certification specifications and guidance material (http://www.easa.europa.eu/the-agency/management-board/decisions/easa-mb-decision-18-2015-rulemaking-procedure).

[3] In accordance with Article 115 of Regulation (EU) 2018/1139, and Articles 6(3) and 7 of the Rulemaking Procedure.

[4] In case of technical problems, please contact the CRT webmaster (crt@easa.europa.eu).

[5] https://www.easa.europa.eu/document-library/comment-response-documents

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2. In summary — why and what

2.1. Why we need to change the rules — issue/rationale

The aviation industry is complex and rapidly evolving. Since the first issue of CS-SIMD in December 2014, EASA has gained valuable experience in its implementation. Among the items proposed to be included in this regular update, EASA identified those falling within the scope of this RMT, while verifying that they reflect best practice.

The current CS-SIMD is only applicable to either fixed-wing aeroplanes or helicopters. This excludes, for instance, tilt rotor aircraft. To cover all types of aircraft, the applicability of CS-SIMD is proposed to be extended to 'other categories of aircraft FFSs and FTDs'.

To provide further guidance on the interaction between the data provider (type certificate (TC) applicant/holder) and EASA for determining the outcome of the operational suitability data (OSD) SIMD process, this NPA details the different processes for the approval of the validation data road map (VDR), and thereby identifies the contributors to the approval.

The proposed CS-SIMD Issue 2 contains information and diagrams to clarify the responsibilities and tasks of the data provider and EASA and better describe the interaction between them. The new diagrams point directly to the related guidance material (GM) for further details. Furthermore, a diagram is created to visualise the different steps and flow of data from data gathering by the data provider until the determination of the final validation data (VD), as finally used in the master qualification test guide (MQTG) to validate the correct simulation of the aircraft.

This NPA identifies:

— the data provider who is responsible for gathering and selecting suitable data and for providing the link to the data source;

— the flight simulation training device (FSTD) manufacturer who uses this data to build and validate the simulation models; and

— the FSTD operator who uses this data within the MQTG to demonstrate that the performance and handling qualities of an FSTD are within the prescribed limits.

Additionally, the different steps for substantiating the scope of validation source data (VSD) are described and clarified herein for further guidance.

Two diagrams are created to illustrate the entire system for establishing a VDR, as well as to clarify the VDR approval process and the FSTD qualification process. Moreover, the first diagram identifies the roles of the data provider (TC applicant/holder) and the FSTD operator (the applicant for the FSTD qualification).

The process above includes EASA's:

— technical verification of the data provider's processes;

— assessment of the VDR; and

— final validation of the VDR and of the data that is used during the initial qualification of the FSTD, which also covers cases where interim qualifications are necessary.

Finally, this NPA proposes a definition of VD, as well as a revision of the definition of VSD.

2.2. What we want to achieve — objectives

The overall objectives of the EASA system are defined in Article 1 of the Basic Regulation. This proposal will contribute to the achievement of the overall objectives by addressing the issues outlined in Section 2.1.

The specific objectives of this proposal are to:

— harmonise CS-SIMD 110 'Applicability' with the upcoming Issue 3 of the Certification Specifications for Flight Simulation Training Devices (CS-FSTD), in particular with the updates related to the FSTD capability signature and to the different levels of FSTD qualification and features (Subject 1);

— extend the applicability of CS-SIMD to other categories of aircraft, based on Appendix 1 to GM No 1 to 21.A.15(d) (Subject 2);

— improve the understanding of the approval process of OSD for SIMD, as well as of the elements that are within the scope of VSD (Subject 3); and

— clarify the terminology and provide guidance on its use (Subject 4).

2.3. How we want to achieve it — overview of the proposals

— Subject 1: CS SIMD.110 'Applicability' was reviewed and updated to be harmonised with the upcoming Issue 3 of CS-FSTD(A). One of the proposed amendments is to include all the aircraft TC applicants for which approved flight training devices (FTDs) at a determined qualification level are used in the pilot type-rating training.

— Subject 2: CS SIMD.110 'Applicability' was updated by including 'other categories of aircraft' as a third category to be harmonised with Appendix 1 to GM No 1 to 21.A.15(d) (see AMC and GM to Part 21), in which the category of tilt rotor aircraft has been included.

— Subject 3: GM3 SIMD.200 'Process overview' was created to clarify the description of the approval process to be followed, as well as the links between the VDR and FSTD qualification processes.

— Subject 4: CS SIMD.120 'Terminology' is amended to clarify the difference between VSD and VD.

2.4. What are the expected benefits and drawbacks of the proposal

The proposed amendments are expected to facilitate the applicants' compliance with the OSD requirements for simulator data (SIMD) and improve efficiency by rendering the evaluation process for OSD certification more comprehensible. Overall, the proposed amendments are expected to have a moderate safety benefit and no social or environmental impacts.

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3.   Proposed amendments

The text of the amendment is arranged to show deleted, new or amended, and unchanged text as follows:

— deleted text is ~~struck through~~;

— new or amended text is highlighted in blue;

— an ellipsis '[…]' indicates that the rest of the text is unchanged.

3.1.   Draft certification specifications (draft EASA decision)

CS SIMD.100 Scope of validation source data

The Certification Specifications for Simulator Data~~These Certification Specifications~~ contain the scope of:~~ the specifications for the definition of:~~

(a)   the validation source data (VSD) to support the objective qualification of aeroplane full flight simulators (FFSs) associated with the pilot type rating training, or of the provisional ~~validation source data~~VSD to support their interim qualification, including additional features as requested by the applicant;

(b)   the ~~validation source data~~VSD to support the objective qualification of helicopter ~~full flight simulators~~FFSs and flight training devices (FTDs) associated with the pilot type rating training, or of the provisional ~~validation source data~~VSD to support their interim qualification, including additional features as requested by the applicant; and

(c)   the VSD to support the objective qualification of other categories of aircraft FFSs and FTDs associated with the pilot type rating training, or of the provisional VSD to support their interim qualification, including additional features as requested by the applicant when special conditions are established based on points ORA.FSTD.210 (a)(3) and ARA.FSTD.100 (c) of Regulation (EU) No 1178/2011 (the 'Aircrew Regulation').

GM1 SIMD.100 Scope of validation source data

(a)   The 'Aadditional features' as mentioned in CS SIMD.100 may be composed of the ~~Operational Suitability Data (OSD)~~applicant's additional requirements along with~~to be added to~~ the CS-FSTD requirements.~~, as Box 3 contents (see GM1 SIMD.120), such as additional~~ These may consist of tests along with~~to~~ the required flight simulation training device (FSTD) objective validation tests, to cope with, for instance:

— specific aircraft operations profiles (e.g. steep approaches); or

— validation source data (VSD) from CS-FCD requirements related to ~~T~~training ~~A~~areas of ~~S~~special ~~E~~emphasis (TASE), impacting the simulator definition; this may be the case of specific abnormal aircraft conditions that are considered important for training (e.g. autopilot malfunctions, degraded control laws, system malfunctions); or

— reference to installed~~of actual pieces of~~ equipment; or

— specific aircraft configurations (e.g. the avionics configuration and capability or the navigation software configuration and specific features).

The data provider should define objective tests in relation to the additional features that are needed to be demonstrated on the FSTD and discuss the conditions for those tests with EASA as soon as the need for those tests is identified.

If data is used that does not come from an aircraft type certificate (TC) applicant/holder but from an organisation that holds an EASA supplemental type certificate (STC) (see GM2 SIMD.200), the 'additional features' that are included by that organisation should contain at least those already identified by the TC applicant/holder.

(b) ~~The 'Scope' (of validation source data) shall be understood as 'Specification' (of validation source data).~~The~~is~~ scope of the VSD is to be included in the validation data road map (VDR) (~~See GM4~~ CS SIMD.200~~), distributed under the box concept (GM1 SIMD.120).~~ and GM5 SIMD.200 provide further guidance material, thus becoming a part of the TC.

The scope of the VSD should be technically verified by the competent authority (see CS SIMD.200 and GM3 SIMD.200).

An explanatory diagram is added below:
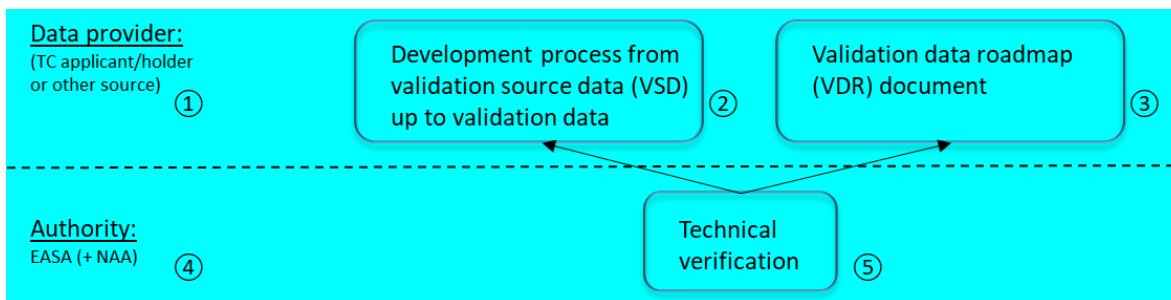
Point ①: see GM2 SIMD.200 for details related to the TC applicant.

Point ②: see GM1 SIMD.120 for details related to the VSD.

Point ③: see GM5 SIMD.200 for details related to the VDR.

Point ④: EASA is responsible for the technical verification of compliance against CS-SIMD. If a national aviation authority (NAA) is the competent authority for the evaluation of the FSTD, that NAA may support EASA in the technical verification.

The definition of 'competent authority' is included in point ORA.GEN.105 of Regulation (EU) No 1178/2011 (the 'Aircrew Regulation').

Point ⑤: see GM3 SIMD.200. The technical verifications include, for example, the following elements at the data provider's level:

— the implemented processes;

— the simulator data production and processing plan (in relation to the aircraft certification process);

— the simulation methods;

— the simulation itself;

— the models that are established by the data provider;

— the capability to produce the validation data (VD) and the content of the VDR; and

— the configuration control process during the life cycle of the aircraft (for instance, changes to the avionics, flight control laws, etc).

CS SIMD.110 Applicability

(a) These Certification Specifications apply to all aircraft type certificate (TC) applicants for which the following qualified devices is used during the pilot type rating training makes use of approved:

(1) for aeroplanes:(1) Level B, C or D full flight simulators for aeroplanes; or

(i) Level B, C or D full flight simulators (FFSs) that are qualified in accordance with the Initial Issue or Issue 2 of CS-FSTD(A); or

(ii) Level D FFSs and Level B flight training devices (FTDs) that are qualified in accordance with Issue 3 of CS-FSTD(A); and

(2) Level B, C or D full flight simulators and Level 3 flight training devices for helicopters.for helicopters: Level B, C or D FFSs and Level 3 FTDs in accordance with the Initial Issue of CS-FSTD(H).

(b) These Certification Specifications apply to other categories of aircraft when special conditions are established based on point ORA.FSTD.210 (a)(3)'Qualification basis' of Regulation (EU) No 1178/2011 (the 'Aircrew Regulation').

(cb) These Certification Specifications apply also to applicants for the approval of changes to an already approved definition of scope of validation source datavalidation data road map (VDR).

CS SIMD.120 Status of provided data

CS-SIMD specifies data provision which is required from the applicant, and data provided at the request of the applicant. Data provided by the applicant is presented as mandatory or non-mandatory (recommendations) for the end user.

GM1 SIMD.120 Status of provided data

OSD provided by the OSD applicant is presented as mandatory data or non-mandatory data (e.g. recommendation/having the AMC status) for the end user, according to the 4-box concept below:
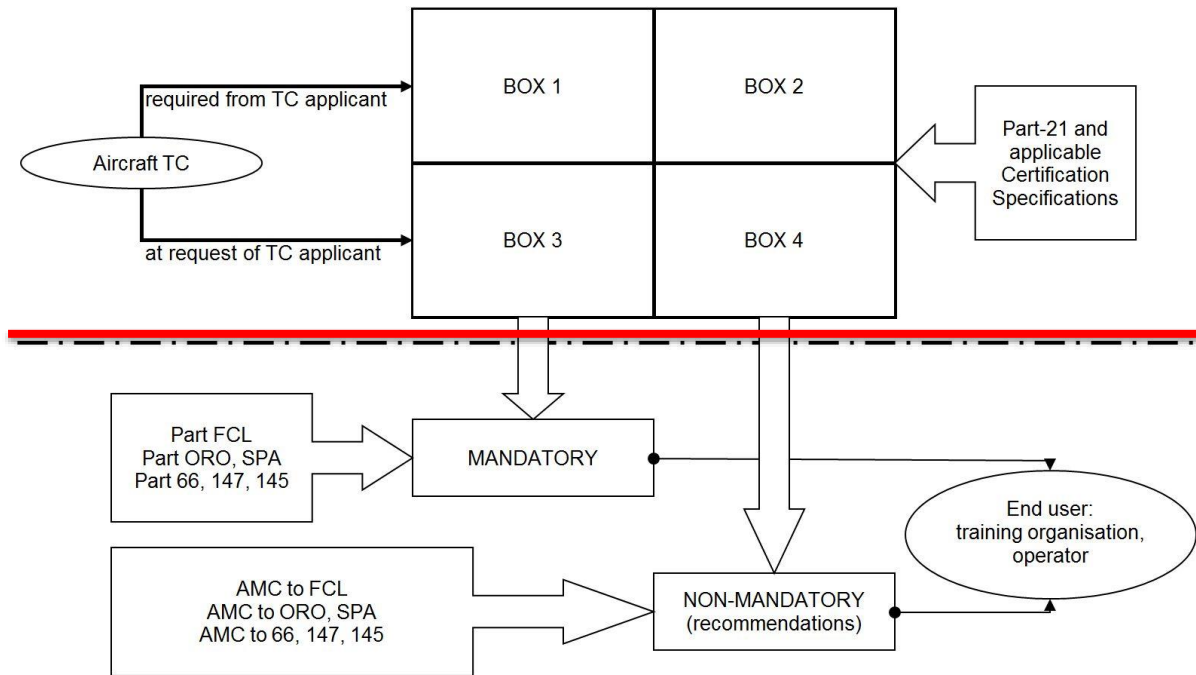
Box 1: Required from the applicant; mandatory for end users

Box 2: required from the applicant; non-mandatory (recommendations) for end users

Box 3: at the request of the applicant; mandatory for end users

Box 4: at the request of the applicant; non-mandatory (recommendations) for end users.

CS SIMD.~~130~~120 Terminology

For the purpose of these Certification Specifications, the following definitions apply~~ies~~:

Validation source data (VSD): the aircraft reference data that ~~are~~is composed of ground and flight test data, as well as engineering data, which ~~are~~is used to objectively confirm that the flight simulator reflects the static as well as the dynamic handling and performance characteristics of the aircraft and its relevant systems.

Validation data (VD): the VSD subset that is to be used as the reference data during the qualification of the flight simulation training devices (FSTDs).

GM1 SIMD.~~130~~120 Terminology

The diagram below describes the flow of data from the validation source data (VSD) to the master qualification test guide (MGTG) of the flight simulation training device (FSTD). It illustrates the central role of the scope of the VSD:
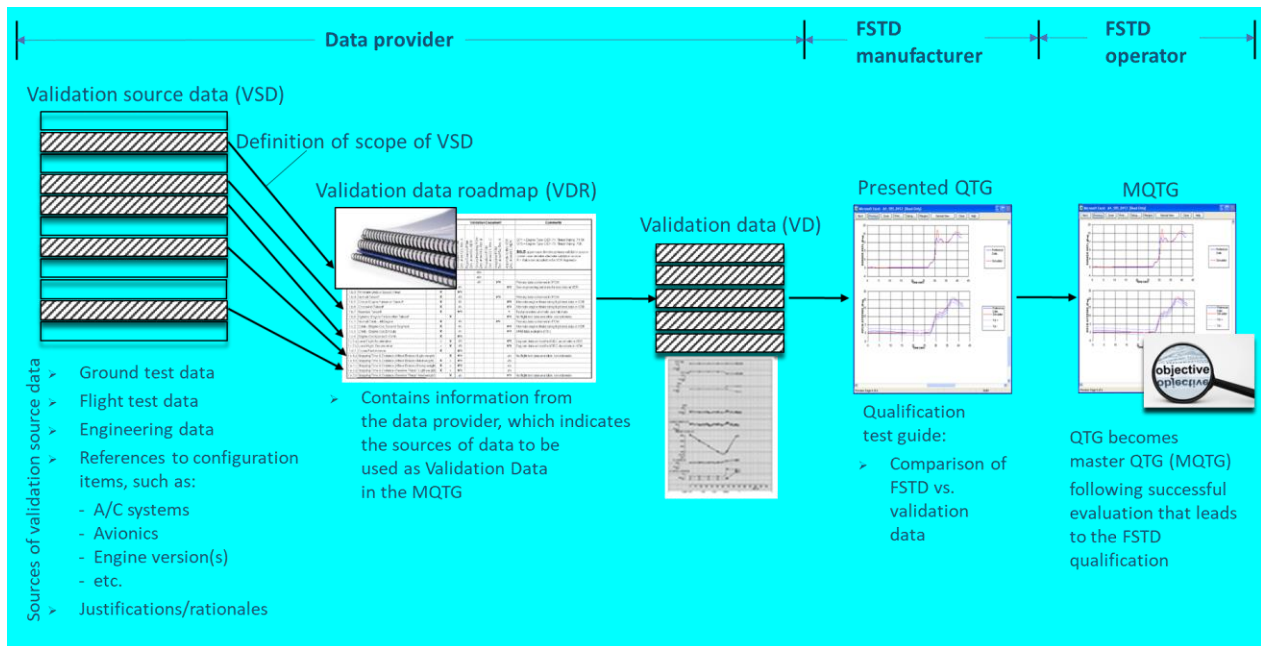
The origin and the content of the VDS include, but are not limited to:

—   ground test data,

—   flight test data,

—   engineering simulator data, and

—   rationales and justifications.

They should consider that all the initial and test conditions as described in CS-FSTD(A) or (H) are met (e.g. weights, center of gravity (CG), flap settings) and the required information (e.g. the limiting conditions weight, altitude or temperature (WAT), symmetrical aircraft behaviour, yaw damper setting) is provided.

The VSD should be the reference data for all the validation tests of the FSTD, as described in CS-FSTD(A) or (H) ('Table of FSTD validation tests') or in the applicable special conditions, as required. While Chapters 1 (Performance) and 2 (Handling Qualities) of the Table of FSTD validation tests are widely based on aircraft reference data, Chapters 3 (Motion System), 4 (Visual System), and 5 (Sound Systems) should also be taken into consideration. For instance, the VSD may include information related to the position of the pilot eye and the cockpit cut-off angle (visual ground segment test), information related to the computation of the transport delay or latency tests, vibration and sound reference data, etc.

In addition, other items to be taken into consideration are the 'additional features', as indicated in GM1 SIMD.100.

Finally, each element included in the VSD should include details of the versions of configuration items such as:

—   the aircraft (A/C) systems,

—   the avionics suite/avionics computers,

—   the engine version(s)/the full-authority digital engine control (FADEC), and

— other.

CS-FSTD(A), CS-FSTD(H), and CS-FCD include additional terminology and abbreviations of terms.Additional terminology and abbreviations of terms may be found in CS-FSTD(A/H).200 and associated AMC and in CS-FCD.105.

CS SIMD.200 Determination of the scope of the validation source data

(a)   The determination of the scope of the validation source data is based on:

(1)   the applicable certification specifications extracted from CS-FSTD (A)& or (H) or the applicable special conditions; andas applicable;

(2)   any additional specification that resultsing from the additional features selected by the applicant or arises from the training areas of special emphasis (TASE) of the flight crew data operational suitability data (OSD) constituent.

(b)   The scope of the VSD comprises thea list of validation source datathe flight cases to be used as validation data (VD) in the qualification test guide, its related source and relevant justifications or rationales.

## GM1 SIMD.200 DeterminationSubstantiation of the scope of the validation source data

(a)   The substantiation for the scope of the validation source data may be performed using different means, such as:

(1)   through the use of a Master Qualification Test Guide (MQTG) and associated Full Flight Simulator/Flight Training Device (FFS/FTD) (this would be useful should they already be available from the FSTD operators);

(2)   through the demonstration that the applicant has run a process, acceptable to the Agency, aiming to develop the scope of the validation source data;

(3)   any other way that may be proposed by the applicant and agreed by Agency.

(a)   The substantiation of the scope of the validation source data (VSD) should be performed by:

(1)   demonstrating that the applicant has developed and used a process acceptable to EASA (see point b of GM1 SIMD.100) to develop the scope of the VSD;

(2)   using a list of parameters to be recorded for the different validation tests; the proposed validation data (VD) should be presented in a way that allows EASA to verify by analysis that the VD is suitable to fulfil the requirements of CS-FSTD(A) or (H);

(3)   assessing the adequacy of the proposed VD and the associated validation data road map (VDR) by observing the first evaluation of the first device (full flight simulator (FFS)/flight training device (FTD)) (see GM3 SIMD.200); or

(4)   alternatively, in any other way that may be proposed by the applicant and agreed by EASA.

(b)   The diagram below shows in grey the scope of validation source data:
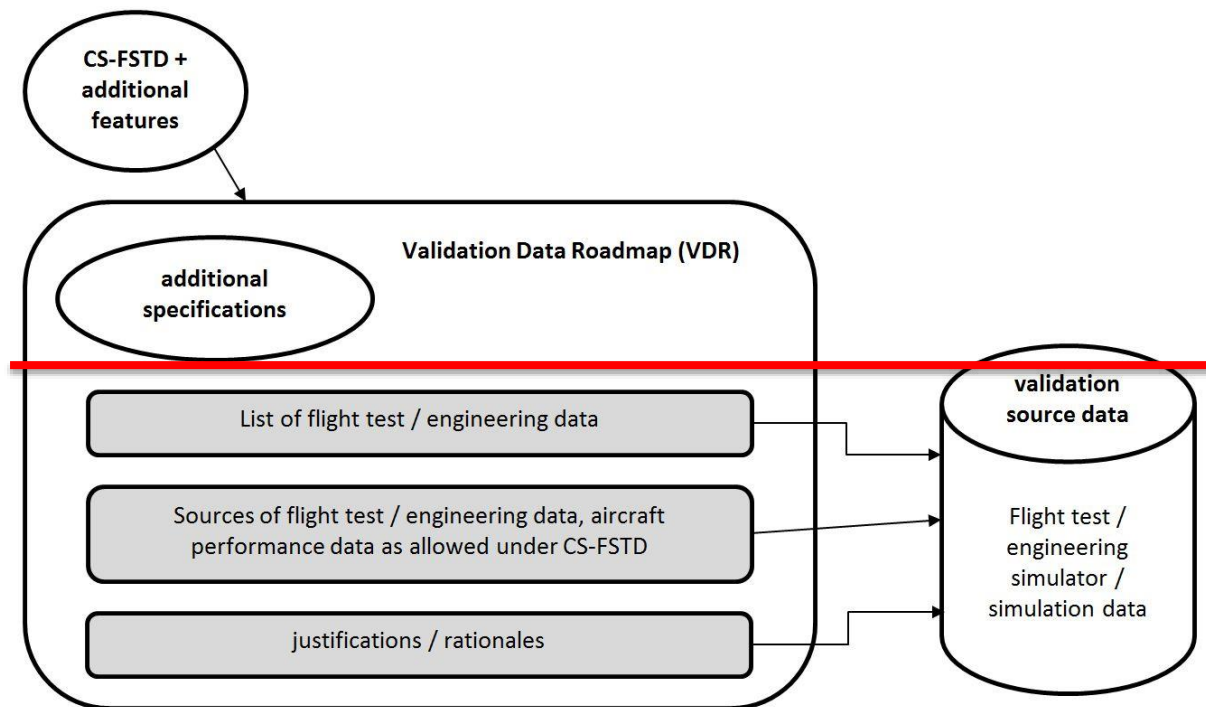
(b)(c)   An additional set of validation tests may be specified in order to complement the minimum set of validation tests that are listed in CS-FSTD(A) or (H) ('Table of FSTD validation tests').the table under AMC1 CS-FSTD(A&H).300(b).

A typical illustration of such possible additional specifications couldmay be the following:

'the Bbehaviour of the aeroplane on ground at 95 % of maximum cross-wind shall be simulated with the associated validation dataVD. In this example, the minimum would normally be 60 % of the Aaeroplane Fflight Mmanual (AFM) value'.

(c)   Based on the technical verification performed at the data provider and a theoretical compliance check of the presented VDR against the applicable regulations, EASA may approve the VDR. However, the result of the first evaluation of the first FSTD may lead to an update of the approved VDR (see GM3 SIMD.200).

Subsequently, the updated VDR becomes the basis for the qualification of flight simulation training devices (FSTDs) for that type of aircraft.

GM2 SIMD.200 Sources of the validation source data

(a)   Aeroplanes

For the initial qualification of full flight simulators (FFSs), aeroplane Type Certificate (TC) applicant/holder'svalidation data (VD), including validation flight test data or engineering data that is provided by the type certificate (TC) applicant or TC holder, should be used. Data from other sources may be used, when properly justified.

Data that does not come from a TC applicant/holder may be used if submitted by an organisation that holds an EASA supplemental type certificate (STC).

(b) Helicopters

For the initial qualification of ~~full flight simulators~~FFSs and ~~flight training devices FTD~~ level 3 flight training devices (FTDs), ~~helicopter TC applicant/holder's validation~~VD, including flight test data or engineering data that is provided by the TC applicant or TC holder, should be used~~. Data from other sources may be used, when properly justified.~~

Data that does not come from a TC applicant/holder may be used if submitted by an organisation that holds an EASA STC.

(c) The data, other than flight test~~s~~ data, should include an explanation of validity with respect to the available flight test information.

(d) In ~~the~~ case of a new aircraft type, the aircraft TC applicant/holder's engineering simulation/simulator data, partially validated by flight test data, may be used to support the interim qualification of the ~~full flight simulator~~FFS or ~~flight training device~~FTD.

GM3 SIMD.200 Process overview

A new item of guidance material on the process overview is added:

The diagram below describes the full process that may be followed and the various stakeholders involved, as well as the modification loops that may be applied to the validation data road map (VDR).

This full process applies to the VDR that is delivered by a data provider and to the first flight simulation training device (FSTD) qualification that is based on this VDR.
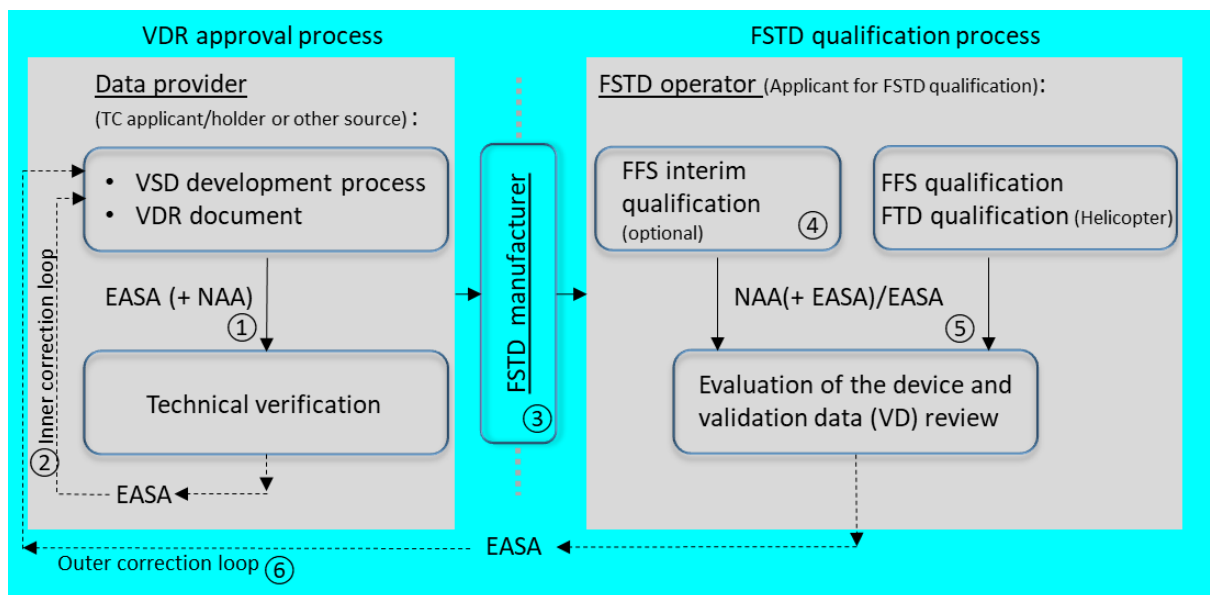
Point ①: EASA is responsible for the technical verification of compliance against CS-SIMD. If a national aviation authority (NAA) is the competent authority for the evaluation of the FSTD, that NAA may support EASA in the technical verification.

Point ②: the VDR and the validation source data (VSD) may be modified as a result of the technical verification (e.g. inner correction loop, which is managed by EASA).

Point ③: the FSTD manufacturer should comply with CS-FSTD(A) or (H) and, if applicable, with the additional tests as specified in GM1 SIMD.100.

Point ④: for the definition of 'Interim FSTD qualification', see point ARA.FSTD.115 of Regulation (EU) No 1178/2011 (the 'Aircrew Regulation'), AMC1 ARA.FSTD.115, and GM1 ARA.FSTD.115.

Point ⑤: if a European NAA is the competent authority for the evaluation of the FSTD, EASA is present during the evaluation to witness the correct implementation of the VDR and to evaluate whether corrections to the VDR are needed, for example to:

— validate the usability of the proposed scope of the VSD for the evaluation of an FSTD in accordance with the CS-FSTD(A) or (H) requirements or special conditions that are established based on point ORA.FSTD.210 'Qualification basis' of the Aircrew Regulation;

— validate the completeness of the proposed validation data (VD) against the operational suitability data (OSD) requirements for simulator data (SIMD);

— validate the effectiveness of the applicant's OSD SIMD process;

— ensure that the data used to objectively assess the first FSTD corresponds to that proposed by the data provider as part of the OSD requirements for SIMD; and

— identify any amendments to existing rationales or the need for additional rationales that are required in order to use the proposed data.

If EASA is the competent authority for the evaluation of the FSTD, EASA performs the evaluation.

Example: if the manufacturer of the first full flight simulator (FFS) for a new aircraft type considers that the parameters of a flight test are not correctly processed/calculated and decides to recalculate them, then the rationale behind the required correction and the correction itself (not the result) should be mentioned in the VDR. This should happen in cooperation and agreement with the aircraft manufacturer/data provider, who should then amend and redistribute the VDR to avoid readdressing the same issue. This does not preclude an FSTD manufacturer from also mentioning rationales in the master qualification test guide (MQTG).

Point ⑥: the VDR and the VSD may be modified as a result of the first evaluation of the first FSTD (e.g. outer correction loop, which is managed by EASA). When the correction process is triggered by such a result, this process should be considered within a timeframe that is agreed with the competent authority, to ensure that the corrected VDR and VSD are used for further FSTDs to be qualified. During the period of data correction that leads to the correction of the first FSTD, that FSTD may be restricted in its use.

Additional feedback loops to the data provider may exist (e.g. from the training device manufacturer (TDM)) and should be considered by the data provider, as they may contribute to the improvement of the VDR.

After successful completion of the technical verification and the inner correction loop (point ②, if required), the process for generating the VSD and the completeness of the VDR are approved, and the VDR becomes the basis for the qualification of the first FSTD.

During the qualification of the first FSTD, the VDR may require corrections by the data provider in some areas. In that case, the outer loop (point ⑥) applies, the amended version of the VDR becomes

the reference in the type certificate data sheet (TCDS), and that should be the qualification basis for subsequent FSTDs for that aircraft type.

The approval of the amended version of the VDR is based on the data provider's processes, which are verified by the competent authority.

The diagram below describes the various steps that the VDR may take. If no interim qualification is sought, then Step 1 does not apply.
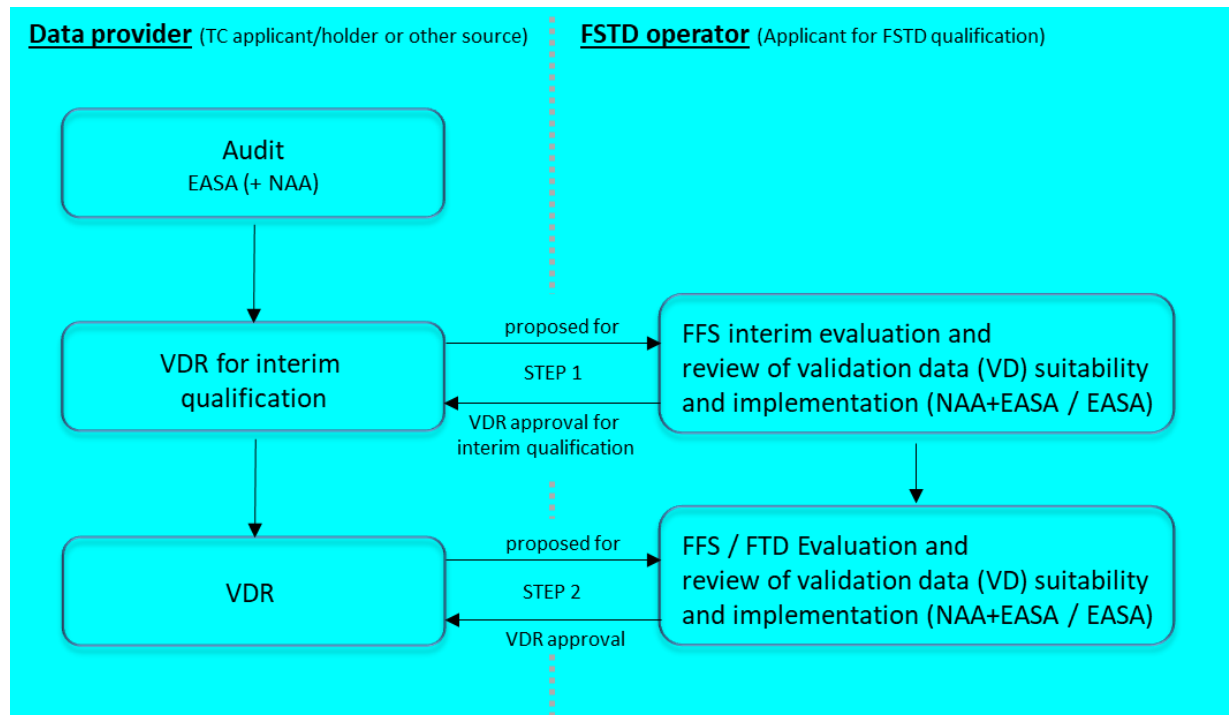
GM3**4** SIMD.200 Engineering simulator/simulation validation data

(a)   ~~With the prior agreement of the Agency, a~~An OSD applicant may choose to supply validation source data from an 'audited~~'~~ engineering simulator/simulation' to selectively supplement flight test data.

[…]

(c)   Applicants that seek~~ing~~ to take advantage of this alternative arrangement should inform EASA at an early stage of the process.~~contact the Agency at their earliest convenience.~~

GM4**5** SIMD.200 Determination of the **S**scope of the validation source data

(a)   The definition of the scope of the validation source data (VSD) to be used as validation data (VD) in the master qualification test guide (MQTG) should be provided through a validation data road map (VDR).~~(reference to Appendix 2 to AMC1 FSTD(A/H).300 Validation data roadmap).~~

~~(b)   The validation data road map should clearly identify the sources of data for all required tests. It should also provide information regarding the validity of these data for a specific engine type and thrust/power rating configuration and the revision levels of all avionics affecting aircraft~~

handling qualities and performance. The document should include rationale or explanation in cases where data or parameters are missing, engineering simulation data are to be used, flight test methods require explanation, or other comparable cases, together with a brief narrative describing the cause/effect of any deviation from data requirements. It should identify the applicable aircraft configuration impacting the simulator definition.

(b)   The VDR should clearly identify the sources of the data for all the required tests. It should also provide information on the validity of that data. For example, the VDR for a specific engine type and thrust/power rating configuration, should include the revision levels of all the avionics that affect the aircraft handling qualities and performance and/or navigation equipment capabilities and performances (for instance, localiser performance with vertical guidance (LPV) approaches).

The VDR should also include justifications/rationales for:

—   cases where data or parameters are missing (in such cases, engineering simulation data may be used);

—   cases where flight test methods require explanation; or

—   other comparable cases,

together with a brief description of the cause/effect of any deviation from the data requirements.

Furthermore, the applicable aircraft configuration that affects the simulator definition should be identified.

More guidance on the VDR is available in the following documents:

—   CS-FSTD(A) or (H) (see Appendix 2 to AMC1 FSTD(A).300 'Validation data roadmap' and Appendix 2 to AMC1 FSTD(H).300 'Validation data roadmap';

—   ICAO Document 9625 'Manual of Criteria for the Qualification of Flight Simulation Training Devices, Vol I and II, Attachment D, as amended; and

—   ARINC 450 'FLIGHT SIMULATOR DESIGN AND PERFORMANCE DATA', Appendix.

4.   Impact assessment (IA)

The objective of the proposed amendments is to update CS-SIMD to reflect the state of the art of operational suitability data (OSD) certification. Overall, this is expected to have a moderate safety benefit, no social or environmental impacts, and some economic benefits by streamlining the certification process. Therefore, there is no need to develop a regulatory impact assessment (RIA) for this rulemaking task (RMT).

5. Proposed actions to support implementation

N/a

6.   References

6.1.   Related regulations

Commission Regulation (EU) No 748/2012 of 3 August 2012 laying down implementing rules for the airworthiness and environmental certification of aircraft and related products, parts and appliances, as well as for the certification of design and production organisations (OJ L 224, 21.8.2012, p. 1)[6]

6.2.   Related decisions

Executive Director Decision 2014/033/R of 2nd December 2014 adopting Certification Specifications for Simulator Data 'CS-SIMD — Initial issue'

6.3.   Other reference documents

— Regulation (EU) 2018/1139 of the European Parliament and of the Council of 4 July 2018 on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency, and amending Regulations (EC) No 2111/2005, (EC) No 1008/2008, (EU) No 996/2010, (EU) No 376/2014 and Directives 2014/30/EU and 2014/53/EU of the European Parliament and of the Council, and repealing Regulations (EC) No 552/2004 and (EC) No 216/2008 of the European Parliament and of the Council and Council Regulation (EEC) No 3922/91 (OJ L 212, 22.8.2018, p. 1)[7]

— Commission Regulation (EU) No 1178/2011 of 3 November 2011 laying down technical requirements and administrative procedures related to civil aviation aircrew pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (OJ L 311, 25.11.2011, p. 1)[8]

— Certification Specifications for Aeroplane Flight Simulation Training Devices 'CS-FSTD(A)'

— Certification Specifications for Helicopter Flight Simulation Training Devices 'CS-FSTD(H)'

— Certification Specifications for Operational Suitability Data (OSD) Flight Crew Data 'CS-FCD'

— ICAO Document 9625 'Manual of Criteria for the Qualification of Flight Simulation Training Devices, Vol I and II, Attachment D, 1st Edition, 2012 (as amended)

— ARINC 450 'FLIGHT SIMULATOR DESIGN AND PERFORMANCE DATA', Appendix, 10 September 2019

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[6]   https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32012R0748&qid=1610106741102

[7]   https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1535612134845&uri=CELEX:32018R1139

[8]   https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32011R1178&qid=1610107535380

7. Appendix

N/a

8.   Quality of the document

If you are not satisfied with the quality of this document, please indicate the areas which you believe could be improved, and provide a short justification/explanation:

—   the technical **quality** of the draft proposed rules and/or regulations and/or the draft proposed amendments to them;

—   the clarity and readability of the text;

—   the quality of the impact assessment (IA);

—   application of the 'better regulation' principles[9]; and/or

—   others (please specify).

Note: Your replies and/or comments in reply to this section will be considered for internal quality assurance and management purposes only and will not be published in the related CRD.

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[9]   for guidance see:
—   https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how/better-regulation-guidelines-and-toolbox_en
—   https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how_en
—   https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how/better-regulation-guidelines-and-toolbox/better-regulation-toolbox_en