European Aviation Safety Agency

Comment-Response Document 2013-17

Certification Specifications for Simulator Data (CS-SIMD)

CRD TO NPA 2013-17 — RMT.0108 (21.039(g)) — 2.12.2014

Related Decision 2014/033/R

EXECUTIVE SUMMARY

This Comment-Response Document (CRD) contains the comments received on NPA 2013-17 (published on 27 August 2013) and the responses provided thereto by the Agency.

Based on the comments and responses, Decision 2014/033/R was developed.

In summary, the comments support the issuance of the new CS-SIMD; however, many comments showed confusion about the scope of CS-SIMD in the context of Operational Suitability Data (OSD), the scope of OSD related to simulators and the possibilities for others than the aircraft TC holder to establish simulator data. These issues have been clarified in this CRD and, where necessary, have led to improvements in the CS-SIMD.

The proposed new Certification Specifications for Simulator Data (CS-SIMD) specify how the applicant for an aircraft type certificate shall develop the definition of scope of the aircraft validation source data to support the objective qualification of simulator(s) associated to the pilot type-rating training, as required by the OSD concept.

The Certification Specifications include the following:

(a) the scope and applicability of the Certification Specifications; and

(b) the determination of scope of validation source data.

Applicability	
Affected regulations and decisions:	Part-21; AMC/GM to Part-21.
Affected stakeholders:	Aircraft manufacturers; simulator manufacturers; FSTD operators
Driver/origin:	Legal obligation (Regulation (EC) No 216/2008)
Reference:	Task included in ToR 21.039, Issue 2, of 9.7.2007

Process map	
Concept Paper:	No
Terms of Reference:	9.7.2007
Rulemaking group:	No
RIA type:	Light
Technical consultation during NPA drafting:	Yes
Publication date of the NPA:	27.8.2013
Duration of NPA consultation:	3 months
Review group:	No
Focussed consultation:	Yes
Publication date of the Opinion:	N/A
Publication date of the Decision:	2014/Q4

Table of contents

1. Summary of comments and responses

1.1. Scope of CS-SIMD in the context of Operational Suitability Data (OSD)

Some comments show confusion about the scope of CS-SIMD and, subsequently, of the simulator data that is approved under the OSD.

1.1.1. What is OSD?

The OSD concept has been introduced in Regulation (EC) No 216/2008 (hereinafter referred to as the 'Basic Regulation') as part of the 1st extension package. The necessary Implementing Rules are included in Part-21 of Regulation (EU) No 748/2012 and were developed under rulemaking task 21.039. They are applicable since 17 February 2014. The OSD will ensure that certain data, necessary for safe operation, is available to and used by the operators. This data is considered specific to an aircraft type and must, therefore, be produced by the designer of that type. It consists of:

— the minimum syllabus of the pilot type-rating training;

— the aircraft reference data to support the qualification of simulators;

— the minimum syllabus of the maintenance certifying staff type-rating training;

— type-specific data for cabin crew training; and

— the master minimum equipment list (MMEL).

The operational suitability data proposed by the designer will be approved by the Agency along with the airworthiness certification. Once approved, the operational suitability data must be used by operators and training organisations when establishing their customised training courses and MEL. The OSD is expected to contribute to closing the gap between airworthiness and operations.

For each of the above-mentioned elements of OSD, a set of certification specifications is developed with which the applicant for OSD approval needs to show compliance.

1.1.2. Pilot type-rating training

The content of the minimum syllabus for pilot type-rating training is already addressed by CS-FCD (Certification Specifications for Flight Crew Data), which covers design reference data for the development and maintenance of simulation models, including aerodynamics and aircraft systems data. FCD is one of the other 4 elements of OSD.

1.1.3. Simulator data

The purpose of CS-SIMD is to identify data that is necessary for qualification of simulators when simulators are included in the minimum syllabus for pilot type rating as established in accordance with CS-FCD.

1.2. Scope of OSD related to simulators

Some comments show confusion as to what exactly is approved under OSD related to simulators.

The OSD concerning simulators are not the so-called 'data package', but the definition (meaning the specifications) of simulator validation source data.

1.3. Possibilities for others than the aircraft TC holder to establish simulator data

Many comments show confusion about the possibilities that exist in the new OSD framework for others than the aircraft TC holder (TCH) (e.g. simulator manufacturers) to generate and use simulator data

We can distinguish two cases:

(a) No definition of the scope of the aircraft validation source data has been approved by the Agency as part of the OSD for the type. The simulator data element of OSD is only required for new aircraft designs for which the application for a TC was made after 17 February 2014. There is no mandatory catch-up for existing aircraft designs. Therefore, for most aircraft types, the OSD will not contain data for simulators.

In that case, CS-FSTD for the qualification of simulators still applies and allows the use of data provided by others than the TCH.

(b) The definition of scope of the aircraft validation source data has been approved by the Agency as part of the OSD for the type. As stated above, this will only be the case for new aircraft designs for which the application for TC was made after 17 February 2014.

In that case, others than the TCH can apply for the approval of an alternate definition of scope of the aircraft validation source data through the Supplemental Type Certificate (STC) process under Part-21. The STC process under Part-21 Subpart E is specifically established for approvals of variations to the original type design or the data linked to that design, proposed by someone who is not the TCH. This can also be used for variations to original OSD.

2. Individual comments and responses

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

(a) **Accepted** — The Agency agrees with the comment and any proposed amendment is wholly transferred to the revised text.

(b) **Partially accepted** — The Agency either agrees partially with the comment, or agrees with it but the proposed amendment is only partially transferred to the revised text.

(c) **Noted** — The Agency acknowledges the comment but no change to the existing text is considered necessary.

(d) **Not accepted** — The comment or proposed amendment is not shared by the Agency.

2.1. CRD table of comments, responses and resulting text

(General Comments)	-

comment	*1* comment by: *EUROCONTROL* The EUROCONTROL Agency has no comments to make.
response	Noted

comment	*2* comment by: *Federal Office of Civil Aviation FOCA* It is unclear who is responsible to approve the validation source data for a flight simulator. In the Explanatory Note to the NPA it is stated that it's the Agency's responsibility to approve flight simulator data resulting from the OSD. In the Appendix 2 to the AMC1 of CS-FSTD (A/H).300 Validation Data Roadmap it is stated that the Members State civil aviation authority is the final authority to approve the data to be used as validation material for the QTG.
response	Noted The Agency is responsible for approving the definition of scope of the aircraft validation source data, as all other OSD deliverables in accordance with Part-21. The Member States are responsible for qualifying the simulators in the EU.

comment	*16* comment by: *Swiss International Airlines / Bruno Pfister* Swiss Intl Air Lines takes note of the NPA 2013-17 without further comments.
response	Noted

comment	*17* comment by: *CAA-NL* Please be advised that the Netherlands has no comment on this NPA.
response	Noted

comment	*18* comment by: *Airbus* Comment: Some parts of this CS come from the CS-FSTD (VDR, Engineering Simulator). A coordinated update of the CS-FSTD and CS-SIMD should be planned in order to have a consistent set of documentation. Justification: Avoid duplication of information in CS-FSTD and CS-SIMD. Have the right level of information in each document: CS-SIMD for requirements applying to OEM data, CS-FSTD for requirements applying to FSTDs.
response	Accepted This is the intent when the transition is completed.

comment	*42* comment by: *Austro Control* This title "Certification Specifications and Guidance Material for the development of the definition of scope of..." is way too complicated - what is this NPA really trying to address? Is it the data or is it the development of a process on how to derive the data and the scope?
response	Noted The title of the NPA describes what will be in the CS-SIMD; it is not the same as the title of the CS itself. The title of the CS will be 'Certification Specifications and Guidance Material for Simulator Data CS-SIMD'. This CS will deal with the scope and process of deriving the data, not the approval of the data itself. These OSD concerning simulators are not the so-called 'data package', but the definition (meaning the specifications) of simulator validation source data.

comment	*53* comment by: *Luftfahrt-Bundesamt* The LBA has no comments on NPA 2013-17.
response	Noted

comment	*55* comment by: *IATA* IATA applauds the initiative in creating CS-SIMD as it provides a much needed support and impetus for the provisioning of flight simulation training device validation source data, by making these data a requirement under the OSD concept for an aircraft´s type rating.
response	Noted

comment	*60* comment by: *EUROCOPTER* Eurocopter has no comments on the proposed NPA 2013-17.
response	Noted

comment	*61* comment by: *CAE Inc.* CAE thanks EASA for the opportunity to comment to the Notice of Proposed Amendment NPA-2013-17 "CSs and GM for the development of the definition of scope of the aircraft validation source data to support the objective qualification of simulator(s) associated to the pilot type rating training (simulator data) — CS-SIMD". Although the objectives indicated in the document seek "the aircraft manufacturers to identify the aircraft validation source data that is necessary to allow the objective qualification of the simulators associated to pilot type rating training", it is important to ensure that response from the aircraft manufacturers is truly independent of any conflict of interest or any anti-compete behavior, considering that many aircraft manufacturers have a need to protect their commercial interests in the manufacturing of flight simulators and training business where many of them have embarked, directly or indirectly with partners. CAE strongly believes that the requirements that are the subject of this certification specification directly affect not only our company, a global leader in modeling simulation and training for civil aviation and defense but the simulation and training industry in general and as such offers the following general comments, as well specific comments to the subject NPA, for EASA consideration. About CAE: *CAE is a global leader in modeling, simulation and training for civil aviation and defense. The company employs approximately 8,000 people at more than 100 sites and training locations in approximately 30 countries. CAE offers civil aviation, military, and helicopter training services in more than 50 locations worldwide, 17 locations are in Europe, and with over 230 FSTDs of which more than a third are in Europe, and trains approximately 100,000 crewmembers yearly. In addition, the CAE Oxford Aviation Academy offers training to aspiring pilot cadets in 10 CAE-operated flight schools. CAE's business is diversified, ranging from the sale of simulation products to providing comprehensive services such as training and aviation services, integrated enterprise solutions, in-service support and crew sourcing. The company applies simulation expertise and operational experience to help customers enhance safety, improve efficiency, maintain readiness and solve challenging problems.* **General Comment #1:** EASA recognizes the importance of simulator data in support of a comprehensive syllabus for the type rating training of pilots in programs that use simulators, and to ensure safe operations. In this context it is our view that EASA should consider broadening the scope to include all pertinent data that affects or contributes towards the development of a training program curriculum. **Recommendation to Comment #1:** That EASA broadens the scope of the data requirements to include design reference data for the development and maintenance of simulation models, including aerodynamics and aircraft systems data.
response	Noted The content of the minimum syllabus for pilot type-rating training is already addressed by CS-FCD which covers all the elements mentioned above. FCD is one of the other 4 elements of OSD. The purpose of CS-SIMD is to identify data that is necessary for the qualification of simulators when simulators are included in the minimum syllabus for pilot type rating as established in accordance with CS-FCD. See also 'Responses to frequently made comments' No 1

comment	*64* comment by: *CAE Inc.* **General Comment #2:** The IATA document *"Flight Simulation Training Device Design & Performance Data Requirements, 7th edition*" provides guidance to aircraft manufacturers on information to be provided to FSTD manufacturers, and CS-FSTD (A) requires that aircraft manufacturers comply with the IATA document. This requirement further supports our comment #1. **Recommendation to Comment #2:** Expand the scope to include "design" and other pertinent data. The NPA objective is limited to validation data.
response	Noted See response to comment No 61. This particular aspect is covered by AMC 1 FSTD(A).300 Qualification basis.

comment	*65* comment by: *CAE Inc.* **Comment:** The development of a training syllabus also requires the use of other aircraft manufacturer data including the Aeroplane Flight Manual (AFM) which contains vital performance and procedural information, the Flight crew operating manual (FCOM) provides necessary systems operational information and the aircraft normal, abnormal (or non-normal) and emergency checklists, amongst other such documents. Furthermore, additional data to support the above is often also obtained from other aircraft component designers. We recognize that the above referenced additional data is included in the EASA type certification requirements; it is our view however that these requirements should be associated with the training program, for the reasons discussed above. **Recommendation:** Expand or relate the requirements to include *all data* required to support the development and maintenance of the training curriculum, including FSTDs.
response	Noted See response to comment No 61.

comment	*66* comment by: *CAE Inc.* **Comment:** We recognize the Operational Suitability Data (OSD) relates to Part-21 and the aircraft certification by the manufacturer; however simulator design and validation data may come from other qualified sources / providers. For example, many simulator manufacturers perform their own flight test programs to collect necessary design and validation data that conforms to EASA CS-FSTD (A) and (H) requirements. **Recommendation:** Clarify how EASA will allow for the use of data provided by other (than aircraft manufacturer) qualified data providers.

response

Noted

We can distinguish two cases:

1. No SIMD has been approved by the Agency as part of the OSD for the type. In that case, CS-FSTD for the qualification of simulators still applies and allows the use of data provided by others than the Type Certificate Holder (TCH).
2. SIMD has been approved by the Agency as part of the OSD for the type. In that case, others than the TCH can apply for the approval of alternate SIMD through the Supplemental Type Certificate (STC) process under Part-21.

See also 'Responses to frequently made comments' No 3.

comment

67 comment by: *CAE Inc.*

Comment:
Aeroplane manufacturer design and validation data in some cases:
(1) "may" not be at the required standard to provide the high fidelity requirements to support the development, qualification and maintenance of advanced simulators, OR
(2) Is often not made available (or accessible) to FSTD manufacturers.
Recommendation:
Recognize that simply the availability of such data does not ensure simulation fidelity and it may be necessary for a FSTD manufacturer to utilize data from sources other than the aircraft manufacturer. EASA should not only require the provision and approval of such data through the OSD process, but should specifically allow for the approval of such data from other qualified sources. In this regard we draw your attention to the ICAO Doc. 9625 Edition 3 Manual of Criteria for the Qualification of Flight Simulation Training Devices, which provides the following definition for the "approved data":
"Approved data. Aeroplane data collected by application of good engineering practice and accepted for use by the NAA. The preferred data sources are the aeroplane manufacturers and/or original equipment manufacturers; however, data supplied by other qualified sources may be considered."
Note that today, and for many years, it is common practice to approve simulators with the use of data provided by other qualified sources.

response

Noted

See response to comment No 66.

comment

87 comment by: *UK CAA*

Please be advised that the UK CAA support the proposal contained in NPA 2013-17.

response

Noted

comment

88 comment by: *DGAC FRANCE*

For consistency purpose with Part 21, "aircraft manufacturer" has to be replaced with "TC holder" in the whole document.

response

Partially accepted

In the explanatory note, the use of the term 'manufacturer' is preferred as it is understood more easily by those interested parties who are not familiar with the terminology of Part-21. However, in the text of the CS, the legally correct term of 'TC holder or applicant' will be used.

comment

101 comment by: *Jonathan Wisdom*

General Comments:
1. The proposed CS as currently written can be leveraged by aircraft manufacturers to create economic barriers to FSTD manufacturers. There is no mechanism in place to ensure that aircraft manufacturers make OSD available to any operator or manufacturer at a fair, market-value price and in a timely manner. Such a mechanism is necessary considering most aircraft manufacturers are involved directly or indirectly in the FSTD business, and as such, this CS risks creating an anti-competitive environment within the FSTD and flight training industries.
2. The proposed CS makes an assumption that aircraft manufacturers' flight test data is a superior choice for FSTD validation source data, yet there is no justification given for this. Numerous flight testing organisations have proven track records of collecting FSTD validation source data packages of equal, or in some cases superior quality, to those available from aircraft manufacturers. These data packages are often better for the purposes of simulation modeling, for example:

- supplemental modeling data may be available that is not provided in an aircraft manufacturer's data package;
- more detailed documentation regarding sensors and aircraft rigging is often available when compared to aircraft manufacturer's validation source data;
- data is usually collected with a single, conforming aircraft, whereas aircraft manufacturer data will often originate from multiple, non production-conforming aircraft.

3. Third-party validation source data packages are also available at a cost well below aircraft manufacturers', making FSTD's more affordable and increasing their overall use in the flight training industry.
Proposed changes:
In order to address the economic barrier the CS could create for FSTD manufacturers, the CS should be amended to explicitly allow for an alternate means of compliance with regards to the OSD simulation data. The alternate means of compliance should allow third-party flight testing organisations to provide high quality validation source data packages that meet or exceed the data requirements set forth in CS-FSTD(A) and/or CS-FSTD(H) and other publications accepted as standards within the industry.
This would have the added advantage of addressing the aforementioned issues that can arise with aircraft-manufacturer's validation source data packages. There exists a strong precedent within the industry today for the use of high-quality validation source data packages from third-party flight test organisations whose area of expertise lies in FSTD validation source data package flight testing.
Additionally, an enforcement mechanism should be created that compels aircraft manufacturers to create a level playing field regarding the availability and pricing of the validation source data identified as part of the OSD.
This CS (as it is currently written) will create an environment of economic barriers to FSTD

manufacturers and training organizations resulting in significantly increased costs of FSTD training.

response

Noted

1. The aircraft TC holder is required to make OSD (including SIMD, as applicable) available to operators and anyone else who is required to comply with the data (see Part 21.A.62).

2. Neither the requirements in Part-21 nor the provisions in CS-SIMD suggest that the TC holders' data is superior to data from other sources. The SIMD is simply required from the TC holder when they design a new type, and logically at the stage of certifying a new aircraft type only the TC holder/applicant can produce such data. Later in the 'life' of the aircraft type, third parties can produce their own data that can also be approved by the Agency when it meets the standards.

3. See response to comment No 66.

comment

105 comment by: *Jonathan Wisdom*

OEM data packages are historically and undeniably expensive. The applicants will have the cost of collecting the data, burden, and increased liability so the resulting cost to a manufacturer needing to incorporate this data will increase substantially with no other possible pathway to qualifying an FSTD. The net results and impacts are:
a) The cost of manufacturing and qualifying simulators will increase.
b) This will lead to a de-emphasis or less use of simulation for training which will lead to reduced levels of safety, and loss of aircraft due to training accidents. This may not be true for airline (Boeing, Airbus) style simulators but for other aircraft types where the economic difference in operating the aircraft versus an FSTD may be enough to push training back to the aircraft in larger quantities.
c) OEM data packages do not usually contain quantity and quality of data for good simulation packages. The CS standards and objectives for the required data should be considered very carefully as data to certify an aircraft is a vastly different mission than collecting data for simulation purposes.
d) If only the OEM has the ability to add/modify/delete what is validated data, you will then in essence, create a monopoly for applicants as they become the sole source for any qualification data at all. This clearly and obviously leads to economic impacts and barriers to competition and again, results in a degradation in training.
e) If this NPA is accepted as is, this contradicts recent and historical past precedent of FSTDs that EASA has qualified without OEM supplied "or identified" data. To this end, there is plenty of objective evidence and data that supports the validity of these methods within the Agency.
f) While we understand Part 21 will go into effect and the requirements for OSD will be required, clearly there are other proven, validated options and alternatives. We would implore you to consider these options that you have accepted openly in hundreds of previous cases.
g) While Part 21 will take effect, can you provide the rationale and justification for creating economic barriers to training? What impetus created this requirement – was there an increase in accidents? We are not sure the economic barriers that this creates are clearly understood by the Agency.

	h) While it is very important to have accurate validation data, that data should be clearly accessible otherwise this amendment does not guarantee any positive benefit with regards to FSTD qualification and thereby no positive impact to the training conducted. i) Part 21 can be modified or amended in cases where it is clearly not in the best interest of the people it intends to serve. The effects and impacts from this amendment have not been fully considered and therefore should be amended.
response	Noted See responses to comments Nos 66 and 101.

2. Explanatory Note p. 4-5

comment	*10* comment by: *ADAC HEMS Academy GmbH* **Explanatory note 2** This NPA reflects the interests of the OEMs participating in the working group, only. Knowledge and experiences of simulator manufacturers and simulator operators/providers are not included. It is suggested by the NPA that the OEMs are the only entity capable, to collect objective data for the objective qualification of simulators. Experiences from the last decades show the opposite. The major simulator manufacturers are fully capable to collect valid data, without participation of the OEM and build simulators of all levels reflecting the flight behaviour of simulated aircraft type flawless and in detail. This NPA will distort the market and will create a monopolistic position for the OEMs on flight simulation data. Flight simulation data offered by the OEMs are even now already often unreasonably expensive. Therefore simulator operators/providers search for less expensive methods to achieve the same goal in similar quality. Costs of flight data added to the construction costs for the simulator lead to prices for simulator flight hours, which are nevertheless pricy for the operators when compared to a flight hour on the real helicopter, especially on small and medium rotorcraft. E.g. For the standard EMS helicopters EC135 or EC145 the factor operators have to calculate with is 3: price for 3 fh on the sim = price of 1 fh on a real helicopter. If the OEMs will be the only data-suppliers by law, there will be no boundary for the price tags of data any more. Consequently the fh prices in the simulators have to go up and operators of small and medium rotorcrafts will tend to perform their training on the real helicopter again – this will weaken flight safety efforts and training effectiveness.
response	Noted See response to comment No 101.

comment	*37* comment by: *SILKAN* On basis of the last sentence of this section "The approved OSD element on simulator data will become the mandatory basis for identifying the validation source data that has to be used for the objective qualification of simulators.", we understand that only source data that

	will have been approved as OSD included in the Type Certificate will be acceptable for the qualification of the simulator. We understand that the inclusion of this data in the OSD is the decision of the TC applicant if he decides to use FSTD for Type Rating Training. According to this principle we may anticipate some problem of data availability if the TC holder is not proposing such training syllabus and if an ATO or an FSTD operator is willing to provide training syllabus using FSTD. If the only acceptable appliquant is the TC holder and so the aircraft manufacturer as it seems logical, this CS-SIMD will put the aircraft manufacturers as single source provider of Validation Data for qualification of FSTD used for type rating training. Currently alternative sources of Validation Data are available, more specifically in the helicopter domain, and approval of such "alternative" resultting data is covered by the regulation (CS-FSTD). The option for alternative data source from the aircraft manufactuer is also confirmed in the recent ICAO 9625 Edition 3 manual. Instoring the single source of Validation data form Aircraft manufactuer will certailny conduct to economical impact or lack of data that will not promote the wider availability of approved FSTD. This effect will certainly be more severe in the helicopter domain. We suggest that ATO, FSTD operator and FTD manufacturer are also possible applicant for OSD amendment in the area of these FSTD Validation Data.
response	Noted The TC applicant is required to establish a minimum syllabus for pilot type-rating training. It is correct that SIMD is only required if this minimum syllabus includes the use of simulators. However, today's practice is that for large aeroplanes and large helicopters, simulators are always included in the minimum syllabus. Therefore, SIMD will be available from the TC holders and they are required to make this data available (see response to comment No 101). Data from alternative sources can also be used or approved (see response to comment No 66).

comment	*68* comment by: *CAE Inc.* **Comment:** Last paragragh states: "The approved OSD element on simulator data will become the mandatory basis for identifying the validation source data that has to be used for the objective qualification of simulators." In the current system validation source data may be obtained through independent test programs conducted by suitably qualified organizations. **Recommendation:** (1) Extend the requirement to include the use of validation data obtained by other qualified sources, as allowed for under the ICAO Doc. 9625 Edition 3; as well as under FAA and other regulations. Attachment J of the ICAO document provides specific information regarding the nature of various types of validation data. Additionally see Appendix E (2) Clarify and expand access for the simulator manufacturers and training providers (maintenance and pilots) to all manuals required to be provided to aircraft operators to support maximum simulation fidelity and therefore safety.
response	Noted 1. See response to comment No 66.

	2. CS-SIMD is only about the definition of scope of the aircraft validation source data. The availability of manuals to the operators is regulated by Part-21.

comment	*95* comment by: *Jonathan Wisdom* Regarding the statement: The working method selected by the Agency was the use of Agency resources with input from an informal group with industry representatives. Comment: Input from additional simulation industry representatives should be garnered in order to gain more insight into the impact this CS can have on the simulation industry. Perhaps it was an oversite by our organisation, but we were not aware of any opportunity to take part in the development of the working method. Questions: Who participated in the informal group and what input was provided?
response	Noted The informal group was composed of people nominated by the rulemaking group for task 21.039 on Operational Suitability Data. This group had representatives from all sides of the industry including a simulator manufacturer. No simulator manufacturer representative was nominated for this sub-group on CS-SIMD. Nevertheless, the NPA consultation process is an open process and intended to obtain the inputs from all stakeholders.

comment	*96* comment by: *Jonathan Wisdom* Regarding the statement: The approved OSD element on simulator data will become the mandatory basis for identifying the validation source data that has to be used for the objective qualification of simulators. Comments: 1. Beyond identifying the validation source data, the validation source data must also be made available for use by third-party organisations. If the validation source data is only identified, but not made available by the aircraft manufacturer a real potential for type-specific FSTD supplier monopolies arises. Furthermore, data package price levels must be controlled to ensure fair competition in the FSTD market. In particular, unfair economic disadvantages could arise if certain FSTD manufacturers are able to acquire the validation source data at a lower economic burden than others. 2. Use of aircraft manufacturer data should not be mandatory. Rather, use of a validation source data package collected by a third-party flight test organization must be allowed. This is a standard FSTD manufacturer industry practice that has been successful on many qualified devices. The concerns regarding third-party validation source data are related to quality, yet such concerns also apply to validation source data from aircraft manufacturers. Therefore, any regulatory requirements applying to third-party flight test programmes should apply equally to aircraft manufacturer validation source data. Some other notes: • Third-party flight test programmes have been validated by independent (third-party

to the flight test programme) organisations. The DLR (Deutsches Zentrum für Luft- und Raumfahrt) has performed this function in the past.

- An organisation's ability to collect flight test data could be validated in numerous ways. Again, any standards here must also apply to aircraft manufacturers.
  - Third-party audit
  - Proven track record (5 or more successful flight test programmes to collect validation source data that has been used in the qualification of FSTDs in recent history)

Proposed change:
The approved OSD element on simulator data may be used as the validation source data for the objective qualification of simulators. Data from third-party flight test programmes may also be used as the validation source data for the objective qualification of simulators. The approved OSD element must also be made available for use by third-party organisations in such a manner as to ensure a fair marketplace for FSTD manufacturers.

response

Noted

1. CS-SIMD is about the approval of the definition of scope of the aircraft validation source data. The validation source data itself is not approved and is not part of the OSD. There is no requirement to make the validation source data available, but third parties can also obtain approval for defining alternative sources. See response to comment No 101.

2. The use of non-TC holder data is allowed; see response to comment No 66.

comment

110 comment by: *cueSim*

It is not clear whether this document is limited to the Aircraft Manufacturer providing the scope of data required i.e. defining what must be obtained, or to that AND the actual supply of data by the Aircraft Manufacturer as well. Some material implies it's the scope only (Title: '…development of the definition of scope…'; 2.1. Objectives: '…identify the aircraft validation source data…') but other material in CS-SIMD implies supply of the resulting data (2.2.1. Issues to be addressed '…will be required to include simulator data in the OSD package.'). The background Opinion 07/2011 also states in Executive Summary 'The data…must therefore be produced by the designer of that type.'
The stipulation that an OSD data package must be produced by the Aircraft Manufacturer to enable simulator validation at the time the TC is also obtained, makes good sense. However, the issue is whether or not use of this *particular* package will be *forced* upon simulator manufacturers to the detriment of those who may wish to produce their own. If the OSD package were to be supplied at a reasonable cost to industry, provision of it *could* be widely welcomed. Opinion 07/2011 ('Economic impact on industry') documents that the cost may be transferred partly or wholly, and historically, the costs levied upon simulator manufacturers has been high.
If the aim is for scope only, it is possible that the Aircraft Manufacturer will specify data inherent to its own avionics that another party (such as a simulator manufacturer) cannot provide independently. If the aim is for the actual data supply by the Aircraft Manufacturer, then other options exercised currently by some simulator manufacturers will become unavailable. Both of these result in lack of competitiveness and a monopoly for the Aircraft Manufacturers.

response	Noted CS-SIMD is about the approval of the definition of scope of the aircraft validation source data. The validation source data itself is not approved and is not part of the OSD. Regarding the mandatory use of the OSD and possible alternatives, see response to comment No 66.

2. Explanatory Note — 2.1. Objectives p. 5

comment	*38* comment by: *SILKAN* This section indicates that "Aircraft manufactuers" have to identify the aircraft validation source data. According to the OSD process it should be the Type Certificate applicant or holder.
response	Accepted See response to comment No 88.

comment	*69* comment by: *CAE Inc.* **Comment:** NPA states: "The specific objective of this proposal is to require aircraft manufacturers to ***identify*** the aircraft validation source data that is necessary to allow the objective qualification of simulators associated to pilot type rating training." Simply "identifying" the data alone does not provide for confirmation that the simulator correctly reflects the simulated aircraft type. This particular objective today is accomplished through the requirement for a VDR (Validation Data Report) All pertinent data utilized in the design, development and maintenance of courseware and flight simulation training device should be addressed so as to ensure the final product is at the necessary standard and meets the intent of the applicable regulatory requirements. **Recommendation:** (1) Extend the requirement to qualified data providers other than the aircraft manufacturer. FSTD manufacturers, Flight Test establishments such as Kohlsman Research and The National Research Council of Canada, amongst others have historically provided data to support simulator approval, for example. (2) Clearly state the requirement for the data provider (aircraft manufacturer or other qualified provider) to provide a VDR that conforms to the requirements of CS-FSTD (A) & CS-FSTD (H) for the qualification of the simulator or the interim qualification of the simulator. (3) Since EASA's overall objective is to ensure safe operations, extend the requirement to include all pertinent data required to develop a type rating training program syllabus to include design, validation, maintenance, and other data as applicable. .
response	Noted 1. See response to comment No 66. 2. This is already required by CS SIMD.200. 3. See response to comment No 61.

comment	*97* comment by: *Jonathan Wisdom* In regards to: The specific objective of this proposal is to require aircraft manufacturers to identify the aircraft validation source data that is necessary to allow the objective qualification of simulators associated to pilot type rating training. This is necessary to make sure that the simulator correctly reflects the simulated aircraft type, which will allow the use of those simulators in the pilot type training syllabus. Comment: This objective eliminates the possibility of data other than aircraft manufacturer's collected data from being used in the qualification of FSTDs (at the levels/types identified in another part of the document). Using third-party flight test data as validation source data for FSTD qualifications is a standard practice in the FSTD industry. Proposed Wording: The specific objective of this proposal is to require aircraft manufacturers to identify the aircraft validation source data that may be used to allow the objective qualification of simulators associated to pilot type rating training (if the aircraft manufacturer's data package is used as the validation data for qualification of an FSTD). This is necessary to make sure that simulators using aircraft manufacturer's validation source data correctly reflect the simulated aircraft type, which will allow the use of those simulators in the pilot type training syllabus.
response	Noted See response to comment No 66.

comment	*116* comment by: *THALES Training & Simulation* If I understand correctly, only the aircraft manufacturer would be in charge of identifying the aircraft validation source data necessary for the objective qualification of simulators to pilot type rating training. It's clear that the aircraft manufacturer has the best knowledge of its aircraft, nevertheless a knowledge of simulators may be also useful to define needed data. The risk of this new approach, is that the aircraft manufacturer defines a huge list of validation source data, and includes some data which will oblige the simulator manufacturer to buy the data to him, preventing then any further data collection possibility to make the simulator. The definition of this aircraft validation source data should be discussed and agreed with EASA and the simulator manufacturers.
response	Not accepted See response to comment No 66. Regarding the last remark: The definition of scope of aircraft validation source data will be approved by the Agency as part of the OSD.

2. Explanatory Note — 2.2. Regulatory Impact Assessment (RIA) — 2.2.1.Issues to be addressed p. 5

comment	*11* comment by: *ADAC HEMS Academy GmbH* The use of simulators is not limited to large rotorcrafts. Nowadays medium and small rotorcraft operators make regular use of simulators of all levels to enhance their training and flight safety. Is regulation of data gathering and validation of the data not mandatory for these simulators too? Why should there be a distinction between operators of flight simulators for large and medium/small rotorcraft when they use the same level of simulators?
response	Accepted The use of simulators is not limited to large helicopters. CS-SIMD will also apply to a small helicopter when the minimum syllabus for pilot type training includes the use of simulators (see CS SIMD.110(a)(2)).

comment	*23* comment by: *Austro Control GmbH Austria* this sentence is not exactly in agreement with the title of this NPA: the title addresses certification specifications and guidance material (not just CS). The NPA title also suggests that the focus is not on the data but rather on the development of the definition of the scope of this data. You either have to change the title or this sentence.
response	Noted The term 'CS' as used in the RIA refers to the general name of the complete set of Book 1 and Book 2 provisions. It is correct that Book 1 contains the Certification Specifications and Book 2 the Guidance Material, but together we refer to them as 'CS'. The same logic applies to all other CSs.

comment	*35* comment by: *Kohlman Systems Research, Inc.* The last paragraph of 2.2.1 is in conflict with EASA CS-FSTD (A) and (H). Both CS-FSTD (A) and (H) allow the use of data from other acceptable suppliers. This could have a significant cost impact on the simulator manufacturers which will be passed on to the simulator operators and users.
response	Noted The comment is based on a misunderstanding; the RIA only specifies the impact of requirements and only the aircraft manufacturers are required to determine the scope of the validation source data in accordance with CS-SIMD. However, third parties may apply for the approval of alternatives on a voluntary basis. See also response to comment No 66.

comment	*39* comment by: *SILKAN* This section introduces the words "large aeroplanes" and "large rotorcraft". Are these aircraft categories clearly identify (Maximum Takeoff Mass limit for instance)?
response	Noted

	'Large aeroplanes' is defined in CS-Definitions: 'Large aeroplane' means an aeroplane of more than 5 700 kg (12 500 pounds) maximum certificated take-off weight. The category 'Large Aeroplane' does not include the commuter aeroplane category (For commuter aeroplane category, see CS 23.1 and CS 23.3). 'Large Rotorcraft' are rotorcraft that are certified in compliance with CS-29.
comment	*40* comment by: *SILKAN* The last sentence of the section indicates that Operators of simulators are respoinsible for insuring that FSTD qualification is based on data provided as part of the OSD, when available. What is the option if such data are not availbale? Can the Operator apply for an OSD amendment to introduce such data according to the requirements of the this CS-SIMD?
response	Noted See response to comment No 66. If the data is not available, CS FSTD will apply as usually.
comment	*43* comment by: *Austro Control* COMMENT: This sentence is not exactly in agreement with the title of this NPA: The title addresses certification specifications and guidance material (not just CS). The NPA title also suggests that the focus is not on the data but rather on the development of the definition of the scope of this data. You either have to change the title or this sentence.
response	Noted See response to comment No 23. The focus on the scope of the data is correct; see CS SIMD.200.
comment	*70* comment by: *CAE Inc.* **Comment:** NPA states: "Affected are manufacturers of large aeroplanes and large rotorcraft that intend to include the use of flight simulators in their proposed syllabus for pilot type rating training. " **Recommendation:** EASA should provide clarification on the application of the subject requirement to other categories that are not considered "Large" or that fall under Part-25 certification requirements.
response	Noted The applicability statement in the RIA is a simplification. The applicability is as follows: SIMD is required for (and CS-SIMD applies to) aircraft for which flight crew data is required (see CS-FCD) and the minimum syllabus refers to the use of a full flight simulator (FFS) for

	aeroplanes; or FFS or FTD Level 3 for helicopters.

comment	*71* comment by: *CAE Inc.* **Comment:** NPA states: "Affected are also operators of flight simulators. They will be responsible for ensuring that the objective qualification of a simulator is done in accordance with the data provided as part of the OSD, when available. The unintended consequence of this requirement that it precludes all other data that is not provided as part of an OSD process. We believe that this is contrary to the objectives stated in the NPA and notwithstanding the potential economic impact to the industry; it has the potential to create an anti-competitive environment and negative impact to aviation safety. **Recommendation:** Allow for the use of data required for the validation of FSTDs to originate from the OSD and/or other qualified data sources.
response	Noted See response to comment No 66.

comment	*98* comment by: *Jonathan Wisdom* In regards to: Affected are manufacturers of large aeroplanes and large rotorcraft Comments: How is "large aeroplane" defined--is there a corresponding weight category? How is "large rotorcraft" defined--is there a corresponding weight category? The proposed CS-SIMD does not refer to nor define these terms. Proposed Change: CS-SIMD should define and use these terms to limit the scope.
response	Noted See response to comment No 39.

comment	*100* comment by: *Jonathan Wisdom* In regards to: Affected are also operators of flight simulators. They will be responsible for ensuring that the objective qualification of a simulator is done in accordance with the data provided as part of the OSD, when available. Comments: 1. The validation source data must be made available for use by third-party organisations. If the validation source data is not made available by the aircraft manufacturer a real potential for type-specific FSTD supplier monopolies arises. Furthermore, data package price levels must be controlled to ensure fair competition in the FSTD market. In particular, unfair economic disadvantages could arise if certain FSTD manufacturers are able to acquire the validation source data at a lesser economic burden than others. 2. The data package may not contain sufficient data for modeling. If this is the case, then

more flight testing would be required. Thus a FSTD manufacturer would have to pay for the validation data and for the cost of collecting modeling data. This is much more expensive than just performing one flight test programme to collect both modeling and validation data. Also different manufacturers may develop models using different techniques, thus requiring different sets of modeling data. The simulator manufacturer must be allowed to make the determination regarding whether a data package meets their needs. If it is determind that a simulator manufacturer cannot make this determination, then a group should be formed to determine what is needed in a simulation data package. *IATA Flight Simulation Training Device Design & Performance Data Requirements, 7th edition* lists a lot of standards, and this would be a valid starting point for such a group. This book was not written with the intention of being regulatory material, so it is impertive that a committee be formed.
3. It appears, the impact on operators of flight simulators was considered, but not the impact on manufacturers of flight simulators.
Proposed Wording:
Affected are also operators and manufacturers of FSTDs. The operator will be responsible for ensuring that the objective qualification of a simulator is done in accordance with the data provided as part of the OSD, if that data is chosen to be used as the validation data for the simulator. Operators and manufacturers of FSTDs may still choose to use validation data other than the data that is provided as part of the OSD.
Question:
FSTD manufacturers and flight test data collecting companies are missing. What are the plans to address these stakeholders? It appears that the Regulatory Impact Assessment is incomplete and fails to address significant regulatory and economic impacts given the current language and implementation plan outlined in the NPA. Some proposed modifications are provided (see all of my comments) to limit the impact on these stakeholders.

response

Noted

1. and 2.: See response to comment No 66.

3.: The Agency acknowledges that also manufacturers of flight simulators may be impacted by this CS-SIMD. As explained in the response to comment No 66, the use of other data than the data coming from the aircraft TC holder will still be possible. Therefore, the Agency considers that the impact of CS-SIMD on these stakeholders will be limited.

comment

122 comment by: *General Aviation Manufacturers Association / Hennig*

The General Aviation Manufacturers Association (GAMA) appreciates the European Aviation Safety Agency (EASA) specifically stating in section 2.1.1 that the scope of those manufacturers impacted by the Operational Suitability Data (OSD) requirement for aircraft validation source data to support the objective qualification of simulator(s) associated to the pilot type rating training is specifically limited to large aeroplanes and large rotorcraft.
The agency specifically stating this in the explanatory note will assist in providing a clear set of requirements for small aeroplanes and other non-large aeroplanes / -large rotorcraft going forward.

response

Noted

See response to comment No 70.

3. Proposed amendments — 3.1. Draft Certification Specifications and Guidance Material (Draft EASA Decision) — Certification Specifications and Guidance Material for Simulator Data CS-SIMD p. 8

comment	*99* comment by: *Jonathan Wisdom* Comment: The proposed CS-SIMD does not refer to nor define large aeroplane and large rotorcraft. Proposed Change: CS-SIMD should define and use these terms to limit the scope.
response	Noted See response to comment No 39.

3. Proposed amendments — 3.1. Draft Certification Specifications and Guidance Material (Draft EASA Decision) — Certification Specifications and Guidance Material for Simulator Data CS-SIMD — CONTENTS p. 9

comment	*118* comment by: *Bombardier Aerospace* Change title of CS.SIMD.110 from "Scope of Applicability" to "Applicability" to simplify.
response	Accepted

3. Proposed amendments — 3.1. Draft Certification Specifications and Guidance Material (Draft EASA Decision) — Certification Specifications and Guidance Material for Simulator Data CS-SIMD — CS-SIMD Book 1 — Subpart A — General — CS SIMD.100 Scope p. 11

comment	*56* comment by: *IATA* **Subpart A – General** *CS SIMD.100 Scope, item (a)* **Observation**: Pilot type rating training for aeroplanes includes flight training devices in addition to full flight simulators, why then are validation source data not required for aeroplane flight training devices as done for helicopter flight training devices in item (b) ? Recommend to add after "full flight simulators" the following: "and flight training devices".
response	Not accepted CS-SIMD sets the Certification Specifications (‘soft law’) for certifying the Operational Suitability Data element on simulators which is defined in the ‘hard law’ in 21.A.15(d)(2): ‘definition of scope of aircraft validation source date to support the objective qualification of simulators associated to the pilot type rating training …’ This objective qualification imposes the use of FFS level B, C & D for aeroplanes. The requirement derives from the validation flight test data requirements applicable to FFS level B, C & D for aeroplanes, and applicable to FFS B, C & D and FTD level 3 for helicopters.

The validation source data applies to the devices dedicated to handling teaching, which are aeroplane or helicopter FFS's Level B, C or D, plus the FTD Level 3 for helicopters only.

There is no aeroplane FTD Level allowing to teach handling: aeroplane FTD Level 1 or 2 can only be used for procedure teaching, not handling.

Moreover, the FSTD manufacturers use a top-down approach from the FFS to the FTD as lower device. Thus, validation source data is produced only for FFS in the aeroplane world, not for FTD.

Example: ZFTT. The base training phase of the course is not performed on the plane. Since this is pure handling, it has to be done in an FFS for aeroplanes or helicopters, or in some cases, in an FTD Level 3 for helicopters, which is also capable of handling, but so far, no aeroplane FTD Level 1 or 2 can be used for this phase.

comment *72* comment by: *CAE Inc.*

Comment:
Please explain the rationale to exclude flight training devices in the "aeroplanes" requirement
Recommendation:
Include that all FSTDs subject to qualification requirements and that the use of flight test data is required to support such qualification.

response Not accepted

See response to comment No 56.

comment *73* comment by: *CAE Inc.*

Comment:
Limited to "validation data"
Recommendation:
Extend the scope to include all other data, as discussed above that is required to support the development of a training program.

response Not accepted

See response to comment No 61.

3. Proposed amendments — 3.1. Draft Certification Specifications and Guidance Material (Draft EASA Decision) — Certification Specifications and Guidance Material for Simulator Data CS-SIMD — CS-SIMD Book 1 — Subpart A — General — CS SIMD.110 Scope of applicability p. 11

comment *3* comment by: *Federal Office of Civil Aviation FOCA*

CS SIMD.110 (b): It is unclear who is responsible to approve changes to validation source data.

response	Noted That is defined by 21.A.95 and 21.A.103: major changes to OSD (which is part of the Type Certificate) are approved by the Agency. Minor changes can be approved by the Agency or by a Design Organisation Approval holder under its privileges granted in accordance with 21.A.263(c)(2).

comment	*12* comment by: *ADAC HEMS Academy GmbH* In the explanatory note 2.2.1 the scope was limited on small and large rotorcraft. Suddenly all aircraft types applicants for which the pilot type rating training makes use of simulators and flight training devices are in the scope (which makes sense in our opinion). Full flight simulators level A are capable of more comprehensive training than flight training devices level 2/3. But they are not mentioned. In AMC2.FCL.725(a) no level A/B full flight simulators are mentioned at all, which is also very strange and not understandable. Why are FFS level B now exclusively mentioned in the scope of applicability?
response	Noted The Explanatory Note gave a simplified version of the applicability. The precise and accurate applicability is as described in CS SIMD.110. See response to comment No 56.

comment	*57* comment by: *IATA* *CS SIMD.110 Scope of applicability, item (a)(1)* **Observation**: Pilot type rating training for aeroplanes includes flight training devices in addition to full flight simulators, why then are validation source data not required for aeroplane flight training devices as done for helicopter flight training devices ? Recommend to add after "full flight simulators" the following: "and flight training devices".
response	Noted See response to comment No 56.

comment	*74* comment by: *CAE Inc.* **Comment:** CS-FSTD (A) and CS-FSTD (H) requires flight test data for aeroplane FTDs, and Level A FSTDs, and Part-FCL allows for the use of these devices in an approved training program. What is the rationale for excluding some of the FSTD types? **Recommendation:** Include all FSTDs subject to qualification requirements and that require the use of flight test data to support such qualification.
response	Noted See response to comment No 56.

comment	*75* comment by: *CAE Inc.* **Comment:** Paragraph (b) is vague and open to interpretation. What is meant by "changes to the elements listed in CS SIMD.100"? Is it intended to cover update or upgrade of devices that are qualified to the levels as specified in the paragraphs (a) and (b)? **Recommendation:** Clarify "changes to the elements"
response	Noted 'Changes to the elements' is meant to address changes to the definition of scope of validation source data.

comment	*80* comment by: *Dassault Aviation* DASSAULT-AVIATION comment on CS SIMD.110 (b) "Scope of applicability": The wording "*approval of changes to the elements listed in CS SIMD.100*" does not seem to be correct: a. Either the concerned change is a change (an update) to the definition of scope of validation source data (i.e. *the elements listed in CS SIMD.100*), and in such a case the word "*approval*" would not be adapted. For such an update, "acknowledgement" or "acceptance" seem more adapted than "approval". b. Either the concerned change is a change to the already approved definition (Type Design + changes). In such a case the word "*approval*" would be adapted ("*approval*" here would address both Type Design and all OSD aspects). But the sentence "*the elements listed in CS SIMD.100*" would then be misleading, as the approval is linked to the entire change, not only to some VDR elements.
response	Noted The Agency acknowledges that the text of CS SIMD.110(b) can be confusing. Instead of referring to the 'elements', the following term is introduced: '… changes to an already approved definition of scope of validation source data.'

comment	*89* comment by: *DGAC FRANCE* *CS SIMD.110 Scope of applicability. Paragraph 2 states that this document applies to Level 2 or 3 flight training devices for helicopters. But item f.1 of the FLIGHT SIMULATION TRAINING DEVICE STANDARDS detailed in CS-FSTD H (see bottom of page 9/128) indicates that validation flight test data shall be used as the basis for flight and performance and systems characteristicsn, for FTD Level 3 only. Consequently, paragraph 2 of CS SIMD.110 has to limit the scope of applicability to Level 3 flight training devices only.*
response	Accepted Helicopter Level 2 FTD will be removed from CS SIMD.110. The link to helicopter flight test validation source data is not required for Level 2 FTD.

comment	*102* comment by: *Jonathan Wisdom* In regards to: These Certification Specifications apply to all aircraft type certificate applicants for which the pilot type rating training makes use of approved: Comment: In Section 2.2.1 of the Explanatory Notes, there is mention that CS-SIMD affects manufacturers of "large aeroplanes" and "large rotorcraft", yet this language cannot be found in the scope of applicability within CS-SIMD.110. With the current language, any new aircraft will be required to provide OSD validation source data, regardless of aircraft size. Proposed Wording: These Certification Specifications apply to large aeroplane and large rotorcraft type certificate applicants for which the pilot type rating training makes use of approved: Large Aeroplane must be defined. Large Rotorcraft must be defined.
response	Noted See response to comment No 39.

comment	*103* comment by: *Jonathan Wisdom* Question: - Can you please provide explanation/justification of why applicant data is required for FTD 2, 3 and Level B, C, & D FSTDs for rotorcraft but only Level B, C, & D for aeroplanes? Particularly since aeroplanes requiring type ratings are larger with more passengers, the implications to maintaining fidelity with data would be just as important for aeroplanes, if not more so, than helicopters. If applicants have deemed that increased liability is not much of a consideration, then can you please provide the explanation of why this is divided as such?
response	Noted See response to comment No 56.

comment	*108* comment by: *A3-Avionics* It is not clear and not comprehensible why Level 2 and 3 flight training devices are not applicable for pilot type rating in aeroplanes. Particular as it is possible and allowed in helicopter type rating it should be at least in a hugh part also possible in aeroplane type rating. For a big quantity of training relevant actions there is no stringency need for a full flight simulator. The FFS admits in these cases no additional experienced data for pilot training.
response	Noted See response to comment No 56. See also Appendix 8 to AMC 1 CS FSTD.A.300.
Eroplnes	

comment	*111* comment by: *cueSim* This section includes usage of FFS Level B and FTD Levels 2 and 3. This is inconsistent with the FFS Levels C and D stipulation for CS-FCD, at least for 'Level E' training and checking. In addition, the training approval hours are not currently included in Part-FCL for FFS Level B.
response	Not accepted For checking level E, the use of Full Flight Simulators Level C or D is allowed for aeroplanes and FFS Level B and FTD Level 3, or FFS Level C or D for helicopters. See footnote number 2 to CS FCD.415.

3. Proposed amendments — 3.1. Draft Certification Specifications and Guidance Material (Draft EASA Decision) — Certification Specifications and Guidance Material for Simulator Data CS-SIMD — CS-SIMD Book 1 — Subpart A — General — CS SIMD.120 Status of provided data p. 11

comment	*76* comment by: *CAE Inc.* **Comment:** NPA States: "Validation source data: the aircraft reference data related to aircraft systems and avionics which are used to objectively confirm that the flight simulation model reflects the static as well as the dynamic performance characteristics of the aircraft and its relevant systems." **Recommendation:** Include Performance & Handling data, which forms the vast majority of the QTG document.
response	Partially accepted Change definition CS SIMD.130 as follows: Validation source data: the aircraft reference data that are composed of ground and flight test data as well as engineering data, ~~related to aircraft systems and avionics~~ which are used to objectively confirm that the flight ~~simulation model~~ simulator reflects the static as well as the dynamic performance characteristics of the aircraft and its relevant systems.

3. Proposed amendments — 3.1. Draft Certification Specifications and Guidance Material (Draft EASA Decision) — Certification Specifications and Guidance Material for Simulator Data CS-SIMD — CS-SIMD Book 1 — Subpart A — General — CS SIMD.130 Terminology p. 11

comment	*19* comment by: *Airbus* Comment: Clarify who is the Applicant (A/C Manufacturer, TC/OSD Applicant). Clarify who is the End-User (Training Operator, ATO). Justification: Clearly identify who must comply.

response	Noted The applicant is defined by Part-21; for the initial SIMD, it is the applicant for the TC. For changes, it can be the TC holder or any other person seeking approval under an STC. The end user is defined by CS FSTD and is the one that needs the qualification of the simulator.

comment	*24* comment by: *Austro Control GmbH Austria* COMMENT: in our opinion data related to aircraft systems and avionics is too restrictive. The aircraft should be seen as a physical system and the behavior of this system as a whole is important. PROPOSED TEXT: reference data related to the aircraft as a system which are used to objectively confirm that the flight simulator model reflects the static and dynamic characteristics of the aircraft and its relevant systems.
response	Partially accepted See response to comment No 76.

comment	*25* comment by: *Austro Control GmbH Austria* COMMENT: in our opinion data related to aircraft systems and avionics is too restrictive. The aircraft should be seen as a physical system and the behavior of this system as a whole is important. PROPOSED TEXT: reference data related to the aircraft as a system which are used to objectively confirm that the flight simulator model reflects the static and dynamic characteristics of the aircraft and its relevant systems.
response	Partially accepted See response to comment No 76.

comment	*26* comment by: *Austro Control GmbH Austria* COMMENT: in our opinion data related to aircraft systems and avionics is too restrictive. The aircraft should be seen as a physical system and the behavior of this system as a whole is important. PROPOSED TEXT: reference data related to the aircraft as a system which are used to objectively confirm that the flight simulator model reflects the static and dynamic characteristics of the aircraft and its relevant systems. COMMENT: Suggest that this list is expanded: what is the definition of validation data road map?
response	Partially accepted

	See response to comment No 76. The validation data road map is defined in CS SIMD.220 (will become GM to CS SIMD.200).
comment	*44* comment by: *Austro Control* COMMENT: In our opinion data related to aircraft systems and avionics is too restrictive. The aircraft should be seen as a physical system and the behavior of this system as a whole is important. PROPOSED TEXT: Reference data related to the aircraft as a system which are used to objectively confirm that the flight simulator model reflects the static and dynamic characteristics of the aircraft and its relevant systems.
response	Partially accepted See response to comment No 76.
comment	*45* comment by: *Austro Control* Suggest that this list is expanded: What is the definition of "validation data road map" ?
response	Noted The validation data road map was defined in CS SIMD.220 (will become GM to CS SIMD.200).
comment	*81* comment by: *Dassault Aviation* DASSAULT-AVIATION comment on CS SIMD.130 “Terminology”: The word “scope” (of validation source data) is important in this future CS-SIMD, but this word may possibly have many different meanings, which may generate misunderstandings. Clarifications in CS SIMD.130 or associated GM of what is/are the “scope of validation source data” would be more than useful.
response	Accepted Additional guidance material will be included: **GM1 CS.SIMD.100**: … (b) The ‘Scope’ (of validation source data) shall be understood as ‘Specification’ (of validation source data). This scope is to be included in the validation data road map (CS SIMD.220), distributed under the box concept (GM1 SIMD.120). **GM1 CS.SIMD.200**:

…

(c) Additional set of validation tests may be specified in order to complement the minimum set of validation tests listed in AMC1 FSTD(A&H).300(b) table.

A typical illustration of such a possible additional specification could be :

'Behaviour of the aeroplane on ground at 95 % of maximum cross-wind shall be simulated with associated validation data. In this example, the minimum would normally be 60 % of the AFM value'.

comment

82 comment by: *Dassault Aviation*

DASSAULT-AVIATION comment on CS SIMD.130 "Terminology":
The definition of "TASE" shall be provided.
Please note that this comment may also usefully impact other NPAs or future OSD CSs, as the TASE definition is not provided in the new Part 21 (refer to amendment of Commission Regulation (EU) No 748/2012).
Proposal for a possible definition:
1. TASE(x): Training Area of Special Emphasis (x = "p" for Pilot/flight crew, "c" for Cabin crew, ""m" for Maintenance Certifying Staff).
2. TASEx are part, according to the TCH, of the minimum knowledge and skills that operators (x) must have to safely operate or release maintenance operations on an aircraft model. They concern features, tasks or operations that may be complex or unusual or by experience have been subject to human errors.
3. TASEx are mandatory aspects that shall be known by operators and emphasized by training providers when designing their training courses and / or checking programs. TASEx may also impact the currency if any.
4. TASEx impact the minimum requirements for Type Rating syllabus.

response

Partially accepted

'TASE' is already defined in CS FCD.105(n). For CS-SIMD only the definition of TASE for flight crew is relevant.

GM1 SIMD.130 'Terminology' will be expanded to refer also to CS FCD.105 for other useful definitions.

comment

91 comment by: *Boeing*

Page: 11 of 18
Paragraph: *CS SIMD.130 - Terminology*

The proposed text states:
"Validation source data: the aircraft reference data related to aircraft systems and avionics which are used to objectively confirm that the flight simulation model reflects the static as well as the dynamic performance characteristics of the aircraft and its relevant systems."
REQUESTED CHANGE:
Revise the text as follows:
"Validation source data: the aircraft reference data ~~related to aircraft systems and avionics~~

composed of ground and flight test data as well as engineering data, which are used to objectively confirm that the flight ~~simulation model~~ **simulator** reflects the ~~static as well as the dynamic~~ performance **and handling** characteristics of the aircraft and its relevant systems."
If the requested revision above is not acceptable, then we request the following revision:
"Validation source data: the aircraft reference data ~~related to aircraft systems and avionics~~ which are used to objectively confirm that the flight simulation model reflects the static as well as the dynamic performance characteristics of the aircraft and its relevant systems."

JUSTIFICATION:
The definition in the proposed paragraph, in particular its emphasis on systems and avionics, is inconsistent with the terminology used in the Explanatory Note and in CS SIMD.200. Further, it is not the definition agreed upon during a meeting of specialists at EASA headquarters in Cologne during the 4th quarter of 2009. The implied emphasis on aircraft systems and avionics objective testing is not consistent with today's practices and can be interpreted to introduce new requirements for objective testing.

response

Partially accepted

See response to comment No 76.

comment

112 comment by: *cueSim*

Does the definition of validation source data mean that definition and supply of data must include data to support validation of ALL aircraft systems, e.g. information displays? Systems have been successfully developed for simulation by various means to date including Aircraft Manufacturer data supply, but also including investigation (e.g. observation of cause and effect) on example customer airframes. Is it the intention that such methodologies will become unavailable to the simulator manufacturers? Even if not, will EASA *normally expect* that ALL such validation material is sourced from the Aircraft Manufacturer and be documented in the OSD package? It is important that this is clarified, so as to minimise differences in interpretation across EASA and the individual Competent Authorities.

response

Noted

This CS will deal with the scope and process to derive the data, not the approval of the data itself. This OSD concerning simulators is not the so-called 'data package', but the definition (meaning the specifications) of simulator validation source data.

See also response to comment No 76.

comment

114 comment by: *Airbus*

CS SIMD.130 currently states :
Quote
Validation source data: the aircraft reference data related to aircraft systems and avionics which are used to objectively confirm that the flight simulation model reflects the static as well as the dynamic performance characteristics of the aircraft and its relevant systems.
Unquote
For clarification of what are the aircraft reference data, we recommend amending this

	definition as follows: Validation source data: the aircraft reference data that are composed of ground and flight test data as well as engineering data, ~~related to aircraft systems and avionics~~ which are used to objectively confirm that the flight simulation model reflects the static as well as the dynamic performance characteristics of the aircraft and its relevant systems.
response	Noted See response to comment No 76.

3. Proposed amendments — 3.1. Draft Certification Specifications and Guidance Material (Draft EASA Decision) — Certification Specifications and Guidance Material for Simulator Data CS-SIMD — CS-SIMD Book 1 — Subpart B — Determination of scope of validation source data — CS SIMD.200 Determination of scope of validation source data p. 12

comment	*27* comment by: *Austro Control GmbH Austria* PROPOSAL: delete the word performance, as far as all dynamic characteristics are affected, see CS-SIM 130: ".....well as the dynamic characteristics of the aircraft and its relevant systems."
response	Noted See response to comment No 76.

comment	*28* comment by: *Austro Control GmbH Austria* COMMENT: in this context what exactly is a "validation data road map"? In context with the JIPs the term was used as a timeline for providing data. We suggest to define the term or perhaps use a more appropriate term, such as validation data matrix.
response	Noted The validation data road map was defined in CS SIMD.220 (will become GM to CS SIMD.200).

comment	*46* comment by: *Austro Control* COMMENT: In this context what exactly is a "validation data road map"? In context with the JIPs the term was used as a timeline for providing data. We suggest to define the term or perhaps use a more appropriate term, such as validation data matrix.
response	Noted The validation data road map was defined in CS SIMD.220 (will become GM to CS SIMD.200).

comment	*106* comment by: *Jonathan Wisdom* In regards to:

any additional specification resulting from the additional features selected by the applicant.
Question:
Once an aircraft manufacturer decides what these additional features are, does this imply that all such additional features, for which the scope of validation source data is based on, must be a part of any subsequent qualification? If so, will the aircraft manufacturer be required to make associated data available to FSTD manufacturers? For example, system component design data that could potentially be required to meet requirements set by the validation source data.

response

Noted

The answer to the first question is 'yes': Additional features must be part of any subsequent qualification. However, typically, the additional features should not impact the scope of validation source data (contrary to what the question says: 'Once an aircraft manufacturer decides what these additional features are, does this imply that all such additional features, for which the scope of validation source data is based on, must be a part of any subsequent qualification?)'.

The answer to the second question is 'no'. The manufacturer is required to make available the definition of scope of validation source data, not the associated design data itself. More precisely (please see CS.SIMD.200, GM1 SIMD.100, GM2 SIMD.200 and GM3 SIMD.300), additional specifications resulting from such additional features are to be considered at the same level as the CS-FSTD validation tests. So, for the aircraft manufacturer, the requirement to make available the 'additional features' associated data, is the same as the requirement to make available the 'CS-FSTD validation tests' associated data. This associated data is not included within the OSD SIMD border, as only the scope of validation source data is included.

.

comment

119 comment by: *Bombardier Aerospace*

The introductory sentence to 200(a) is identical to CS.SIMD.130 and thus redundant. Recommend deleting.
References to the "qualification test guide" should be changed to "qualification test program". The last sentence describing the "validation data road map" should be moved to guidance material at it is inappropriate to define format in a CS (see also comment on CS.SIMD.220 below).

response

Partially accepted

First comment accepted. Sentence will be deleted from CS SIMD.200.

Comment to QTG not accepted.

References to the 'Qualification Test Guide' cannot be changed to 'Qualification Test Programme', since the QTG is the terms of reference used in the whole industry for such tests. A 'Qualification Test Programme' might have a completely different signification, which could be out of the present scope.

Comment to VDR is understood as a comment to the last sentence of CS SIMD.200(b) and is accepted. The sentence referring to VDR will be moved to GM, as well as the content of CS SIMD.210 and 220.

3. Proposed amendments — 3.1. Draft Certification Specifications and Guidance Material (Draft EASA Decision) — Certification Specifications and Guidance Material for Simulator Data CS-SIMD — CS-SIMD Book 1 — Subpart B — Determination of scope of validation source data — CS SIMD.210 Source of validation source data p. 12

comment	*4* comment by: *Federal Office of Civil Aviation FOCA* CS SIMD.210 par. a and b: The term 'properly justified' should be substantiated. CS SIMD.210 par. a, b, c and d: It is unclear who is responsible to approve such other/alternate validation data.
response	First comment: Partially accepted. Current CS SIMD.210 will become GM to CS SIMD.200. The use of the wording 'Properly justified' in a GM is appropriate and shows that the Agency needs to get a sufficient level of confidence in the relevance and representativeness of all the data provided in the VDR. For example, this confidence could be acquired through applicant substantiation documents, visits of applicant simulation devices, meetings or audits. The appropriate justification means 'should be agreed with the Agency early in the project, on a case by case basis'. In addition, the following text will be added to GM2 to CS SIMD.200: 'For FFS and FTD level 3, aircraft flight test data is preferred. Data other than flight tests should include an explanation of validity with respect to available flight test information. In the case of a new aircraft type, the aircraft manufacturer's engineering simulation/simulator data, partially validated by flight test data, may be used to support the interim qualification of the full flight simulator or flight training device.' Second comment: Noted. See response to comment No 3.

comment	*14* comment by: *ADAC HEMS Academy GmbH* There is no definition given what 'properly justified' means. There are no guidelines. This will lead to different interpretations by the competent authorities. Objective criteria for data validation are missing. In other industries, e.g. pharmaceutical industry, frameworks and guidelines are defined to assure that data integrity is guaranteed. To give an example the pharmaceutical industry is using GAMP (Good Automated Manufacturing Practice). This framework aims to safeguard patient safety, product quality and data integrity. A comparable validation framework and guidelines should be defined and made available by the regulator. This would prevent indiscriminate interpretations by the competent authorities and ensure flight safety and data integrity.
	Noted

	See response to comment No 4.
comment	*36* comment by: *Kohlman Systems Research, Inc.* (a) and (b) seem to allow for use of data from other sources but it is not clear whether this means other than the aeroplane manufacturer or other than flight test data. CS-FSTD (A) and (H) allow the use of data from other acceptable suppliers. If simulator objective qualification is limited to the use of aeroplane manufacturer flight test data, this could have a significant cost impact on the simulator manufacturers which will be passed on to the simulator operators and users.
response	Noted See response to comment No 4.
comment	*41* comment by: *Aviation Academy Austria* If only validation flight test data from the aeroplane manufacturer is accepted by the authority this will further strengthen the monopl position of aeroplane manufacturers. THis fact should be adressed to the EU Antitrust organizations.An improvment would be if the aeroplane manufacturers are bound to provide the data to all simulator manufacturers with the same condition. Currently some simulator manufacturers are excluded from designing simulators because of exclusive contracts between aeroplane manufacturers and individual simulator manufacturers. Special companies which are operating in the field of flight testing are just as capable of providing validation data. The rule should read: For inital qualification of full flight simulators. aeroplane flight test data is used.
response	Noted See response to comment No 4.
comment	*77* comment by: *CAE Inc.* **Comment:** Paragraph (a) and (b) state that “Data from other sources may be used, when properly justified”, this is vague and open to interpretation. **Recommendation:** (1) Restate as follows: “Data, other than the manufacturer’s validation flight test data, may be used when properly justified (through VDR).” (2) add that aircraft manufacturers validation data must be made available and accessible.
response	Partially accepted See response to comment No 4.
comment	*92* comment by: *Boeing*

Page:12 of 18
Paragraph: *CS SIMD.210, Source of validation source data*

The proposed text states:
"(a) For initial qualification of full flight simulators, aeroplane manufacturer's validation flight test data is used. Data from other sources may be used, when properly justified."

REQUESTED CHANGE:
Paragraph (a) of CS SIMD.210 is not consistent with the text in AMC1, paragraph 5 (iii) in CS FSTD(A).300. We request that paragraph (a) of CS SIMD.210 be replaced with the following wording from CS-FSTD(A).
"(a) For initial qualification of FFSs and FTDs, aeroplane manufacturers' validation flight test data is preferred. Data from other sources may be used, subject to the review and concurrence of the competent authority."

JUSTIFICATION: Ensure consistency between CS-SIMD and CS-FSTD(A).

response

Partially accepted

See response to comment No 4.

comment

93 comment by: *Boeing*

Page:12 of 18
Paragraph: *CS SIMD.210, Source of validation source data*

The proposed text states:
"(d) In the case of a new aircraft type, the aircraft manufacturer's engineering simulation/simulator data, partially validated by flight test data, may be used to support the interim qualification of the full flight simulator or flight training device."
REQUESTED CHANGE:
"(d) ~~In the case of a new aircraft type, the aircraft manufacturer's~~ **Aircraft manufacturers'** engineering simulation/simulator data, partially validated by flight test data, may be used to support the interim qualification of **new aircraft types or initial qualification of derivatives of a fully flight test validated aircraft type for** the full flight simulator or flight training device."

JUSTIFICATION:
As noted in AMC8 FSTD(A).300, when a fully flight test-validated simulation is modified as a result of changes to the simulated aircraft configuration, a qualified aircraft manufacturer may choose, with prior agreement of the competent authority, to supply validation data from an engineering simulator/simulation to selectively supplement flight test data. This may be allowed by paragraph (a) in proposed CS SIMD.210, but it is not clear. Our recommended change will clarify this.

response

Partially accepted

See response to comment No 4.

comment	*104* comment by: *Jonathan Wisdom* In regards to: (a) and (b) – Data from other sources may be used, when properly justified Question: - Please explain the cause, scope, and limitations of why, how and when this can be "properly justified"?
response	Noted See response to comment No 4.

comment	*107* comment by: *Jonathan Wisdom*
	
	In regards to:
	(a) and (b) – Data from other sources may be used, when properly justified
	Comment:
	Third-party flight test data should be allowed as validation source data in many cases. Proper justification for these cases includes:
	
	• Validation source data is not made available by the aircraft manufacturer
	• Validation source data is not available from the aircraft manufacturer at a competitive price
	• Validation source data is not available from the aircraft manufacturer in a time-frame consistent with the lead time required for a qualified FSTD
	• If it can be demonstrated that a better alternative to the OSD data package exists:
	  o With regards to flight test documentation (available information on sensor data, rigging data, data-processing)
	  o with regards to supplemental flight test data for FSTD modeling pruposes
	  o with regards to validation source data originating from a single, conformal aircraft.
	• Lower Risk: it's possible that a simulator manufacturer may not be able to review enough details of a aircraft manufacturer's data package prior to making a decision regarding whether to buy a license for that data package or to acquire the data using an alternative method. Note that a simulator manufacturer is best equipped to make this determination. The simulator manufacturer must develop models and work within the budget constraints of the operator.

response	Noted See response to comment No 4.

comment	*113* comment by: *cueSim* Paragraph (b) states that validation data can be sourced from other than the helicopter manufacturer, '…when properly justified.' Apart from the situation where data can be shown to be an improvement upon the manufacturer's data, what is likely to be an acceptable justification? Will cost of supply and other contractual limitations (e.g. repeated re-use) from the helicopter manufacturer to the simulator manufacturer be acceptable justification? If not, there is a danger that meaningful competition within the simulation market will

	diminish. It is important that this is clarified, so as to minimise differences in interpretation across EASA and the individual Competent Authorities.
response	Noted The meaning of 'other sources' is: 'other sources than flight test'.

comment	*120* comment by: *Bombardier Aerospace* References to the manufacturer should be deleted as the requirement is not manufacturer-specific. The specification should only emphasize that the validation flight test data must come from a justifiable source. The AMC could then state that manufacturer validation flight test data is considered a justifiable source.
response	Accepted See response to comment No 4.

3. Proposed amendments — 3.1. Draft Certification Specifications and Guidance Material (Draft EASA Decision) — Certification Specifications and Guidance Material for Simulator Data CS-SIMD — CS-SIMD Book 1 — Subpart B — Determination of scope of validation source data — CS SIMD.220 Validation data road map p. 12

comment	*5* comment by: *Federal Office of Civil Aviation FOCA* CS SIMD.220: The description of the validation data roadmap (VDR) is thoroughly covered resp. detailed in the Appendix 2 to the AMC1 of CS-FSTD (A/H).300. As the CS-SIMD refers to CS-FSTD anyway the article CS SIMD.220 should either be deleted to avoid duplication or reduced to an appropriate reference to CS-FSTD (A/H).
response	Noted CS FSTD: the definition 'VDR' will remain for simulators not subject to OSD (CS-SIMD). The CS FSTD text will be amended after the OSD transition phase to remove duplications.

comment	*15* comment by: *ADAC HEMS Academy GmbH* To prevent individual interpretation the validation data road map must be predefined by the competent authority and accessible in advance for the applicant. The framework and guidelines for a matrix could also be found in the GAMP as mentioned in our comment to CS.SIMD.210.
response	Noted

comment	*29* comment by: *Austro Control GmbH Austria* See comment above: VALIDATION DATA MATRIX in our opinion is the preferred term. "Road maps" used to be time lines to be met in context with complex program.

response	Not accepted See response to comment No 28.

comment	*47* comment by: *Austro Control* See comment above: VALIDATION DATA MATRIX in our opinion is the preferred term. "Road maps" used to be time lines to be met in context with complex programs.
response	Not accepted See response to comment No 28.

comment	*121* comment by: *Bombardier Aerospace* A specification should not detail the document format or revision control system. While valuable, this information should be moved to advisory material (AMC.SIMD.220). CS.SIMD.220 should be limited to describing the data used in certification. e.g. "CS.SIMD.220 Validation Data (a) The scope of validation data used in the qualification of the flight simulator training device must be fully defined. (b)The sources of data for all required tests must be identified. The range of validity for this data must also be identified, including applicable aircraft configurations." All other information in the NPA should be moved to the AMC.
response	Partially accepted Agreed to delete the words 'in a matrix format'. All other elements listed in CS SIMD.220 are considered necessary by the Agency (CS SIMD.220 will become GM4 SIMD.200).

comment	*123* comment by: *General Aviation Manufacturers Association / Hennig* The CS SIMD.220 Validation data road map proposal contains too much specificity for a Certification Specification (CS) document. As an example, in (b) the agency calls out both the high-level content of the "validation data road map", but then continues with great specificity by citing required content more suitable for AMC material to the CS including pointing to road map content such as engine type validity of the data, revision level of the all avionics and impact on handling qualities, etc. and also spells out the roadmap containing "...rationale or explanation in cases where data or parameters are missing..." GAMA recommends that EASA restructure .220 between CS and AMC material. One approach would be to identify CS SIMD.220(b) as: "The sources of data for all required tests must be identified. The range of validity for this data must also be identified, including applicable aircraft configurations." The agency would then provide additional color and context about the validation data roadmap in AMC material.
response	Partially accepted CS SIMD.220 will become GM.

3. Proposed amendments — 3.1. Draft Certification Specifications and Guidance Material (Draft EASA Decision) — Certification Specifications and Guidance Material for Simulator Data CS-SIMD — CS-SIMD Book 2 — GM Subpart A — General — GM1 SIMD.100 Scope p. 15

comment	*30* comment by: *Austro Control GmbH Austria* COMMENT: Suggest that you add a list of abbreviations and include CS-FCD and TASE.
response	Noted See response to comment No 82.

comment	*48* comment by: *Austro Control* Suggest to add a list of abbreviations at the begin of the document and include CS-FCD and TASE.
response	Noted See response to comment No 82.

comment	*58* comment by: *IATA* **Subpart A - General** GM1 SIMD.100 Scope Add following sentence: For scope of aeroplane validation source data additional guidance can be taken from the IATA Document „Flight Simulation Training Device Design and Performance Data Requirements“ 7th edition 2009.
response	Not accepted The Agency does not consider this information appropriate for inclusion in this CS.

comment	*78* comment by: *CAE Inc.* **Comment:** The 3rd bullet “reference of actual pieces of equipment.” is vague **Recommendation:** Provide context
response	Noted The Agency considers that complex hardware aspects may impact the functional behaviour of the simulator. Therefore, certain aircraft equipment might be mandated.

3. Proposed amendments — 3.1. Draft Certification Specifications and Guidance Material (Draft p. 15

EASA Decision) — Certification Specifications and Guidance Material for Simulator Data CS-SIMD — CS-SIMD Book 2 — GM Subpart A — General — GM1 SIMD.120 Status of provided data

comment	*6* comment by: *Federal Office of Civil Aviation FOCA* GM1 to CS SIMD.120: The graphical explanation given in this GM is unclear and may lead to misinterpretation. A clearer explanation (picture) should be provided and ideally supported by practical examples reflecting what data could fit into the different boxes.
response	Noted The 'boxes' concept is a general concept, applicable to all OSD elements. See AMC and GM to Part-21: GM No 3 to 21.A.15(d).

comment	*31* comment by: *Austro Control GmbH Austria* COMMENT: Please omit all non-essential information. This diagram is confusing. What does the dashed horizontal line mean? Why is Part 21 on the right side pointing to the "non-mandatory items" (Boxes 2 and 4)? Furthermore, the diagram is of bad quality (screen shot with hard to read text).
response	Noted See response to comment No 6. The dashed horizontal line marks the distinction between the regulatory sphere of Part-21 (applicable to designers) and the rules applicable to the end users of OSD: Part ORO, SPA, 66, 147 and 145. The Part-21 arrow on the right points at all 4 boxes. The quality of the picture will be improved.

comment	*49* comment by: *Austro Control* This diagram makes absolutely no sense. Please omit all non-essential information. This diagram does not contribute to the understanding of the text. It is confusing. What does the dashed horizontal line mean? Why is Part 21 on the right side pointing to the "non-mandatory items" (Boxes 2 and 4)? Also, the diagram is of bad quality (screen shot with hard to read text).
response	Noted See response to comment No 31.

comment	*54* comment by: *SILKAN* This GM clearly shows that the only applicant is the Aircraft TC and the Training Organisation or operator which are actually using the validation data to support the FSTD qualification are seen as the end-user. This confirms the TC applicant as the unique provider of Validation

	Data in the scope of the OSD. This may lead to a monpolistic position with some of the drawbacks already identified in our comment #37.
response	Noted See response to comment No 66 and 101.

3. Proposed amendments — 3.1. Draft Certification Specifications and Guidance Material (Draft EASA Decision) — Certification Specifications and Guidance Material for Simulator Data CS-SIMD — CS-SIMD Book 2 — GM Subpart A — General — GM1 SIMD.130 Terminology p. 15

comment	*7* comment by: *Federal Office of Civil Aviation FOCA* GM1 to CS SIMD.130: The reference to the AMC1 to FSTD(A/H).200 is not sufficient. E.g. the term TASE is not explained, neither in the referenced provision nor in this NPA.
response	Noted See response to comment No 82.

3. Proposed amendments — 3.1. Draft Certification Specifications and Guidance Material (Draft EASA Decision) — Certification Specifications and Guidance Material for Simulator Data CS-SIMD — CS-SIMD Book 2 — GM Subpart B — Determination of scope of validation source data — GM1 SIMD.200 Determination of scope of validation source data p. 16

comment	*8* comment by: *Federal Office of Civil Aviation FOCA* GM1 to CS SIMD.200 par. b: The term 'correctly and thoroughly' should be substantiated.
response	Accepted Those words will be removed.

comment	*9* comment by: *Federal Office of Civil Aviation FOCA* GM2 to CS SIMD.200: The graphical explanation given in this GM is unclear. The arrow pointing from the box 'CS-FSTD + additional features' connects to the box 'List of flight test/engineering data' within the VDR. This connection requires explanation. Furthermore, a line from the box 'Source of validation source data' is drawn into the box 'Validation data roadmap (VDR)'. The meaning of this line also requires explanation.
response	Accepted The diagram will be amended.

comment	*20* comment by: *Airbus* <u>Comment</u>:

	Write the sentences in the “active” (vs “passive”) form in order to identify who has to “substantiate”. Justification: Clearly identify who must comply.
response	Noted SIMD is one of the elements of OSD. The system of OSD, being included in the TC, is such that the applicant for the TC is required to show compliance with the applicable CS (in this case CS-SIMD). Therefore, it is always the applicant having to substantiate.

comment	*21* comment by: *Airbus* Attachment No 1 In GM2 SIMD.200, the readability of the diagram should be improved to show the input more clearly. See attached file.
response	Accepted See response to comment No 9.

comment	*32* comment by: *Austro Control GmbH Austria* COMMENT: the current text leaves room for miss-interpretation. The basis for the SCOPE of validation data should not be an FFS, in particular not when the aircraft has yet to be developed. We suggest that you reference to CS-FSTD and perhaps to MQTG (as you did) in case an applicant wants to copy an existing simulator. In CS-FSTD the scope is clearly laid down.
response	Noted The comment is not understood.

comment	*33* comment by: *Austro Control GmbH Austria* COMMENT: It would be useful for a reader to actually see a matrix with sample data rather than one possible way of meeting the requirement.
response	Not accepted CS FSTD already contains examples of matrix with sample data.

comment	*50* comment by: *Austro Control* COMMENT: The current text leaves room for misinterpretation. The basis for the SCOPE of validation data should not be an FFS, in particular not when the aircraft has yet to be developed. We suggest that you reference to CS-FSTD and perhaps to MQTG (as you did) in case an applicant

	wants to copy an existing simulator. In CS-FSTD the scope is clearly laid down.
response	Noted The comment is not understood.

comment	*51* comment by: *Austro Control* Below we found - in our opinion - another pretty useless diagram. It would be much more useful for a reader to actually see a matrix with sample data as one possible way of meeting the requirement.
response	Noted For the time being, the Agency considers the general information provided here to be sufficient, but it will consider adding samples in the future.

comment	*83* comment by: *Dassault Aviation* DASSAULT-AVIATION comment on GM1 SIMD.200: What would happen (regarding airworthiness) should the scope of validation source data not be substantiated?
response	Noted If the determination of scope of validation source data is not properly substantiated, the Agency might not be in a position to accept the data. The requirement is laid down in CS SIMD 200(b).

comment	*84* comment by: *Dassault Aviation* DASSAULT-AVIATION comment on GM1 SIMD.200: What kind of (EASA or TCH under DOA privilege) formal decision will be associated to the obtaining of this substantiation? Moreover, will this decision be specific for the CS-SIMD, or will it be shared/common with other OSD CSs?
response	Noted This is dealt with by the certification process. There are no formal 'decisions' to accept a substantiation, but, if accepted, the result is to go to the next step in the certification process.

comment	*85* comment by: *Dassault Aviation* DASSAULT-AVIATION comment on GM2 SIMD.200: The diagram is a bit unclear: · The end of an arrow is missing (i.e. the arrow going from the box "Source of validation data" to the box "Validation data road map (VDR)"), · End of both "input" arrows to the box "Validation data road map (VDR)" should better show

	the VDR box itself, and not any specific greyed sub-box inside this box.
response	Noted See response to comment No 9.

comment	*86* comment by: *Dassault Aviation* DASSAULT-AVIATION comment on GM2 SIMD.200: The word “graphs” mentioned in the box “Source of validation source data” is not adequately located, as graphs are not a source of validation source data (as flight tests or engineering are). They rather are an output of such sources, that may be provided by the TCH to illustrate the validation source data (it is a way of providing validation source data amongst others). So “graphs” should not be in this box, but rather in the box “validation source data” on the right-end side of the diagram.
response	Accepted The whole box ‘Source of validation source data’ has become redundant with the improvement of the diagram and has been deleted.

comment	*90* comment by: *DGAC FRANCE* *GM1 SIMD.200 Determination of scope of validation source data, (a)* *As Aircrew regulations allow dry leasing of FSTDs, "ATO" has to be replaced with "FSTD operators"*
response	Accepted The text will be modified accordingly.

3. Proposed amendments — 3.1. Draft Certification Specifications and Guidance Material (Draft EASA Decision) — Certification Specifications and Guidance Material for Simulator Data CS-SIMD — CS-SIMD Book 2 — GM Subpart B — Determination of scope of validation source data — GM1 SIMD.210 Engineering simulator/simulation validation data p. 16-17

comment	*34* comment by: *Austro Control GmbH Austria* Attachment No 2 COMMENT:Why the quotation marks? It is either audited or not. Who is going to audit and what are the criteria? Reference to a "SET" needed. COMMENT: This text does not match the text in .210 of the certification specification. In the CS you talk about flight test data, including "other sources." "Other sources" in our opinion could be organizations other than aircraft manufacturers (e.g. flight test pilots from NLR, DLR, NASA etc. conducting flight tests). In our opinion it is utterly important that flight test data derived

from other organisations is also accepted and falls under "other sources".
In this text you limit "other sources" to engineering simulators.
From a commercial point of view it is essential that the user has the option to get a data package not only from aircraft manufacturers.
This implies that a new manufacturer can never use engineering simulator data (as he does not yet have a proven track record). Is this paragraph intended to protect established aircraft manufacturers??

response

Noted

Quotation marks will be removed and the word 'suitably' will be added before 'audited'.

It is the Agency's responsibility to accept or reject data.

'Other sources' in this context refers to other than flight test data.

Regarding 'other sources' than the TC holder: See response to comment No 66.

comment

52 comment by: *Austro Control*

Why is "audited" under quotation marks? It is either audited or not. Who is going to audit and what are the criteria?

The text does not match the text in .210 of the certification specification. In the CS you talk about flight test data, including "other sources." "Other sources" in our opinion could be organizations other than aircraft manufacturers (e.g. flight test pilots from NLR, DLR, NASA etc. conducting flight tests). In our opinion it is utterly important that flight test data derived from other organisations is also accepted and falls under "other sources".

In this text you limit "other sources" to engineering simulators.

From a commercial point of view it is essential that the user has the option to get a data package not only from aircraft manufacturers.

(b) (1) implies that a new manufacturer can never use engineering simulator data (as he does not yet have a proven track record). Is this paragraph intended to protect established aircraft manufacturers?

response

Noted

See response to comment No 34.

comment

79 comment by: *CAE Inc.*

Comment:
As written, paragraph (b) requirement could be read to mean that all conditions (1) to (4) have to be satisfied and therefore b (1) would mean that a new aircraft manufacturer who will not have such a record is excluded from using an engineering simulator, until they have a "proven track record" which in itself is a subjective requirement. An aircraft manufacturer who meets conditions b (2) to b (4) may be equally qualified to provide data with the use of an engineering simulator.

Recommendation:
Clarify the paragraph to indicate that not all of the requirements of paragraph (b) have to be met to qualify.

response

Noted

This is Guidance Material, and alternative means of compliance can be accepted by the Agency when properly justified.

comment

94 comment by: *Boeing*

Page: 17 of 18
Paragraph: *GM1 SIMD.210, Engineering simulator/simulation validation data*

EDITORIAL COMMENT

The proposed text states:
"(b) To be qualified to supply engineering simulator/simulation validation data, an aircraft manufacturer should:
(1) have a proven track record of developing successful data packages;
(2) have demonstrated high quality prediction methods through comparisons of predicted and flight test validated data;
(3) provide a demonstration of the engineering simulator/simulation fidelity to the aircraft. The use of the engineering simulator/simulation to support aircraft development and certification is an acceptable means of demonstration; and
(4) have an acceptable configuration control system in place covering the engineering simulator/simulation.
(c) Aircraft manufacturers seeking to take advantage of this alternative arrangement should contact the Agency at their earliest convenience."

REQUESTED CHANGE:
Paragraph (b) (3) of GM1 SIMD.210 is not consistent with the text regarding engineering simulation validation data in AMC7 FSTD(A).300. The text in GM1 SIMD.210, paragraphs (b) and (c), should be removed and replaced with a reference (see suggested text below) to the material in AMC7 FSTD(A).300.
"AMC7 FSTD(A).300 provides the criteria for an aircraft manufacturer to supply engineering simulation/simulator validation data to selectively supplement flight test data."

JUSTIFICATION: Ensure consistency between CS-SIMD and CS-FSTD(A).

response

Noted

This paragraph is not inconsistent. Relevant elements from CS-FSTD have been taken into account.

comment

109 comment by: *A3-Avionics*

@ GM1 SIMD.210:
chapter (b): are these either / or paragraphs?

	chapter (1): This fromulation and idea is currently a no go for new companies. How it is possible to get a proven track record. Therefore this is against principle of equal opportunities and allows no objective decission based on technical evaluation. chapter (3): Also a "no go" for new and/or small enterprises. Normally these companies are not involved in the developement and design of a aircraft. chapter (c): as I understand this point it is impossible to engineer simulation validation data if the manufacturer of the original aircraft do not agree in that. These leads to a monopole situation and can't be the intention of the European Community, which is based on the idea of free markets and fair competition. Generally: It is clear that there must be clear criteria of the quality demands of aircraft data with respect to the class of simulator level. Therefore it is reproducible that the highest simulator level (FFS Level D) should be based on original manufacture data package to meet the highest affinity. And in this case it clearly make sense that the simulator manufacturer is in an intensive relationship to the OEM of aircraft, more or less following the present draft. But as the level of the simulator descent also the recommendations for these data is decreasing, because otherwise there is no need for lower level simulators. Following that it should be enough to use a data package generated by traceable and documented practical flightout of the relevant aircraft for at least Level A FFS. This allways meet the needs of a good and effective type rating training in even the most cases and generates for instance additional market for academic research departements in technical universities. Therefore is seems that the present draft supports and protect the big player in the simulator market and generates additional obstacles for new or smaller manufacturer with high engineering expertise but smaller developement budget.
response	Noted Chapter b: all elements have to be taken into account. Most of those elements are from CS-FSTD. See also response to comment No 66.

comment	*115* comment by: *Airbus* The notion of "audited" in paragraph (a) needs some more explanation, and we recommend adding guidance text on what is meant by this word. It is Airbus understanding that the “process” for supplying these engineering data is what will be audited, and with the extension of DOA to include OSD aspects, we also consider that in the future privileges will be granted for issuing the data based on an “audited” process when referring to Changes to OSD for SIM data. As rulemaking for OSD changes has just started we recommend EASA to consider adding as an interim step some general guidance of what will be the purpose and the meaning of "audited" in this context.
response	Noted See response to comment No 34.

comment	*117* comment by: *THALES Training & Simulation* (b)

	Helicopter manufacturer's validation flight test data seems to be recommended for FFS and FTD. Other sources may be used as soon as they are properly justified. What types of justifications are expected at this stage ? What will be the process ?
response	Noted Comment seems related to CS SIM 210. See response to comment No 4.

4. References p. 18

comment	*22* comment by: *Airbus* <u>Comment on paragraph 4.2, Affected CS, AMC and GM</u>: CS-FSTD should be impacted by this NPA. Some text (VDR, Engineering platform) has been transferred to the CS-SIMD and should therefore be deleted from CS-FSTD. <u>Justification</u>: Avoid duplication of information in CS-FSTD and CS-SIMD. Have the right level of information in each document: CS-SIMD for requirements applying to OEM data, CS-FSTD for requirements applying to FSTDs.
response	Noted See response to comment No 18.

comment	*59* comment by: *IATA* Reference: 4.3 Reference documents IATA recommend adding the two following documents: IATA Document "FSTD Design and Performance Data Requirements" 7th Edition 2009 ICAO Doc 9625, Manual of Criteria for the Qualification of Flight Simulation Training Devices, 3rd Edition
response	Not accepted See response to comment No 58.

3. Appendix A — Attachments

NPA2013-17_Airbus _cmt21_attachment

Attachment No 1 to comment No 21

NPA 2013-17 comment_r1.pdf
Attachment No 2 to comment No 34