#### **FSTD Directive 2**

Sponsor Notification and Interim Approval

Federal Aviation Administration National Simulator Program, AFS-205 P.O. Box 20636 Atlanta, GA 30320 Tel. 404.474.5620 FSTD Sponsors should use this form to notify the NSP of their intent to use an FSTD for any of the 5 Extended Envelope and Weather Event training tasks described in 14 CFR Part 60 FSTD 2016. Supporting documents such as objective test results, statements of compliance, etc. must accompany this form. Sponsors should complete sections 1, 2 & 4 as applicable. Limit one FSTD per form. Upon successful desk assessment, the sponsor may be granted interim approval. Final approval to be granted upon successful completion of an NSP evaluation.

Email to: 9-aso-afs205-nsp-simulator-scheduling@faa.gov

Section 1. FSTD & Sponsor Information  Date Submitted: Click here to enter a date.							
Sponsor Name: FSTD Location:				- 1	AA FSTD ID# / Lvl: Aircraft Type:	,	
MR Name/Tel:	,			Т	PAA Name/Tel:	,	
MR Email:				Т	PAA Email:		
Section 2. Training Tasks	5						
Full Stall Upset Recovery & Prevention Training (UPRT) Engine & Airframe Icing Gusting Crosswind		Request to Train Request to Train Request to Train Request to Train		FSTD Modification Re FSTD Modification Re FSTD Modification Re FSTD Modification Re	equired (60.23) equired (60.23) equired (60.23)	RFT: Click here to enter a date.	
Bounced Landing			Request to Train	╵	FSTD Modification Re	equirea (60.23)	RFT: Click here to enter a date.
Section 3. Interim Approv	als: FAA Use Only						
Full Stall Training Task			(I	-inal	approval granted upon	successful NSP	evaluation)
NSP Disposition: Date: Click here to enter a date.	<ul><li>☐ Interim Approval</li><li>☐ NSP Evaluation R</li><li>☑ Not Approved</li></ul>	NSP Evaluation Req.		☐ Interim Approval with the following limitations:			
TPAA Disposition: Date: Click here to enter a date.	<ul><li>☐ Concur</li><li>☐ Do not Concur</li></ul>	Do not Concur					
<b>UPRT Training Task In</b>				evaluation)			
NSP Disposition: Date: Click here to enter a date.		Interim Approval NSP Evaluation Req. Not Approved		☐ Interim Approval with the following limitations:			
TPAA Disposition: Date: Click here to enter a date.	<ul><li>☐ Concur</li><li>☐ Do not Concur</li></ul>						
Engine & Airframe Icing		m Ap	proval: (/	-inal	approval granted upon	successful NSP	evaluation)
NSP Disposition: Date: Click here to enter a date.	<ul><li>☐ Interim Approval</li><li>☐ NSP Evaluation R</li><li>☑ Not Approved</li></ul>	eq.	☐ Interim Approval with the following limitations:				
TPAA Disposition: Date: Click here to enter a date.	☐ Concur ☐ Do not Concur						
Gusting Crosswind Training Task Interim Approval: (Final approval granted upon successful NSP evaluation)							
NSP Disposition: Date: Click here to enter a date.	<ul><li>☐ Interim Approval</li><li>☐ NSP Evaluation R</li><li>☑ Not Approved</li></ul>	eq.	□ Interim Appro	val	with the following lim	itations:	
TPAA Disposition: Date: Click here to enter a date.	<ul><li>☐ Concur</li><li>☐ Do not Concur</li></ul>						
Bounced Landing Training Task Interim Approval: (Final approval granted upon successful NSP evaluation)							
NSP Disposition: Date: Click here to enter a date.	<ul><li>☐ Interim Approval</li><li>☐ NSP Evaluation R</li><li>☑ Not Approved</li></ul>	eq.	☐ Interim Appro	val	with the following lim	itations:	
TPAA Disposition: Date: Click here to enter a date.	<ul><li>☐ Concur</li><li>☐ Do not Concur</li></ul>						

In accordance with §60.23(c), the proposed FSTD Modification will not be placed into training until NSPM and TPAA approval has been granted or the twenty-one day waiting period has lapsed with no response from the NSPM or TPAA.

Section 4a. FSTD Modification Description			
FD2 - Full Stall Training Task:			
Provide a Complete Description of FSTD Modification to Support the Training Task:			
(software changes must include name of a/c system software, aero module, or engine module changed)			
FCTD Changers must complete		o Only	
FSTD Sponsors must complete  Compliance Statements, Subject Matter Expert and IOS:	FAA Use Status	Comment	
	Status	Confinenc	
☐ An SOC describing the Aerodynamic model is attached.			
Does the SOC:  ☐ Identify the sources of data (e.g. OEM, 3 <sup>rd</sup> party data			
gather, flight test, wind tunnel, etc.) used to develop the			
aerodynamic model?			
☐ Include a mapping of test points in the form of			
alpha/beta envelope plot for a minimum of flaps up and flaps down aircraft configurations?			
☐ Declare the range of AOA & sideslip where the model			
remains valid for training, including at least 10° beyond			
stall indication AOA? (please state the stall AOA value			
for flaps up/down or indicate on alpha/beta map)  ☐ Discuss the applicable stall characteristics for the			
aircraft type incorporated into the aerodynamic model			
[see Appendix A, Attachment 7 (A.4.c) for list of these]?			
Eithor (			
Either {			
a particular stall maneuver (if applicable)			
Or,			
☐ There are no limitations in the aerodynamic			
model for the required stall maneuvers.			
Either {{			
☐ An SOC confirming the SME evaluation is attached.			
Either {			
<ul> <li>The SME evaluation has or will be conducted on this training FSTD prior to training</li> </ul>			
Or,			
☐ The SME evaluation was conducted on an			
engineering or development simulator sharing a common			
aerodynamic & flight control model and the attached SOC has been supplied by the data provider. Additional			
objective POM testing (attached) as described in Table			
A2A, 2.c.8.a & 3.f.5 has been provided.			
}			
Or,  ☐ The FSTD sponsor has submitted a request (attached) to			
the Administrator for approval of a deviation from the SME			
pilot experience requirements because an assessment of			
pilot availability demonstrates that a suitably qualified pilot			
meeting the experience requirements of this section cannot be practically located.			
}}			
The SME pilot:			
	L		
☐ Has held or holds a type rating/qualification in the			
aircraft being simulated  And,			
☐ Has direct experience in conducting stall maneuvers			
in the aircraft being simulated or in an aircraft that shares			
the same type rating as the make, model, and series of the simulated aircraft. For the latter, differences in the			
aircraft specific stall recognition cues and handling			
characteristics are addressed in the SOC and are			

referenced in available documentation.	
And if the SME is assessing the training FSTD:	
☐ The SME is familiar with the intended stall training maneuvers to be conducted in the FSTD and the cues	
necessary to accomplish the required training objectives	
This FCTD also we at the leadward of Oceanting Contains	
☐ This FSTD also meets the Instructor Operating System (IOS) requirements for Upset Recovery and Prevention	
Training (UPRT) tasks as described in Part 60 Appendix	
A, Table A1A(2n.) and Attachment 7. To be verified below in Section 4b, IOS Feedback Mechanism-	
below in Section 45, 103 i eedback weenanism:	
For aircraft equipped with a Stick Pusher System:	
Either { ☐ The attached SOC verifies that the stick pusher	
system has been modeled, programmed, and validated	
using the aircraft manufacturer's design data or other acceptable data source is attached. The SOC	
addresses, at a minimum, stick pusher activation and	
cancellation logic as well as system dynamics, control displacement and forces as a result of the stick pusher	
activation.	
Or,  ☐ The aircraft being simulated is not equipped with a	
stick pusher system.	
}	
Objective Testing Requirements (for FSTDs qualified PRIOR to Part 60 Change 2 and IAW FSTD Directive 2):	
2.c.8.a. Stall Characteristics, (Appendix A, Table A2A)	
Either {         □ Objective tests, with updated tolerances, have been	
provided for:	
<ul><li>☐ Second Segment Climb-Wings Level (1g)</li><li>☐ Approach or Landing- Wings Level (1g)</li></ul>	
Or,	
☐ Existing flight test validation data is missing required parameters or otherwise unsuitable to meet the	
requirements of FSTD Directive 2. Therefore, the	
sponsor has provided for one of the following:  ☐ Alternate Data (attached)	
☐ A subjective validation by a SME with direct	
experience in stall characteristics of the aircraft being simulated and addressed in the SOC.	
}	
And {	
☐ High-altitude, cruise stall	
☐ Turning flight stall	
Or,  ☐ The High-altitude, cruise stall maneuver has been	
subjectively evaluated by the SME and	
addressed in the SOC.  ☐ The Turning flight stall maneuver has been	
subjectively evaluated by the SME and	
addressed in the SOC. }	
Objective Testing Requirements (for FSTDs qualified <u>IAW</u>	
Part 60 Change 2): FSTD Directive 2 is not applicable. Objective tests are	
required for all configurations in Appendix A, Table A2A,	
Item 2.c.8.a.	
☐ FSTD is being qualified IAW 14CFR Part 60 Ch. 2:	
2.a.10. Stick Pusher Force Calibration.	
☐ Test is attached.	

<b>3.f.5.</b> Characteristic Motion Vibrations - Stall Buffet validation.  For FSTDs qualified <u>IAW</u> Part 60 Change 2, FSTD Directive 2 is not applicable. Objective tests are required for all configurations in Appendix A, Table A2A, Item 3.f.5.	
Second Segment Climb:  Either  An objective test result is attached  Or,  Buffets have been evaluated by the SME pilot	
Approach/Landing Config:  Either  ☐ An objective test result is attached  Or, ☐ Buffets have been evaluated by the SME pilot	
High Altitude Cruise: <b>Either</b> ☐ An objective test result is attached <b>Or</b> ,  ☐ Buffets have been evaluated by the SME pilot	
FAA Use Only:	
Date Reviewed/ FAA Reviewer/ Other Comment. Click here to enter a date.	

Comment Status Codes:

**OK** -- Acceptable

**C** – Correction Required

NA – Not Applicable

Coation 4b FCTD Modification Description				
Section 4b. FSTD Modification Description				
FD2 Upset Recovery & Prevention Training (UPRT) Provide a Complete Description of FSTD Modification to Support the Training Task:				
(software changes must include name of a/c system software, aero module, or engine module changed)				
(Soliware shanges mast molade harre of do system soliware, acto module, of engine module shanged)				
Changare must complete	ΓΛΛΙΙΟ	Only		
Sponsors must complete	FAA Use	•		
UPRT Scenarios and IOS Feedback Mechanism:	Status	Comment		
$\ \square$ The minimum set of required maneuvers has been				
evaluated to ensure that the combination of angle of				
attack and sideslip does not exceed the range of flight				
test validated data or wind tunnel/analytical data while performing the recovery maneuver and is available on the				
IOS including:				
A nose-high, wings level aircraft upset.				
<ul> <li>A nose-low, wings level aircraft upset.</li> </ul>				
<ul> <li>A high bank angle aircraft upset.</li> </ul>				
Ontional				
Optional:				
The following additional upset scenarios have been evaluated and are available on the IOS:				
evaluated and are available on the 103.				
☐ Other:				
☐ Other:				
Alata Water and the state of th				
Note: "Maneuver" based training focuses on a single event in isolation. "Scenario" based training incorporates maneuvers				
into a real-world experience to cultivate flying skills in an				
operational environment.				
☐ At least one of the upset recovery maneuvers				
requires angles of attack above the stall warning system				
activation. Therefore, the aerodynamic model meets the				
requirements for high angle of attack modeling as				
described in Table A1A (2m.). Qualification for the Full				
Stall training task is required.				
IOS Feedback Mechanism				
☐ This FSTD meets the Instructor Operating System (IOS)				
requirements for Upset Recovery and Prevention				
Training (UPRT) tasks as described in Table A1A(2n.) and Attachment 7. The feedback mechanism includes:				
FSTD validation envelope. This must be in the				
form of an alpha/beta envelope (or equivalent				
method) depicting the "confidence level" of the				
aerodynamic model depending on the degree of				
flight validation or source of predictive methods				
The envelopes must provide the instructor real- time feedback on the simulation during a				
maneuver. There must be a minimum of a flaps up				
and flaps down envelope available. The validation				
envelope was derived by the aerodynamic data				
provider, or by using information from the provider;				
<ul> <li>Flight control positions. The instructor must be able to assess the pilot's flight control inputs during the</li> </ul>				
upset recovery maneuver as required. It must				
include rudder pedal displacement and control				
forces as well as the primary control channels				
(including fly-by-wire as appropriate). Required				
additional parameters and time history (or				
<ul><li>equivalent) are presented; and</li><li>Airplane operational limits. Real-time aircraft</li></ul>				
operating limits must be displayed during the				
maneuver as applicable for the configuration of the				

<ul> <li>airplane. Required minimum parameters and time history (or equivalent) are presented.</li> <li>*** An exemplar IOS utility is of practical size and format, allows simultaneous viewing of the parameters noted above, and provides the instructor clear indications of FSTD envelope and aircraft load exceedances. Instructors should be well versed in its use and where possible, have input in the design.</li> </ul>			
Compliance Statement:  □ An SOC is attached that:  • Defines the source data used to construct the FSTD validation envelope.  • Verifies that each upset prevention and recovery feature programmed at the instructor station and the associated training maneuver has been evaluated by a suitably qualified pilot using methods described in Table A1A (2n).  • Confirms the recovery maneuver can be performed such that the FSTD does not exceed the FSTD validation envelope, or when exceeded, that it is within the realm of confidence in the simulation accuracy.			
FAA Use Only:			
Date Reviewed/ FAA Reviewer/ Other Comment.			
Click here to enter a date.			

Comment Status Codes:

**OK** -- Acceptable

C – Correction Required

NA - Not Applicable

The birective 2 Sportsor (veniodation and interim Approval			
Section 4c. FSTD Modification Description			
FD2 - Engine and Airframe Icing Training Task:			
Provide a Complete Description of FSTD Modification to Supp (software changes must include name of a/c system software, aero module, or e			
Sponsors must complete	FAA Us	e Only:	
Compliance Statement:	Status	Comment	
<ul> <li>An SOC is attached that describes:</li> <li>The expected aircraft specific recognition cues and degradation effects due to a typical in-flight icing encounter. This description is based upon relevant source data identified in the SOC such as aircraft OEM supplied data, accident/incident data, or other acceptable data sources.</li> <li>The data sources utilized to develop the qualified ice accretion models. Acceptable data sources may be, but are not limited to, flight test data, aircraft certification data, aircraft OEM engineering simulation data, or other analytical methods based upon established engineering principles.</li> <li>This airframe has demonstrated vulnerabilities to a specific type of ice accretion (due to accident/incident history) which requires specific training (i.e. supercooled large-droplet icing or tailplane icing). Ice accretion models have been developed that address the training requirements.</li> </ul>			
Objective Testing Requirements: Objective demonstration in Appendix A, Table A2A, Item 2.i. is not required for FSTDs initially qualified PRIOR to Part 60 effective May 30, 2016 (IAW FSTD Directive 2).  An objective demonstration of engine and airframe icing effects has not been provided IAW FSTD Directive 2.  The sponsor has elected to provide the attached objective demonstration of engine and airframe icing effects IAW 14 CFR Part 60 Appx. A, Table A2A (2i).			
FAA Use Only:			
Date Reviewed/ FAA Reviewer/ Other Comment.  Click here to enter a date.			

Comment Status Codes:

**OK** -- Acceptable

C – Correction Required

**NA** – Not Applicable

Section 4d. FSTD Modification Description				
FD2 – Gusting Crosswinds Training Task:				
Provide a Complete Description of FSTD Modification to Support the Training Task: (software changes must include name of a/c system software, aero module, or engine module changed)				
Sponsors must complete	FAA Us	e Only:		
Compliance Statement:	Status	Comment		
<ul> <li>☐ An SOC is attached that describes the source data used to construct gusting crosswind profiles.</li> <li>☐ Realistic gusting crosswind profiles are available to the instructors that have been tuned in intensity and variation to require pilot intervention to avoid rupway departure during</li> </ul>				
require pilot intervention to avoid runway departure during takeoff or landing roll.  Aerodynamic and ground reaction modeling is employed to support training in crosswinds and gusting crosswinds up to the aircraft's maximum demonstrated crosswind component.				
☐ The sponsor has ensured that the wind gust models do not exceed the capabilities of the aerodynamic and ground models.				
FAA Use Only:				
Date Reviewed/ FAA Reviewer/ Other Comment.  Click here to enter a date.				
Comment Status Codes: <b>OK</b> Acceptable <b>C</b> – Correction R· <b>I</b> – Improvement	•	NA – Not Applicable nded DO – Onsite Evaluation Discrepancy Opened		
Section 4e. FSTD Modification Description				
FD2 – Bounced Landing Training Task:				
Provide a Complete Description of FSTD Modification to Support the Training Task: (software changes must include name of a/c system software, aero module, or engine module changed)				
Sponsors must complete	FAA Us			
Compliance Statement:	Status	Comment		
☐ An SOC is attached that describes ground reaction modeling, appropriate effects, and indications during bounced or skipped landings including ground contact (e.g. tail, wing, propeller, or nosewheel strike) due to landing in an abnormal aircraft attitude.				
☐ Neither ground nor flight models have been modified for the sole purpose of inducing a bounce.				
FAA Use Only:				
Date Reviewed/ FAA Reviewer/ Other Comment.  Click here to enter a date.				

Comment Status Codes: **OK** -- Acceptable **C** – Correction Required

NA – Not Applicable