



Simulator Implementation Procedures Working Plan Phase I – Authority System Familiarization

1. **Purpose.** - Paragraph 4.1 of the Simulator Implementation Procedures Work Plan calls for the Federal Aviation Administration (FAA) to familiarize the Joint Aviation Authority (JAA) and member National Aviation Authorities (NAA) with its system of simulator evaluation/qualification, including the associated documents, and to identify those principles that are similar and those that are different in the accomplishment of simulator evaluations and the criteria necessary for qualification or denial of qualification status.
2. **Statutory Basis.** (Paragraph 4.1(a)) The FAA's legal authority derives from federal statute, formerly known as the Federal Aviation Act, but now contained in Title 49, United States Codes, VIIA; the chapters relevant to the SIP are Chapter 447, Sections 44703, 44709, 44710, 44711; Chapter 451; Chapter 461; and Chapter 463. In these provisions, Congress has directed the agency, among other actions, to issue regulations providing for the certification of airmen, setting standards for their certification, issuing operational regulations, and taking enforcement action as necessary against airmen who fail to comply with the regulations.

The regulations issued by the FAA are the Federal Aviation Regulations, which are cited as 14 Code of Federal Regulations (CFR) parts 1 through 199. The principal regulations that are pertinent to the SIP are contained in parts 1 (Definitions), 13 (Investigative and Enforcement Procedures), 61 (Certification: Pilots, flight instructors, and ground instructors), 91 (General operating and flight rules), 121 (Operating requirements: Domestic, flag, and supplemental operations), 135 (Operating requirements: Commuter and on demand operations and rules governing persons on board such aircraft), 141 (Schools and other certificated agencies) and 142 (Training centers). Proposed regulations and final regulations are published in the Federal Register, a federal publication that appears regularly and is distributed to the public.

The FAA is in the process of issuing part 60 to incorporate simulator standards currently set forth in an Advisory Circular, as discussed below. The new rule will also replace the provisions currently contained in 14 C.F.R. part 121 Appendix H concerning standards for simulators used in flightcrew training.

3. **Associated Documents and Guidance.** (Paragraph 4.1(g)) The FAA publishes additional guidance for the qualification of simulators in the form of Advisory Circulars, FAA Orders, Flight Simulation Training Device (FSTD) Qualification Bulletins and Quality Management System processes.

(a) **FAA Advisory Circulars.** The standards for airplane simulator evaluation and qualification are currently contained in an Advisory Circular (AC) although the FAA is in the process of revising the FAR to make those standards regulatory, for the sake of consistency. Advisory Circulars contain information helpful to the public in complying with the FAR, in this case, with the rules applicable to pilot certification and simulator qualification. Advisory Circulars are listed in AC 00-2, Advisory Circular Checklist, which is accessible to the public through the internet as well as in hard copy. AC 00-2 also

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provides the status of FAA internal publications. The FAA publishes notices of new AC's and revisions to AC's in the Federal Register.

AC 120-40B, Airplane Simulator Qualification, is the reference currently used by the FAA to determine whether a simulator can be used by pilots in meeting their certification and currency requirements. As noted above, the FAA plans to replace the AC with a new rule and associated QPS (Qualification Performance Standards) document. In the meantime, the AC remains in effect and applicants for simulator qualification can choose to meet its standards. Alternatively, an applicant may choose to comply with Flight Simulation Training Device Guidance Bulletin 05-01 that serves to clarify and confirm the acceptance by the FAA of the standards and procedures contained in one of three other documents as follows:

- (1) Federal Aviation Administration (FAA) Advisory Circular (AC) 120-40C Draft, Airplane Simulator Qualification, dated July 1, 1995.
- (2) Portions of the International Civil Aviation Organization (ICAO) Manual of Criteria for the Qualification of Flight Simulators, Second Edition.
- (3) Portions of the Joint Aviation Authorities (JAA), Joint Aviation Requirements, JAR-STD 1A, Aeroplane Flight Simulators, Amendment 3.

(b) **FAA Orders.** Orders are internal FAA documents, although they are available to the public. They contain information on FAA procedures and standards for the purposes of FAA implementation by inspectors, FAA designees, and agency employees in general. They are obligatory for those persons. Orders such as 8400.10, Air Transportation Operations Inspector's Handbook, contain direction for air carrier inspectors on integration of simulators into a sponsor's training program and the approvals required. The same is true of Order 8700.1, General Aviation Operations Inspector's Handbook, which is used by inspectors who work with part 142 Training Centers. Order 8710.3C, Pilot Examiner's Handbook, contains comparable material, and walks the FAA designee pilot examiners through the pilot certification process and the appropriate use of simulators.

(c) **NSP Flight Simulation Training Device (FSTD) Qualification Bulletins.** Due to the complex and dynamic nature of simulation technology, it is difficult to quantify every issue that may arise in the qualification of an FSTD. Advances in technology have frequently led to questions being posed to the NSP on issues that are not directly covered in the regulatory publications and advisory circulars. This has led to individual NSP inspectors and engineers having to provide interpretations to the various FSTD manufacturers and sponsors on such issues, in which prior experience has shown to be inconsistent at times. In an effort to maintain consistency between FSTD sponsors and manufacturers, the NSP started publishing guidance bulletins on the NSP's Internet site that address and make public the NSP's interpretations and policy on such issues.

(d) **FAA Quality Management System.** The FAA Flight Standards Division, to include the National Simulator Program Office, is an ISO 9000 registered organization and has developed process for the qualification of FSTD's. The NSP processes are maintained on an internal NSP Quality Management System website.

(e) **Other materials.** The FAA also utilizes a reference document published in two volumes by the Royal Aeronautical Society (RAeS) in conducting simulator evaluations. The RAeS compiled this document, the "Simulator Evaluation Handbook," which is also used

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by the JAA, with the assistance of the FAA and other members of the international flight simulation community, including JAA member states. (JAR STD-1A also makes reference to this document). Volume I of the Handbook contains discussion of the methodologies used to evaluate simulators, including the use of automatic and manual tests, evaluation of computer-controlled aircraft, presentation of test results, and the requirements of a configuration control system (CCS) to be established by the simulator sponsor. Volume II describes subjective and functions testing methods. The handbooks are primarily utilized by those conducting simulator evaluations, but are recommended to applicants for use in developing their Qualification Test Guides.

(f) FAA materials, including AC 120-40B, are available at the following website:

http://www.faa.gov/safety/programs_initiatives/aircraft_aviation/nsp/

4. **Enforcement.** Order 2150.3A, Compliance and Enforcement Program, contains information for FAA inspectors and attorneys conducting investigations of possible non-compliance with the FAR and bringing enforcement actions against pilots and other FAA-certificated persons and entities. It advises the FAA employees of the rights of the individuals, gives sanction guidelines, and the like. Simulators are not certificated, and while enforcement action related to a simulator is possible (though rare), such action would be against the carrier using the simulator rather than the simulator owner/sponsor.
5. **The FAA’s Simulator Program and Its Staff.** The National Simulator Program (NSP) maintains the technical expertise and standardization necessary for aircraft simulator and flight training device evaluation, and performs evaluations of simulators and flight training devices. The NSP is part of the FAA’s Flight Standards Service, and it is located in Atlanta, Georgia. The NSP staff consists of 32 persons, including 20 pilot evaluators and 6 engineers (an organizational chart is attached to this document as Attachment 1). The NSP reports directly to the Manager, Air Transportation Division, AFS-200, a division of the Flight Standards Service at Washington Headquarters.
6. **Background, Experience and Training of NSP Technical Personnel.** [Paragraph 4.1(d)&(e)] The pilot inspectors (National Simulator Specialists) are required to hold an Airline Transport Pilot Certificate or a Commercial Pilot Certificate. Currently the NSP staff pilots have an average flight time experience of well over 10,000 flight hours. They are required to hold a type rating on one or more modern turbojet/turbo propeller airplanes and/or rotorcraft. Aerospace engineers who are hired by the NSP must have at least a bachelor’s degree in aerospace engineering or engineering technology and at least one year’s professional engineering experience, with an in-depth technical knowledge of aircraft systems including knowledge of state-of-the-art aircraft flight simulation device systems (their design, testing, and computer programming). All technical personnel receive formal training by attending a simulator evaluation course of instruction at the FAA Academy and complete an On-The-Job training course.
7. **The Qualification Process.** [Paragraph 4.1(c)]
 - (a) **Initial Qualification.** A simulator sponsor proposing to include an airplane simulator in a training program must first submit a letter of request to its Principal Operations Inspector (POI) or Training Center Program Manager (TCPM), as appropriate. The

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letter describes the training equipment and its proposed use in the training program. Sponsors may also request a date for initial evaluation prior to submitting the Qualification Test Guide (QTG, formerly the Approval Test Guide, or ATG), discussed below. A convertible simulator is evaluated separately for each model and series to which it may be converted and for which FAA qualification is sought.

If a sponsor wishes to receive specific flight training credit, or to administer flight evaluations under FAR parts 61, 63, 121, 125, 135, 142, or an Advanced Qualification Program (AQP), the letter of request must be accompanied by a QTG which meets the standards described in either Advisory Circular (AC) 120-40B, as amended, or FSTD Guidance Bulletin 99-01. Only manufacturer's flight test data will be accepted for simulators for aircraft types certificated after June 1980 or with supplemental type certificates based on modifications which would affect handling or performance and which have been issued after that date. Requests for exceptions (that is, alternate sources of data) will be reviewed by the NSP Manager. Exceptions may include situations where only engineering simulation data are available; actual flight test data are preferred, wherever possible, but the FAA recognizes that occasionally situations occur when such data may not be available.

If a Part 121 sponsor wishes to receive training and/or checking benefits with an advanced (Level C or D) simulator, it must submit an Advanced Simulation Training Program as prescribed in FAR part 121, Appendix.

The POI or TCPM reviews the sponsor's request and QTG, and then forwards these documents to the NSPM, requesting a technical evaluation of the QTG and designating an FAA point of contact (the POI or TCPM) for coordinating a formal evaluation of the training equipment.

The NSP staff reviews the QTG to determine that it meets the minimum standards described in either AC 120-40B or FSTD Guidance Bulletin 05-01, with reference to the guidance contained in the RAeS Evaluation Handbook. The NSP staff notifies the sponsor of any discrepancies discovered during the QTG evaluation, and resolves them with the sponsor. Within ten working days of finding a QTG acceptable, the NSPM will coordinate with the sponsor and the POI/TCPM to establish a mutually acceptable date for an on-site evaluation of the simulator/flight training device.

The NSPM then assigns the evaluation to a National Simulator Specialist who will be the team leader for the evaluation. For an initial evaluation, the team generally consists of two NSP specialists (pilot inspectors) and engineer. The sponsor must provide a qualified pilot to participate in the evaluation. If difficult technical issues arise during an evaluation, the team leader may also request the assistance of an FAA flight test pilot from an Aircraft Certification Office (ACO). Normally, during the technical review of the QTG, the NSP engineer completing the review utilizes a comprehensive list of tests to customize the evaluation checklist for that specific simulator. Not all tests on the list are performed during the on-site initial evaluation; rather, a selection is made which is sufficient to ensure assessment in areas essential to the airman training and checking process.

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The FAA's approach is described in detail in Paragraph 8 of AC 120-40B. In brief, both objective and subjective tests are performed on the simulator. Subjective tests include handling qualities, performance, and simulator systems operation. Objective tests include determining that the simulator itself meets the minimum standards prescribed for its particular evaluation Level, and validation tests (comparing the results obtained in the simulator to airplane performance data). In evaluating validation results and applying engineering judgment to deviations, reference may be made to the evaluation guidance contained in the RAeS Evaluation Handbook mentioned previously.

On the first day of an initial evaluation, the NSP team leader conducts an "in-briefing" for the simulator sponsor and manufacturer representatives, reviewing the responsibilities of the team members and other participants and the evaluation agenda for the day. An out-briefing is held at the completion of each day, to review any discrepancies discovered during the evaluation.

During objective testing, one team member is in the simulator, working with the sponsor's representatives running the tests. That team member will also manually fly a representative number of tests using the manual test procedures. The team engineer will monitor the test results as they are processed, and evaluate the results. The team engineer must use his or her individual experienced engineering judgment to a considerable extent in evaluating the simulator's output when that output falls outside the specified tolerances. It is not uncommon for the team members to be required to render a subjective opinion in an equivocal area. In such instances, the rationale is documented in the test results and on the evaluation checklist as a discrepancy, with an indication of correction.

Upon completion of the evaluation, the team will make a determination regarding qualification of the simulator. The team may decide to qualify the simulator at the requested level, with final approval pending NSPM review of the master QTG prior to the first recurrent evaluation. Alternatively, the team may qualify the simulator to a level lower than that applied for by the sponsor. Finally, the team may determine qualification is not appropriate at that time. The results of the evaluation are coordinated with the sponsor's POI/TCPM, to assure a consensus. Simulator discrepancies are recorded on an electronic checklist, along with specific corrective actions to be taken. If applicable, interim training restrictions are also established and recorded. Effective January 2006, the NSP plans to issue a Statement of Qualification for each FAA qualified simulator.

(b) Recurrent Qualification. The FAA now performs recurrent evaluations of simulators on an annual basis. An NSP Specialist performs the recurrent evaluation, usually with the assistance of the POI or TCPM. Sponsors are required to provide for at least 8 hours for the first (and possibly subsequent) recurrent evaluations. The sponsor must also provide a qualified pilot to participate in the evaluation.

The recurrent evaluation is effectively designed at the time of the pre-briefing meeting between the FAA and the sponsor, including the sponsor's pilot. The FAA reviews the maintenance log to assure timely maintenance has been performed, and evaluates tests accomplished by the sponsor since the last evaluation. (AC 120-40B does not address self-evaluation tests in detail but they have become standard practice for simulator

sponsors and the upcoming rules and associated material will specifically address the matter.) At his/her discretion, the evaluator will select approximately 8 to 15 objective

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tests from the MQTG that will, in the opinion of the evaluator, provide an adequate opportunity to evaluate, first hand, the performance of the simulator. The tests chosen will be performed either automatically or manually, at the discretion of the evaluator and should be able to be conducted within no more than approximately one-third (1/3) of the allotted simulator time. Additionally, the evaluator will subjectively evaluate tasks described in the Functions and Subjective tests appendix, which will be selected at the discretion of the evaluator. The number of tasks selected and the sequence of their evaluation will result in this portion of the evaluation taking no more than the remaining balance (approximately two-thirds, 2/3) of the overall allotted simulator time.

(c) **Quality Management System.** As discussed in greater detail in Attachment 2, the FAA is in the process of amending its rules to require that simulator sponsors develop and obtain FAA approval of a quality management system (QMS). In the interim, until the rule is effective, the FAA has been encouraging simulator sponsors to voluntarily establish QMS and obtain FAA review of them; information regarding the Simulator Quality Management System is published on the NSP's website. The QMS provides for the designation of a management representative (MR) who will have the responsibility to oversee and/or participate in the development and implementation of procedures for tracking the simulators, including logging discrepancies and corrective actions, recording of NSP and sponsor-conducted evaluations, documentation of software and hardware modifications, maintenance, changes to aircraft configuration, and so forth. The principal goal of the QMS is assurance that the simulator is at its highest level of capability each time it is used for a qualified purpose. The sponsor assesses its quality program on at least an annual basis and provides the result of that assessment to the NSP, which verifies the effectiveness of the program by tracking the simulator from one evaluation to the next.

8. **Missing, Malfunctioning, or Inoperative Equipment or Components.** [Paragraph 4.1(c)] Code of Federal Regulations Parts 121 and 142 both require simulator sponsors to have procedures for missing, malfunctioning, or inoperative equipment or components.¹ FSTD Guidance Bulletin 99-02 provides guidance to sponsors on how to implement an Inoperative Components Guide.

9. **Tracking Simulator Discrepancies.** [Paragraph 4.1(h)] Upon the completion of each evaluation, NSP personnel record discrepancies on the discrepancy portion of a FSTD Evaluation Checklist. A copy of the checklist is provided to the sponsor and the POI/TCPM.

¹ Section 142.59 (d) allows for operation of the device with inoperative components if they are not, "essential to training, testing, or checking ..." For 142 centers, the FAA has interpreted this to mean, if the component is not going to be used that day (e.g. Emergency gear handle) you could operate the device at the same level without it. The Simulator Inoperative Components Guide on the other hand, defines a change in the level of the device based on a major component system (e.g. visual or motion) being inoperative. Training center may use one or both of these methods for determining suitability of the device. Either way they always have to comply with 142.59 (c)(4) and 142.11(a)(9) [quality assurance] which requires a system to deal with discrepancies.

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FSTD Guidance Bulletin 01-01 provides sponsors guidance for the closure and extension of discrepancies. Dependent on the discrepancy, the NSP may qualify the simulator at the requested level or qualify the simulator to a level lower than that applied for by the sponsor. If applicable, interim training restrictions will be imposed.

10. **Determination of “Zero Flight Time” Training, Testing or Checking.** [Paragraph 4.1(i)] Code of Federal Regulations Parts 61 and 121 set the regulatory requirements for training, testing and checking in a Level C or D simulator without training, testing and checking in the aircraft (Zero Flight Time).

11. **Simulator Qualification Documents.** [Paragraph 4.1(h)] The NSP uses the following documents for simulator qualification:
 - (a) Request for simulator initial/upgrade evaluation. Attachment 3
 - (b) Initial Evaluation Job Aid. Attachment 4
 - (c) QTG Worksheet for an Airplane Full Flight Simulator. Attachment 5
 - (d) FSTD Evaluation Checklist. Attachment 6
 - (e) Statement of Qualification. Attachment 7

12. **Principal Differences.** [Paragraph 4.1(b)] Principles that are similar and those that are different in the accomplishment of simulator evaluations are detailed in a comparison of AC 120-40B Vs JAR STD 1A Amendment 2. A copy of comparison chart may be found on the NSP website. The FAA has also developed a list of special conditions for National Aviation Authorities to follow when conducting an evaluation of a simulator under the terms of a Simulator Implementation Procedure. A copy of those special conditions may be found in Attachment 8.

Attachments:

1. NSP Organizational Chart
2. Proposed changes to Part 60 of the Federal Aviation Regulations
3. Request for Initial/Upgrade Evaluation and FSTD Information Form
4. Initial Evaluation Job Aid
5. QTG Worksheet for an Airplane Full Flight Simulator
6. FSTD Evaluation Checklist
7. Statement of Qualification
8. FAA Special Conditions

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Submitted By:

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FEDERAL AVIATION ADMINISTRATION
DEPARTMENT OF TRANSPORTATION
UNITED STATES OF AMERICA

By: Charles A. Spillner

Title: National Simulator Program Manager



Date: November 30, 2005

Reviewed By:

NAA

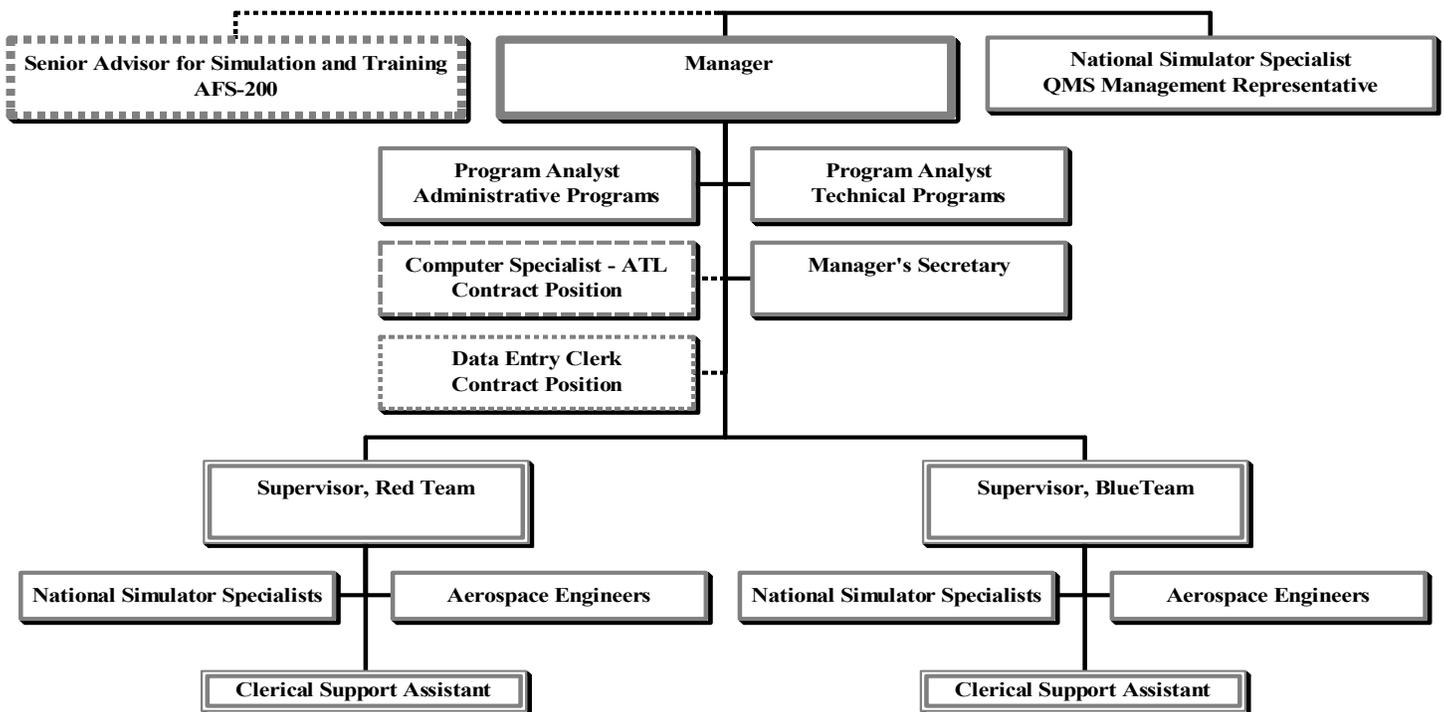
By:

Title:

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Attachment 1:

National Simulator Program, AFS-205 Organizational Structure



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Attachment 2: Proposed Changes to CFR Part 60 of the FAR

As noted in the body of this document, the FAA is in the process of amending its rules to consolidate and incorporate the simulator standards into the regulations from their current locations in various parts of the FAR as well as in Advisory Circular 120-40B. As of September 2005, rule making is still in process. It is currently anticipated that part 60 will be published in late 2005 and become effective twelve months after its publication date. The QMS program, required by part 60, will not become mandatory for thirty six months following the effective date of the regulation. Nonetheless, the FAA believes it is important for purposes of the SIP discussions to clarify the extent to which the new rules are likely to affect the FAA's current procedures. What follows is a brief summary.

The proposed rules will not only codify the FAA's simulator standards, but will also update its requirements to a certain extent. Currently, Appendix H of part 121 contains provisions regarding use of simulators by air carriers; through the exemption process, these provisions are also available to sponsors under parts 125 and 135. In addition, part 142, Certification of Training Centers, contains procedures and requirements for facilities whose sole function is training and testing, not operating under any of the passenger-carrying rules. The new rule will excise the technical requirements in part 121 and relocate them into a new part 60, titled "Flight Simulation Training Device Qualification." The proposed new part 60 would establish flight simulation training device (FSTD) requirements that could be used by anyone who conducts flightcrew member training, evaluation, and provides flight experience required by any of the Federal Aviation Regulations.

The FAA intends that Part 60 would also contain items (such as frequency, content, and method of evaluation) where the test, the test conditions, and the test tolerances are similar if not identical to those tests, test conditions, and test tolerances currently found in the Second Edition of the ICAO manual 9625 for Level D simulators, as well as the standards in JAR-STD 1A Amendment 3. Standards and specific items that are subject to change as a result of technological advancements and analysis of accident and incident investigation would be placed into Qualification Performance Standards (QPS) documents which could be amended without requiring the extensiveness of the complete rulemaking process without compromising the ability of the public to see and comment on the proposed changes prior to their being adopted and published.

In the early 1990's, the FAA was a principal contributor to the international project which produced a new set of recommended simulator criteria and standards, that were subsequently adopted by ICAO in its Manual of Criteria for evaluation and qualification of the highest two levels. This Manual has recently been revised, with FAA input, and the second edition contains standards only for Level D simulators. These standards are essentially consistent with those in AC 120-40B but contain additional tests and associated required tolerances. The FAA's supplemental proposed rule reflects the new manual standards.

The new rule will also contain updated terminology reflecting current practice. Specifically, the term 'sponsor' is now used by the NSP to refer to an individual or entity, including a certificate holder, seeking qualification and subsequent approval for use of the simulator in a specific training program. The sponsor agrees to assume responsibility for maintaining the simulator according to prescribed standards. The sponsor may contract with another person for services such as document preparation and presentation, as well as simulator inspection, maintenance,

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repair, servicing, etc. However, the sponsor retains ultimate responsibility for the qualification of the simulator. Other certificate holders may seek approval to use the same simulator for credit under an approved training program, but such certificate holders would not be sponsors of the simulator. Such arrangements are currently permitted under AC 120-40B; the only difference is that under 40B both the entity responsible for the simulator qualification and the entity who relies on that qualification to obtain approval for simulator use in its training program are both called “sponsors.”

The term “Master Qualification Test Guide” (MQTG) is also used in the rule although it is not the term used in the currently effective AC 120-40B. The MQTG is FAA-approved Qualification Test Guide with the addition of the FAA-witnessed test, performance, or demonstration results, applicable to each individual simulator.

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Attachment 3:

Mr. Charles A. Spillner
Manager, National Simulator Program
Federal Aviation Administration
100 Hartsfield Centre Parkway
Suite 400
Atlanta, GA 30354

Dear Mr. Spillner:

RE: Request for Initial/Upgrade Evaluation Date

This is to advise you of our intent to request an (initial or upgrade) evaluation of our (FSTD Manufacturer), (Aircraft Type/Level) Flight Simulation Training Device (FSTD), (FAA ID Number, if previously qualified), located in (City, State) at the (Facility) on (Proposed Evaluation Date). (The proposed evaluation date shall not be more than 180 days following the date of this letter.) The FSTD will be sponsored by (Name of Training Center/Air Carrier), FAA Designator (4 Letter Code). The FSTD will be sponsored under the following options: (Select One)

- The FSTD will be used within the sponsor's FAA approved training program and placed on the sponsor's Training/Operations Specifications; or
- The FSTD will be used for dry lease only in accordance with Paragraph 3b, FSTD Guidance Bulletin 03-08.

We agree to provide the formal request for the evaluation (Ref: Appendix 4, AC 120-40B) to your staff as follows: (check one)

- For QTG tests run at the factory, not later, than 45 days prior to the proposed evaluation date with the additional "1/3 on-site" tests provided not later than 14 days prior to the proposed evaluation date.
- For QTG tests run on-site, not later than 30 days prior to the proposed evaluation date.

We understand that the formal request will contain the following documents:

1. Sponsor's Letter of Request (*Company Compliance Letter*).
2. Principal Operations Inspector (POI) or Training Center Program Manager's (TCPM) endorsement.
3. Complete QTG.

If we are unable to meet the above requirements, we understand this may result in a significant delay, perhaps 45 days or more, in rescheduling and completing the evaluation.

(The sponsor should add additional comments as necessary).

Please contact (Name Telephone and Fax Number of Sponsor's Contact) to confirm the date for this initial evaluation. We understand a member of your National Simulator Program staff will respond to this request within 14 days.

A copy of this letter of intent has been provided to (Name), the Principal Operations Inspector (POI) and/or Training Center Program Manager (TCPM).

Sincerely,

Attachment: FSTD Information Form
cc: POI/TCPM

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Date: _____			
Section 1. FSTD Information and Characteristics			
Sponsor Name:	_____	FSTD Location:	
Address:	_____	Physical Address:	_____
City:	_____	City:	_____
State:	_____	State:	_____
Country:	_____	Country:	_____
ZIP:	_____	ZIP:	_____
Manager	_____		
Sponsor ID No: <i>(Four Letter FAA Designator)</i>	_____	Nearest Airport: <i>(Airport Designator)</i>	_____
Type of Evaluation Requested:		<input type="checkbox"/> Initial <input type="checkbox"/> Upgrade <input type="checkbox"/> Recurrent <input type="checkbox"/> Special <input type="checkbox"/> Reinstatement	
Qualification Basis: _____	<input type="checkbox"/> A	<input type="checkbox"/> B	<input type="checkbox"/> Interim C <input type="checkbox"/> C <input type="checkbox"/> D
	<input type="checkbox"/> 6	<input type="checkbox"/> 7	<input type="checkbox"/> Provisional Status
Other Technical Criteria:	_____	<input type="checkbox"/> eQTG	
FAA FSTD ID No: <i>(If Applicable)</i>	_____	FSTD Manufacturer:	_____
Convertible FSTD:	<input type="checkbox"/> Yes:	Date of Manufacture:	____/____/____
Related FAA ID No. <i>(If Applicable)</i>	_____		
Sponsor FSTD ID No:	_____		
Initial Qualification: <i>(If Applicable)</i>	Date: _____ Level _____	Manufacturer's Identification/Serial No:	_____
Upgrade Qualification: <i>(If Applicable)</i>	Date: _____ Level _____ MM/DD/YYYY		
National Aviation Authority (NAA): <i>(If Applicable)</i>	_____		_____
NAA FSTD ID No:	_____	Last NAA Evaluation Date:	_____
NAA Qualification Level:	_____		
NAA Qualification Basis:	_____		
Visual System Manufacturer and Type:	_____	Motion System Manufacturer and Type:	_____
Aircraft Make/Model/Series:	_____	FSTD Seats Available:	_____

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Aircraft Equipment	ENGINE TYPE(S): _____	Flight Instrumentation: <input type="checkbox"/> EFIS <input type="checkbox"/> HUD <input type="checkbox"/> HGS <input type="checkbox"/> EFVS <input type="checkbox"/> TCAS <input type="checkbox"/> GPWS <input type="checkbox"/> Plain View <input type="checkbox"/> GPS <input type="checkbox"/> FMS Type: _____ <input type="checkbox"/> WX Radar <input type="checkbox"/> Other: _____	Engine Instrumentation: <input type="checkbox"/> EICAS <input type="checkbox"/> FADEC <input type="checkbox"/> Other: _____
Airport Models:			
	3.6.1 _____ <i>Airport Designator</i>	3.6.2 _____ <i>Airport Designator</i>	3.6.3 _____ <i>Airport Designator</i>
Circle to Land:			
	3.7.1 _____ <i>Airport Designator</i>	3.7.2 _____ <i>Approach</i>	3.7.3 _____ <i>Landing Runway</i>
Visual Ground Segment			
	3.8.1 _____ <i>Airport Designator</i>	3.8.2 _____ <i>Approach</i>	3.8.3 _____ <i>Landing Runway</i>
Section 2. Supplementary Information			
FAA Training Program Approval Authority:		<input type="checkbox"/> POI <input type="checkbox"/> TCPM <input type="checkbox"/> Other: _____	
Name:	_____	Office:	_____
Tel:	_____	Fax:	_____
Email:	_____		
FSTD Scheduling Person:			
Name:	_____		
Address 1:	_____	Address 2	_____
City:	_____	State:	_____
ZIP:	_____	Email:	_____
Tel:	_____	Fax:	_____
FSTD Technical Contact:			
Name:	_____		
Address 1:	_____	Address 2	_____
City:	_____	State:	_____
ZIP:	_____	Email:	_____
Tel:	_____	Fax:	_____

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Section 3. Training, Testing and Checking Considerations		
Area/Function/Maneuver	Requested	Remarks
Private Pilot - Training / Checks: (142)	<input type="checkbox"/>	_____
Commercial Pilot - Training /Checks:(142)	<input type="checkbox"/>	_____
Multi-Engine Rating - Training / Checks (142)	<input type="checkbox"/>	_____
Instrument Rating -Training / Checks (142)	<input type="checkbox"/>	_____
Type Rating - Training / Checks (135/121/142)	<input type="checkbox"/>	_____
Proficiency Checks (135/121/142)	<input type="checkbox"/>	_____
CAT I: (RVR 2400/1800 ft. DH200 ft)	<input type="checkbox"/>	_____
CAT II: (RVR 1200 ft. DH 100 ft)	<input type="checkbox"/>	_____
CAT III * (lowest minimum) _____ RVR _____ ft. * State CAT III (≤ 700 ft.), CAT IIIb (≤ 150 ft.), or CAT IIIc (0 ft.)	<input type="checkbox"/>	_____
Circling Approach	<input type="checkbox"/>	_____
Windshear Training: (FSTD GB 03-05)	<input type="checkbox"/>	_____
Windshear Training IAW 121.409d (121 Turbojets Only) (FSTD GB 03-05)	<input type="checkbox"/>	_____
Generic Unusual Attitudes and Recoveries within the Normal Flight Envelope (FSTD GB 04-03)	<input type="checkbox"/>	_____
Specific Unusual Attitudes Recoveries (HBA 95-10) (FSTD GB 04-03)	<input type="checkbox"/>	_____
Auto-coupled Approach/Auto Go Around	<input type="checkbox"/>	_____
Auto-land / Roll Out Guidance	<input type="checkbox"/>	_____
TCAS/ACAS I / II	<input type="checkbox"/>	_____
WX-Radar	<input type="checkbox"/>	_____
HUD (FSTD GB 03-02)	<input type="checkbox"/>	_____
HGS (FSTD GB 03-02)	<input type="checkbox"/>	_____
EFVS (FSTD GB 03-03)	<input type="checkbox"/>	_____
Future Air Navigation Systems (HBA 98-16A)	<input type="checkbox"/>	_____
GPWS / EGPWS	<input type="checkbox"/>	_____
ETOPS Capability	<input type="checkbox"/>	_____
GPS	<input type="checkbox"/>	_____
SMGCS	<input type="checkbox"/>	_____
Helicopter Slope Landings	<input type="checkbox"/>	_____
Helicopter External Load Operations	<input type="checkbox"/>	_____
Helicopter Pinnacle Approach to Landings	<input type="checkbox"/>	_____
Helicopter Night Vision Maneuvers	<input type="checkbox"/>	_____
Helicopter Category A Takeoffs	<input type="checkbox"/>	_____
_____	<input type="checkbox"/>	_____

Simulator Implementation Procedures Working Plan Phase I – Authority System Familiarization

Attachment 4: Initial Evaluation Job Aid

Note: The following is intended to be a general guide for conducting initial FFS evaluations. Special circumstances require unique procedures wherein steps may be added or omitted. AC 120-40, as amended provides an acceptable means, but not the only means of compliance with Title 14 of the Code of Federal Regulations (14 CFR) regarding the evaluation and qualification of airplane simulators used in training programs or airmen checking.

<ul style="list-style-type: none"> • Conduct an In-briefing
<ul style="list-style-type: none"> <input type="checkbox"/> Introduction–
<ul style="list-style-type: none"> <input type="checkbox"/> Introduce all FAA team members
<ul style="list-style-type: none"> <input type="checkbox"/> Introduce sponsor/manufacturer representatives
<ul style="list-style-type: none"> <input type="checkbox"/> Insure sponsor's qualified pilot is present
<ul style="list-style-type: none"> <input type="checkbox"/> Review the participant responsibilities
<ul style="list-style-type: none"> <input type="checkbox"/> Review the evaluation agenda
<ul style="list-style-type: none"> <input type="checkbox"/> Clarify any questions concerning test standards, evaluation procedures or policies
<ul style="list-style-type: none"> <input type="checkbox"/> Briefly review sponsor's test equipment and capabilities
<ul style="list-style-type: none"> <input type="checkbox"/> Identify the 3 airport models, VGS and the circle to land procedure
<ul style="list-style-type: none"> <input type="checkbox"/> Ensure the appropriate NAV charts and aircraft checklists and manuals are available in the FSTD
<ul style="list-style-type: none"> • <input type="checkbox"/> Conduct an Initial Functional Flyout (Initial/upgrade/ evaluations) •
<ul style="list-style-type: none"> • Conduct the Objective Tests²
<ul style="list-style-type: none"> <input type="checkbox"/> Motion systems tests (Levels C&D must have six degree motion system)
<ul style="list-style-type: none"> <input type="checkbox"/> Latency/transport delay tests (Levels A&B-300ms, Level C&D-150ms)
<ul style="list-style-type: none"> <input type="checkbox"/> Handling Qualities (Static and dynamic control tests) (random sample)
<ul style="list-style-type: none"> <input type="checkbox"/> Performance tests (auto) (random sample)
<ul style="list-style-type: none"> <input type="checkbox"/> Sound tests (tolerance- 3 to 5 db) (Level D)
<ul style="list-style-type: none"> <input type="checkbox"/> Buffets (Level D)
<ul style="list-style-type: none"> <input type="checkbox"/> Performance tests (manual) (random sample) (motion or w/o motion)
<ul style="list-style-type: none"> <input type="checkbox"/> Visual tests (alignment, focus, brightness, color, occultation, visual ground segment, etc. Level D requires a calibrated photometer)
<ul style="list-style-type: none"> <input type="checkbox"/> HUD/EVS/HGS
<ul style="list-style-type: none"> • <input type="checkbox"/> Conduct the Functional/Subjective Tests³ – (See Attachment 1)
<ul style="list-style-type: none"> • <input type="checkbox"/> Record discrepancies are noted in the evaluation report, including those corrected during the evaluation
<ul style="list-style-type: none"> • Conduct a Debriefing (Daily for initial/upgrade evaluations)⁴
<ul style="list-style-type: none"> <input type="checkbox"/> Representatives of the POI/TCPM and sponsor should be present
<ul style="list-style-type: none"> <input type="checkbox"/> The sponsor should be advised of the evaluation results. If successful, advise that a qualification memo will be issued
<ul style="list-style-type: none"> <input type="checkbox"/> Open discrepancies and necessary corrective action should be reviewed
<ul style="list-style-type: none"> <input type="checkbox"/> The importance of correcting discrepancies in the specified time, or properly applying for an extension, should be emphasized
<ul style="list-style-type: none"> • Prior To Departure

² For initial/upgrade evaluations, the engineer will normally use a QTG Worksheet: ([Airplane](#)) and will select tests based on his/her review and input from the pilots. For recurrent evaluations, the inspector will conduct a random sample of objective test.

³ When conducting initial/upgrade evaluations, it is desirable to have FAA and manufacture test pilots conduct an aircraft acceptance check. The ACO normally can provide a copy of the aircraft acceptance checklist.

⁴ An "FAA only" debriefing should be held at the end of each day to review discrepancies, and at the conclusion of the evaluation to determine the appropriate outcome. The NSP Team Leader will debrief the Sponsor of all noted discrepancies. All discrepancies are noted in the evaluation report (NSP Form T002), including those corrected during the evaluation.

Simulator Implementation Procedures Working Plan Phase I – Authority System Familiarization

<input type="checkbox"/> The POI/TCPM and sponsor should be provided with a copy of the evaluation report
<input type="checkbox"/> A copy of the signed MQTG cover page and index should be obtained for return to Atlanta with the evaluation report, sign-up sheet, engineer's worksheet, etc. These will be included in the FSTD's permanent file
<input type="checkbox"/> If the evaluation results in qualification at a level less than requested, or results in no qualification, the team leader will advise the NSP management as soon as practical

Airplane FFS Functional/Subjective Job Aid

Note: The following is a generic checklist for airplane FFSs that may be used as a memory aid during functional/subjective evaluation of a device. Items may or may not be applicable depending on the type of airplane simulated and the level of training device.

Pre Takeoff
• Facility Check –
<input type="checkbox"/> Escape Ladder
<input type="checkbox"/> Fire Extinguishers
<input type="checkbox"/> Emergency Hydro Shutoff
• Cockpit Preflight –
<input type="checkbox"/> Furnishings (seats, seatbelts, emergency. equip.)
<input type="checkbox"/> Systems Set-up and Tests
<input type="checkbox"/> Com Panels
<input type="checkbox"/> O2 Masks, Smoke Goggles
<input type="checkbox"/> Instrument Configuration IAW Flight Manual
• APU & Engine Start –
<input type="checkbox"/> Normal,
<input type="checkbox"/> Abnormal
• Pushback/Powerback <input type="checkbox"/>
• Taxi –
<input type="checkbox"/> Thrust Response
<input type="checkbox"/> Power Lever Friction
<input type="checkbox"/> Brakes – Normal/Alt/Emergency
<input type="checkbox"/> Steering – Tiller & Rudder Pedal
<input type="checkbox"/> Nosewheel Scuffing
<input type="checkbox"/> Landing & Taxi Lights
<input type="checkbox"/> Visual Model (RVR, Lighting, Contaminants/Surface Markings/SMGS)
<input type="checkbox"/> HUD/EVS/HGS
Takeoff
• Normal –
<input type="checkbox"/> Engine Parameters
<input type="checkbox"/> Acceleration
<input type="checkbox"/> Nosewheel/Rudder Steering
<input type="checkbox"/> Crosswind (Max Demo)
<input type="checkbox"/> Instrument
<input type="checkbox"/> HUD/EVS/HGS
<input type="checkbox"/> Ground Hazard
• Abnormal –
<input type="checkbox"/> Rejected
<input type="checkbox"/> Engine Failure @ V1
<input type="checkbox"/> Windshear

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<u>In-flight Operation</u>	
• Climb –	
<input type="checkbox"/>	Normal
<input type="checkbox"/>	Engine Inoperative
• Cruise –	
<input type="checkbox"/>	Normal/Steep Turns
<input type="checkbox"/>	Turns with/without spoilers
<input type="checkbox"/>	Cruise performance
<input type="checkbox"/>	Overspeed Warning
<input type="checkbox"/>	Stalls
<input type="checkbox"/>	
<input type="checkbox"/>	Eng Out Maneuvering
<input type="checkbox"/>	Flight Control System Failure
<input type="checkbox"/>	High Altitude Maneuvering
<input type="checkbox"/>	HUD/EVS/HGS
• Systems Operation –	
Autopilot/Flight Director – All Modes	
<input type="checkbox"/>	Auto throttle
Air Conditioning	
<input type="checkbox"/>	Anti-icing/De-icing
<input type="checkbox"/>	APU
<input type="checkbox"/>	Brakes/Anti-skid/Autobrakes
<input type="checkbox"/>	Comm/Nav Radios
<input type="checkbox"/>	Electrical
<input type="checkbox"/>	Fire Detection/Suppression
<input type="checkbox"/>	Flaps/Slats/Speed brakes
<input type="checkbox"/>	Flight Controls
<input type="checkbox"/>	Flight Management
<input type="checkbox"/>	Fuel & Oil
<input type="checkbox"/>	Hydraulic
<input type="checkbox"/>	Landing Gear
<input type="checkbox"/>	Oxygen
<input type="checkbox"/>	Power plant
<input type="checkbox"/>	Pressurization
<input type="checkbox"/>	Radar
<input type="checkbox"/>	TCAS
<input type="checkbox"/>	HUD/EVS/HGS
<input type="checkbox"/>	Ground Proximity/TAWS
• Descent –	
<input type="checkbox"/>	Normal
<input type="checkbox"/>	Max Rate/Emergency
<u>Approach & Landing –</u>	
• Normal	
<input type="checkbox"/>	ILS, CAT II, CAT III
<input type="checkbox"/>	Non-Precision
<input type="checkbox"/>	Visual
<input type="checkbox"/>	Circle to Land
<input type="checkbox"/>	Missed App
<input type="checkbox"/>	Crosswind
<input type="checkbox"/>	HUD/EVS/HGS
• Abnormal	
<input type="checkbox"/>	Abnormal Flaps/Slats
<input type="checkbox"/>	Max Demo Crosswind

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<input type="checkbox"/>	Landing (Eng Out)
<input type="checkbox"/>	Missed App (Eng Out)
<input type="checkbox"/>	Windshear
<input type="checkbox"/>	Brake/Tire/Strut Failure
• Visual System Checks – (depends on level of device)	
<input type="checkbox"/>	5 Statute miles - Runway definition, strobe lights, approach lights, runway edge & VASI/PAPI lights.
<input type="checkbox"/>	3 Statute miles - Runway centerline lights, taxiway definition.
<input type="checkbox"/>	2 Statute miles - Threshold lights and touchdown zone lights.
<input type="checkbox"/>	200 ft RA – Runway Markings
<input type="checkbox"/>	100 ft RA (Flight Freeze) - VGS
<input type="checkbox"/>	Special visual effects such as patchy fog, broken cloud deck, variable cloud density, air and ground hazards, thundershowers, windshield wiper operation, etc., should be checked.
<input type="checkbox"/>	Taxiway marking/hold lines, signage, etc., should be checked during ground operations

**Simulator Implementation Procedures Working Plan
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Attachment 5: QTG Worksheet for an Airplane Full Flight Simulator

Simulator Data

Type (Airplane Model): _____
 Sponsor: _____
 Sponsor's No.: _____
 Sim. Location: _____
 Geographical Regn: _____
 Class: _____
 Circular: _____
 Initial Level: _____

 Contact Information:

Sim. Manufacturer: _____	Visual System: _____
Date of Manufactur: _____	Degrees-of-freedom: _____
Host Computer: _____	Number of Windows: _____

EFIS: _____	HUD: _____	TCAS: _____	VGS: _____
CIRC: _____	Wind Shear Equip: _____		

Owner Information:
 Is this a Convertible? ___
 Comments:

Time Line Information
 Requirement: _____
 Purpose Code: _____

QTG Received: _____	POI Memo: _____	QTG Returned: _____
Operator Letter: _____		Planned Eval: _____

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QTG WORKSHEET

_____ Model: _____ Level ____ AC120-_____ Date:

 _____ Sim. Manufacturer: _____ Vis. Sys.: _____ Engine Model:

ATG No.	TEST	FAA No.	TOLERANCE	INITIAL APPROVAL	COMMENTS
	Min. Radius Turn	30	±3 ft. (0.9m) or 20% of Airplane Turn Radius		
	Rate of Turn vs. Nosewheel Angle	31	±2°/sec or 10% Turn Rate		
	Ground Acceleration. Time and Dist.	33	±5% Time & Dist. or 5% Time & ±200 ft. (61m)		
	VMCG	34	±25% of Max. Airplane Deviation from R/W centerline or ±5 ft. (1.5 m)		
	VMU	36	±3 kts. ±1.5° Pitch		
	Normal Takeoff	37	Pitch ±1.5° AOA ±1.5° Airspeed ±3 kts. Alt: ±20 ft. (6 m) For Reversible Controls ±5 lbs (2.224 dN) or ±10% of Column Force		
	Engine-out Takeoff (Critical Engine Failure on Takeoff)	40	±1.5° Pitch ±1.5° AOA Airspeed ±3 kts. Alt: ±20 ft. (6 m) ±2° Bank and Sideslip For Reversible Controls: ±5 lbs or 10% Column and Pedal; ±3 lbs or 10% Aileron		

**Simulator Implementation Procedures Working Plan
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	Crosswind Takeoff	41	±1.5° Pitch ±1.5° AOA Airspeed ±3 kts. Alt: ±20 ft. (6 m) ±2° Bank and Sideslip. For Reversible Controls: ±5 lbs or 10% Column and Pedal; ±3 lbs or 10% Aileron		
	Rejected Takeoff	543	(IQTG ±5% Time or 1.5sec and ±7.5% Dist. or ±250ft (76m))		
	<i>Dyn. Eng. Fail. after T.O. (Yaw response with eng. fail.)</i>	689	±20% Body Rates		
	Normal Climb	42	±3 kts. ±5% ROC or ±100 fpm (0.5 m/sec)		
	Eng. out 2nd Seg. Climb	43	±3 kts. ±5% ROC or ±100 fpm (0.5 m/sec) But not less than the FAA AFM ROC		
	<i>Eng. out Enroute Climb</i>	334	±10% Time ±10% Dist. ± 10% Fuel Used		
	Eng. out Approach Climb (For A/P with icing accountability per AFM)	44	±3 kts. ±5% ROC or ±100 fpm (0.5 m/sec) But not less than the FAA AFM ROC		
	<i>Level Acceleration</i>	621	±5% Time		
	<i>Level Deceleration.</i>	622	±5% Time		
	<i>Cruise Performance</i>	693	±0.05 EPR ±5% N ₁ , N ₂ ±5% Torque ±5% Fuel Flow		

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	Stop Time and Distance-Brakes	122	±5% Time. For dist. up to 4000 ft. (1220m), ±200 ft. (61m) Dist. or ±10% which ever is smaller. For dist. greater than 4000ft., ±5% of dist.		
	Stop Time and Dist.-Reverse Thrust	123	±5% Time and the smaller of ±10% or 200 ft. (61m) of dist.		
	Stop Time and Distance-Brakes: Wet R/W Icy R/W	138 139	Compliance Statement with Supporting Tests: <i>±10% or ±200ft (61m)</i>		
	Engine Acceleration	540 (App or Lnd)	±10% Time T_i and T_i		
	Engine Deceleration	541 (TO)	±10% Time T_i and T_i		
	Col. Pos. vs Force and Surface Pos.	2	±2° Elev. ±5 lbs.(2.225 daN) or 10%. ±2 lbs (0.89 daN) Breakout		
	Wheel Pos. vs Force and Surface Pos.	4	±1° Aileron ±3° Spoiler ±2 lbs. (0.89daN) Breakout ±3 lbs. (1.334 daN) or ±10% Force		
	Pedal Pos. vs Force and Surface Pos.	12	±2° Rudder ±5 lbs (2.225 daN) or 10%; ±5 lbs Breakout		
	Tiller Cal.	13	±3 lbs. (1.334 daN) or 10%; ±2 lbs (0.89 daN) Breakout ±2° NWA		
	Rudder Pedal Steering	14	±2° Nose Wheel Angle		
	Pitch Trim Cal.	15	±0.5° of Computed Angle ±10% Trim Rate		

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	Power Lever Align.	16	$\pm 5^\circ$			
	Brake Pedal Pos. vs. Force	542	± 5 lbs. (2.225 daN) or 10% $\pm 10\%$ or 150 psi (1033 kPa) brake Hyd. pressure.			
	Control Feel Dynamics: Pitch	19 TO 22 Cru 25 Lnd	$\pm 10\%$ of time for first zero crossing and $\pm 10(n+1)\%$ of period. $\pm 10\%$ Amp. of first overshoot. $\pm 20\%$ of amp. of subsequent overshoots greater than 5% of initial displacement. ± 1 overshoot.			
	Roll	20 TO 23 Cru 26 Lnd				
	Yaw	21 TO 24 Cru 27 Lnd				
	<i>Small Control Inputs</i>	664		$\pm 20\%$ Body Rates		
	Pwr. Change Dyn.	46		$\pm 1.5^\circ$ Pitch or $\pm 20\%$; ± 3 kts ± 100 ft (30m)		
	Flap Change Dyn.	54 Ret. 56 Ext.		$\pm 1.5^\circ$ Pitch or $\pm 20\%$; ± 3 kts ± 100 ft (30m)		
	Spoiler/Speed Brake Change Dyn.	533 Cru 532 App		$\pm 1.5^\circ$ Pitch or $\pm 20\%$; ± 3 kts. ± 100 ft (30m)		
	Gear Change Dyn.	59 TO 60 App	$\pm 1.5^\circ$ Pitch or $\pm 20\%$; ± 3 kts. ± 100 ft. (30m)			
	Gear and Flap Oper. Time	61 gExt 62 gRet 63 fExt 64 fRet	± 1 sec. or $\pm 10\%$			
	Long. Trim	332 Cru 67 App 68 Lnd	$\pm 1^\circ$ Pitch Control (Stab and Elev) $\pm 1^\circ$ Pitch $\pm 5\%$ Net Thrust or equiv.			

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	Long. Man. Stab. (F/g)	70 Cru 71 App 72 Lnd	±5 lbs.(2.225 daN) or ±10% column force or equivalent surface		
	Long. Static Stab. (F/V)	325 App	±5 lbs.(2.225 daN) or ±10% column force or equivalent surface		
	Stick Shaker Buffet Stall Speeds	83 2nd and 86 App or 87 Lnd	±3 kts. ±2° Bank for speeds greater than stick shaker or initial buffet.		
	Phugoid Dyn.	80 Cru	±10% Period & Time to Half or double Amp. or ±0.02 Damp. Ratio		
	Short Period Dyn.	75 Cru	±1.5° Pitch ±2°/sec. Pitch Rate ±0.1 g Normal Accel.		
	VMCA	88 TO or 89 Lnd	±3 kts.		
	Roll Response	91 Cru and 92 App or 93 Lnd	±10% or ±2°/sec		
	Response to Roll Controller Step Input	96 App or 97 Lnd	±10% or ±2°/sec. Roll Rate		
	Spiral Stab.	99 Cru	Correct Trend ±2° Bank or ±10% in 20 sec.		
	Engine Out Trim	102 2nd and 103 App or 104 Lnd	±1° Rudder Angle or ±1° Tab Angle or Equiv. Pedal ±2° Sideslip		
	Rudder Response	107 App or 108 Lnd	±2°/sec. or ±10% Yaw Rate per Pedal or Surface Deflection		

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	Dutch Roll	115 Cru and 116 App or 117 Lnd	± 0.5 sec or $\pm 10\%$ of Period. $\pm 10\%$ of Time to Half or Double Amp. or ± 0.02 Damping Ratio. $\pm 20\%$ or ± 1 sec. between Peaks of Bank and Sideslip.		
	Cross Control (Steady State Sideslip)	112 App or 113 Lnd	For Rudder Position : $\pm 2^\circ$ Bank $\pm 1^\circ$ Sideslip $\pm 10\%$ or $\pm 2^\circ$ Aileron, $\pm 10\%$ or $\pm 5^\circ$ Spoiler or Equiv. Wheel Position or Force.		
	Normal Landing	118	± 3 kts.; $\pm 1.5^\circ$ Pitch and AOA $\pm 10\%$ Alt. or 10 ft (3 m)		
	<i>No Flap App./Lnd (Minimum Flap Landing)</i>	337	± 3 kts.; $\pm 1.5^\circ$ Pitch and AOA $\pm 10\%$ Alt. or 10 ft (3 m)		
	Crosswind Landing	120	± 3 kts. ; $\pm 1.5^\circ$ Pitch and AOA $\pm 10\%$ Alt. or 10 ft (3 m); $\pm 2^\circ$ Bank; $\pm 2^\circ$ Sideslip or Yaw Angle		
	Eng. Out Landing	121	± 3 kts. $\pm 1.5^\circ$ Pitch and AOA $\pm 10\%$ Alt. or 10 ft (3 m); $\pm 2^\circ$ Bank ; $\pm 2^\circ$ Sideslip or Yaw Angle		
	<i>Autoland</i>	631	± 5 ft. (1.5m) ± 0.5 sec. Flare ± 140 ft/min (0.7m/sec) ± 10 ft. (3m) lateral deviation		
	<i>Go-around</i>	632	± 3 kts. $\pm 1.5^\circ$ Pitch and AOA		

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	Directional Control with Reverse Thrust	564	±5 kts.		
	Low Level Gnd. Effect	173	±1° Elev. or Stabiliser; ±1° Pitch and AOA; ±3 kts; ±10% Alt. or ±5 ft (1.5m); ±5% Net Thrust		
	Brake & Tire Failure Anti-skid Fail. Brake Efficiency	143 144 145	Airplane Related Data Compliance Statement		
	3-D Windshears Crosswinds	136	Airplane Related Data Compliance Statement		
	<i>Overspeed Protection</i>	539	±5 kts.		
	<i>Min. Speed Protection</i>	692	±3 kts		
	<i>Load Factor Protection</i>	534	±0.1 g		
	<i>Pitch Attitude Limitation</i>	535	±1.5° Pitch		
	<i>Bank Angle Limitation</i>	549	±2° or ±10% Bank		
	<i>High AOA Protection</i>	536 TO 663 App 538 Lnd	±1.5° AOA		
	Freq. Response	133	Oper. Spec.		
	Leg Balance Check	134	Oper. Spec.		
	Turn Around Check	135	Oper. Spec.		
	<u>Characteristic Buffets</u>	310	Compliance statement and supporting tests		
	Testing Software and Hardware	146	Demonstration Compliance Statement		

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	Computer Capacity	147	Compliance Statement		
	6 Degrees of Freedom	148	Compliance Statement		
	Visual Color RVR Focus Intensity Level Horiz. Attitude	150 151 152 153 155 154	Demonstration Oper. Spec.		
	Ten Levels of Occulting	157	Demonstration		
	Aero Model: Gnd. Effect Mach Effect Airframe Icing Normal & Rev. Thrust Effects Aero-Elastic Effects Non-linear Side slip	173 174 175 176 177 178	Demo.		
	Integrated Sensory Cues: Through-put Delay	124 125 126	Within 150 ms of control input		
	<u>Full Color</u> <u>Daylight Scene</u> <u>4k Edges/1k</u> <u>Surfaces</u> <u>4k Light Pts.</u> <u>6-ft. Lam.</u> <u>5-ft. Lam.</u> <u>Resolution</u> <u>Contrast Ratio</u>	167 166 161 162 163 164 165 166			
	Visual Ground Segment	156	Demonstration and Supporting Analysis		
	Sounds	181			
	Self-Testing	158	Demo.		
	<u>Diagnostic</u> <u>Printout</u>	159	Demo.		

**Simulator Implementation Procedures Working Plan
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	General Comments				
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Tests in *italics* are for **International Standard (DRAFT AC120-40C)** requirements.

**Simulator Implementation Procedures Working Plan
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ATTACHMENT 6: FSTD EVALUATION CHECKLIST**

SIMULATOR INFORMATION					
ID:	Sponsor: Location: Type: Circular: Level: POI/TCPM: FSDO: FAX: Phone:				
SPECIAL SYSTEMS					
EFIS:	HUD:	TCAS:	VGS:	CIRC:	W/S Compliance FAR 121.409d:

Type:	(I) Initial (R) Recurrent (U) Upgrade (S) Reinstatement (X) Special	Open Discreps: New Discreps:
Recommendations:		
Airport Models:	, ,	Cir to Land: Airport: , APPR: , RWY:
DATE	NSP TEAM MEMBERS	OPERATOR REPRESENTATIVES

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Sponsor:	Model:	Date:
Location:	FAA #:	

Note to Sponsors: Sponsors may use this electronic form to email their corrections to the NSP at: melissa.walrod@faa.gov. Please enter the corrective action and the date closed in red font. If you are unable to email the form, please fax it to 404-761-8906.

No.	Test No.	Description	Action Required/Taken:	Date Closed:
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				

**Simulator Implementation Procedures Working Plan
Phase I – Authority System Familiarization**

Attachment 7: Statement of Qualification

**Federal Aviation Administration
National Simulator Program**



Statement of Qualification

**The Federal Aviation Administration (FAA)
National Simulator Program has evaluated the Flight Simulation Training
Device (FSTD) listed below. This FSTD has been found to meet the
standards set forth in the qualification document described below:**

Sponsor: _____
Location: _____
Aircraft Type: _____
FAA Identification Number: _____
Qualification Basis: _____
Qualification Level: _____

**Issued by the National Simulator Program
on _____.**

Charles A. Spillner
Manager, National Simulator Program
Federal Aviation Administration

To maintain qualification, the FSTD must meet all of the standards and specifications of the qualification basis and is subject to the conditions and limitations listed in the last FAA FSTD Evaluation Report. This certificate is not transferable, and unless, revoked, suspended, or amended, shall remain in effect until _____. This statement may automatically be extended an additional 30 days provided the FSTD has satisfactorily passed a recurrent evaluation conducted by the NSP.

Simulator Implementation Procedures Working Plan
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Attachment 8: FAA Special Conditions

FAA Special Conditions

A Full Flight Simulator that meets the eligibility requirements specified in paragraph 2.1 for qualification under this Simulator Implementation Procedures (SIP) may be granted an FAA qualification if the National Aviation Authority (NAA) endorses that the following special conditions (as applicable) are complied with:

- (a) The NAA will perform the first recurrent evaluation 6 months following the initial qualification. Subsequent recurrent qualifications may be conducted at twelve month intervals. If the NAA is unable to conduct the recurrent qualification at the 6 month interval the FAA will conduct the evaluation.
- (b) There is a supplement to the instructor operating station manual that includes operation with United States standards.
- (c) There are English Language versions of relevant documentation required for use and evaluation of the FFS.
- (d) The FFS has a valid NAA FFS qualification certificate in accordance with the standards defined in paragraph 2.2 of the Simulator Implementation Procedure.
- (e) The aircraft configuration conforms to United States Standards.
- (f) Instructor operating station indications must conform to United States units of measurement.
- (g) There are instructions for the handling of inoperative components
- (h) There is at least one United States airport/airfield model available featuring proper modelling and navigation/communication facilities
- (i) Category I, II, or III (as applicable) Instrument Approaches demonstrated at a United States Airport.
- (j) Circling Approach demonstrated at a specific airport.
- (k) Additional Windshear Tests in accordance with AC 120-40B, Appendix 5 or Draft AC 120-40C, Appendix 6, are required for turbojet aircraft operated under Part 121.
- (l) Visual Ground Segment Test presented using a United States Airport and RVR Standards.
- (m) Additional objective and functional or subjective tests as required by AC 120-40B, including alternate means of compliance, as permitted by AC 120-40B, that are in excess of those required by the NAA FFS standard level of qualification.
- (n) The FSTD is able to demonstrate the effects of airframe icing.