

# VALIDATION TEST

<b>Title</b>	Normal climb all engines operating.		
<b>Id</b>	1 c i	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the simulation of engine thrust, aerodynamic drag and atmosphere in a steady state normal climb conditions conforms to the class of aeroplanes	Airspeed approx. 90 kts VS (Rate of Climb) approx. 1190 ft/min
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Performances - Test 1.c.i	+/- 3 Kts Airspeed +/- 5 % or +/- 100ft/mn Rate of Climb

<b>Demonstration procedure</b>	The aeroplane is established in steady climb phase over an interval of at least 1000 ft.
<b>Manual test procedure</b>	The pilot performs a standard climb profile, maintaining constant power setting for at least 90 seconds, using trim as required to maintain airspeed. See the initial parameters next page.
<b>Automatic test procedure</b>	1 c i

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

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<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Autopilot mode</b>	AUTO_VZ
<p>Automatic IAS (airspeed) and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and IAS. Roll Trim is computed to maintain 0° bank angle.</p>	

<b>Initial parameters</b>	CLIMB
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 3000 Vertical speed (ft/min) : 1200 (free) IAS (kt) : 90 Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : 12 Pedal Position (%) : 0 Column Position (%) : 44 Wheel Position (%) : 0	Flaps lever position : 0 Gear lever position : 0 Left Load (%) : 92 Right Load (%) : 92 Left RPM : 2090 Right RPM : 2090

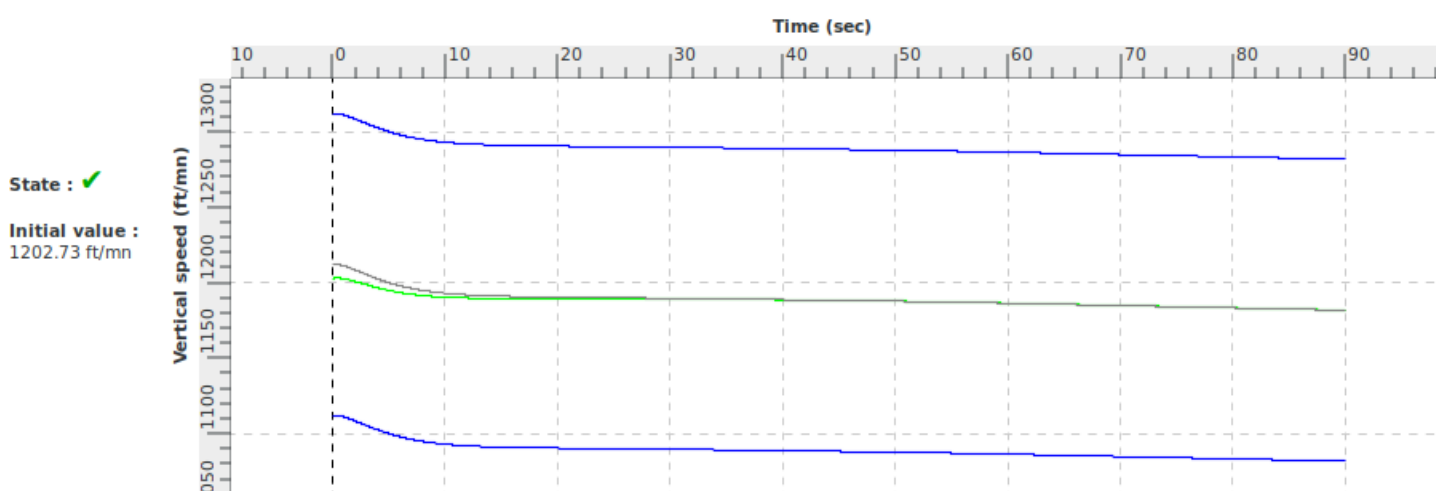
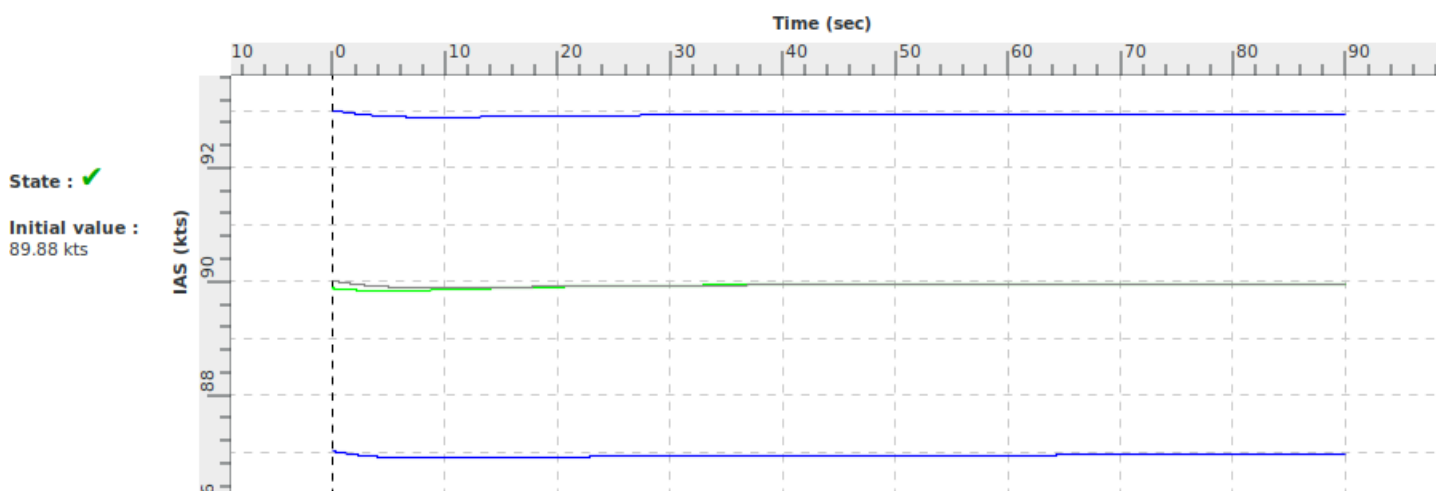
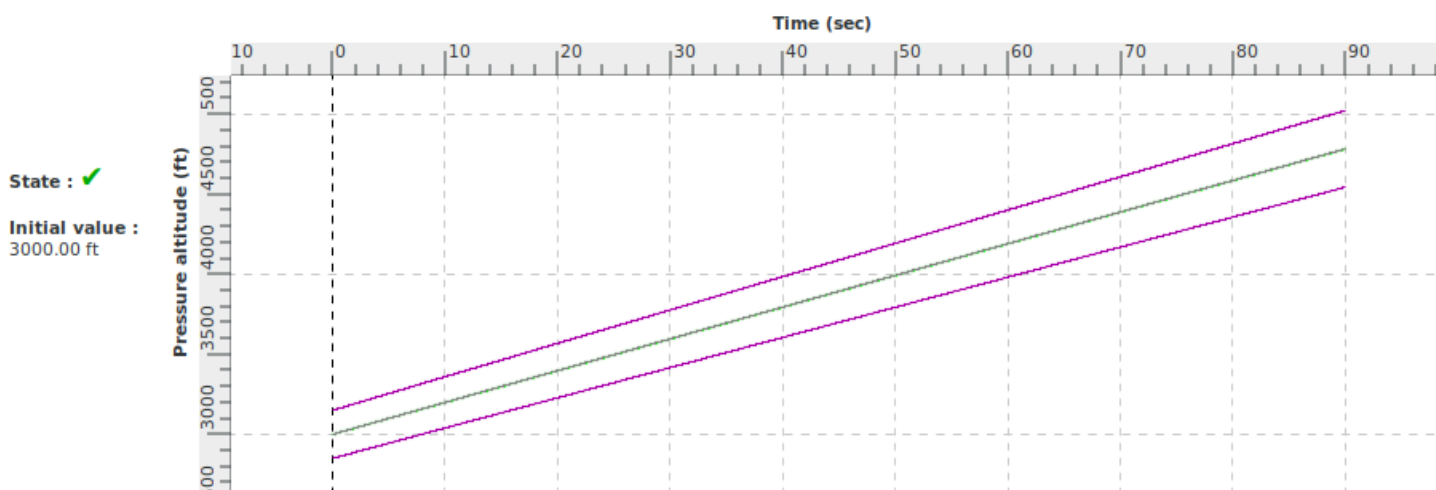
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
90.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Normal climb all engines operating.		
<b>Id</b>	1 c i	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

Log of Revision		
Rev. Nbr	Date	Reason for revision

Notes

<b>Title</b>	Normal climb all engines operating.		
<b>Id</b>	1 c i	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Result Date</b>	14/06/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902



### Legend :

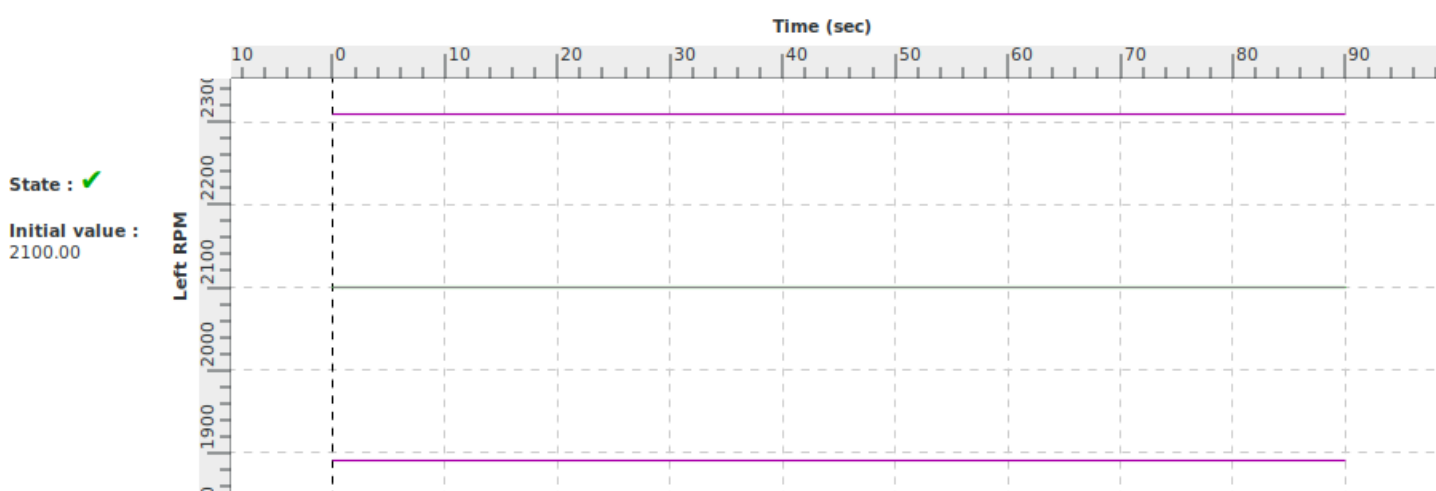
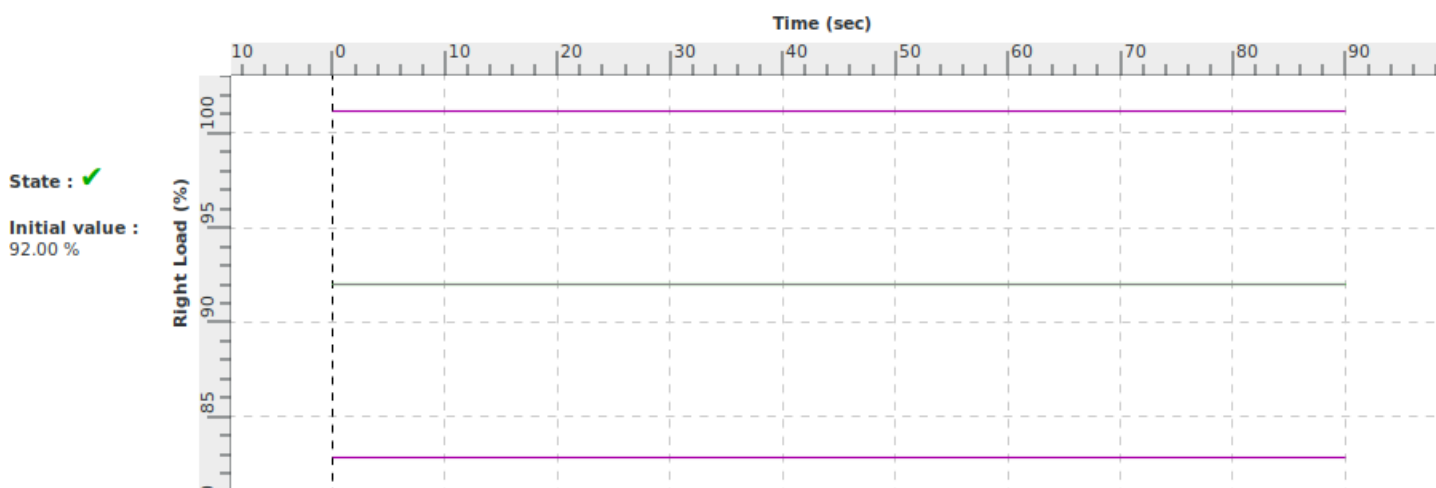
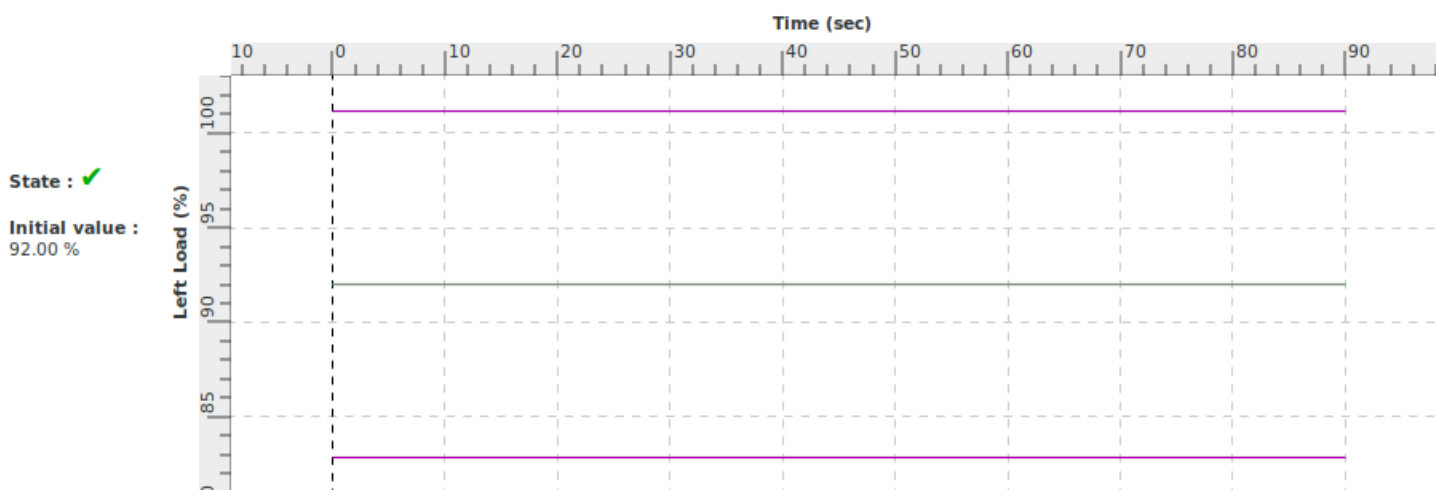
green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master



<b>Title</b>	Normal climb all engines operating.		
<b>Id</b>	1 c i	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Result Date</b>	14/06/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902



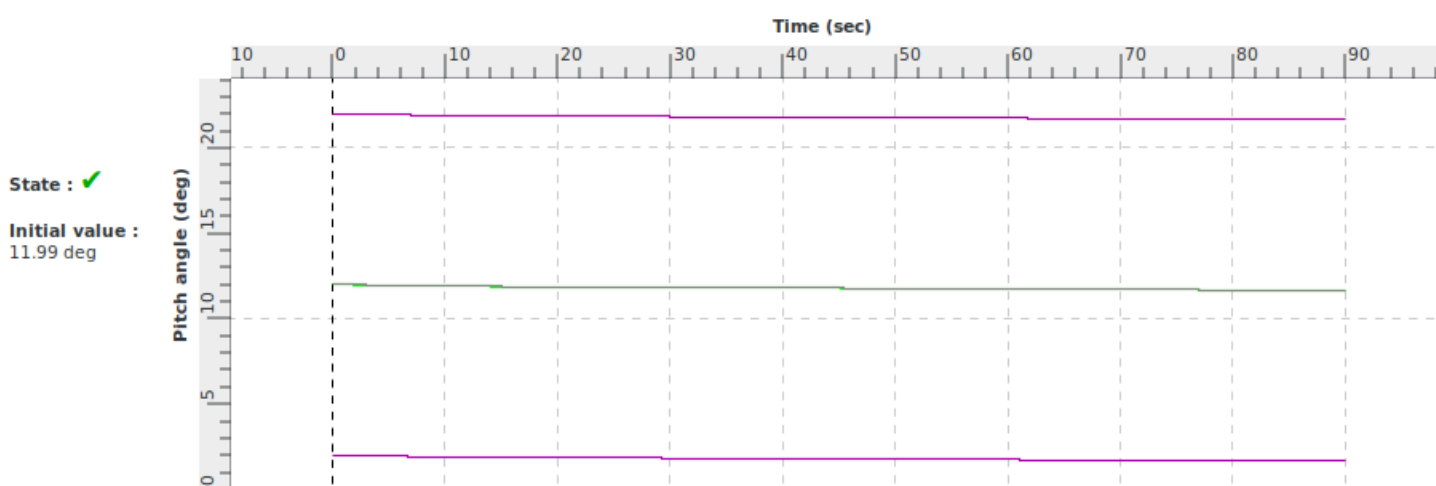
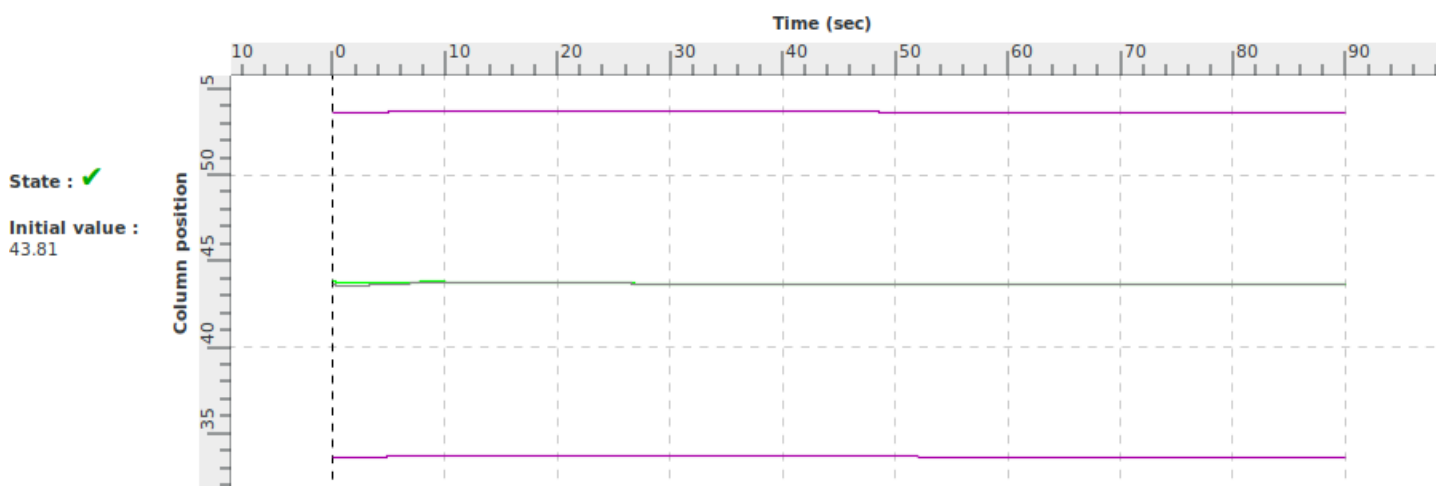
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<b>Id</b>	1 c i	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Result Date</b>	14/06/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902



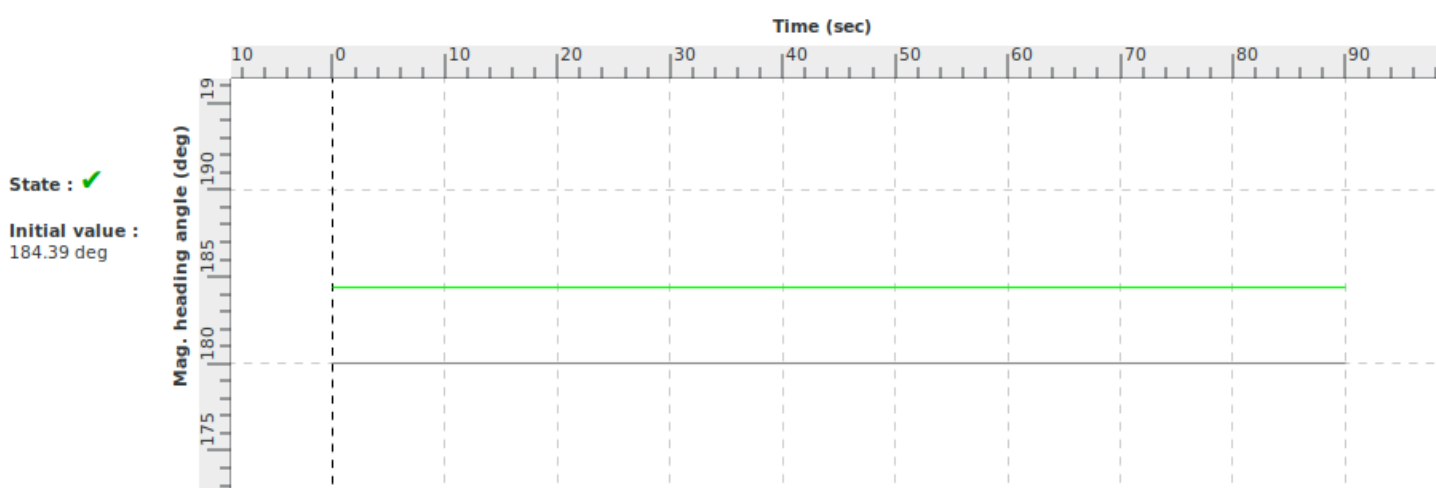
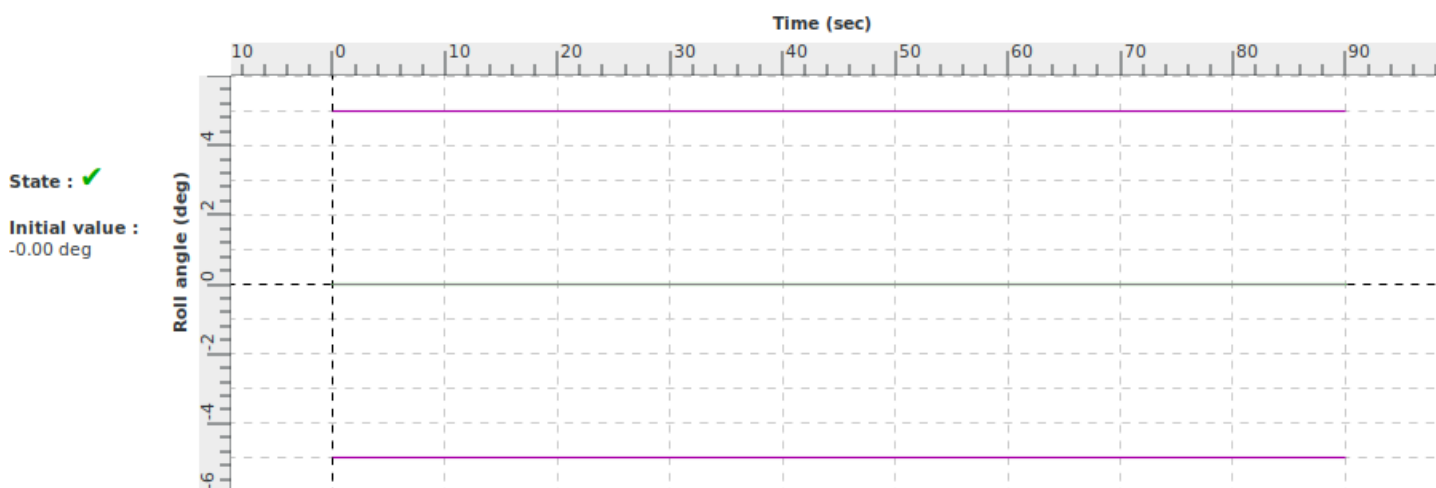
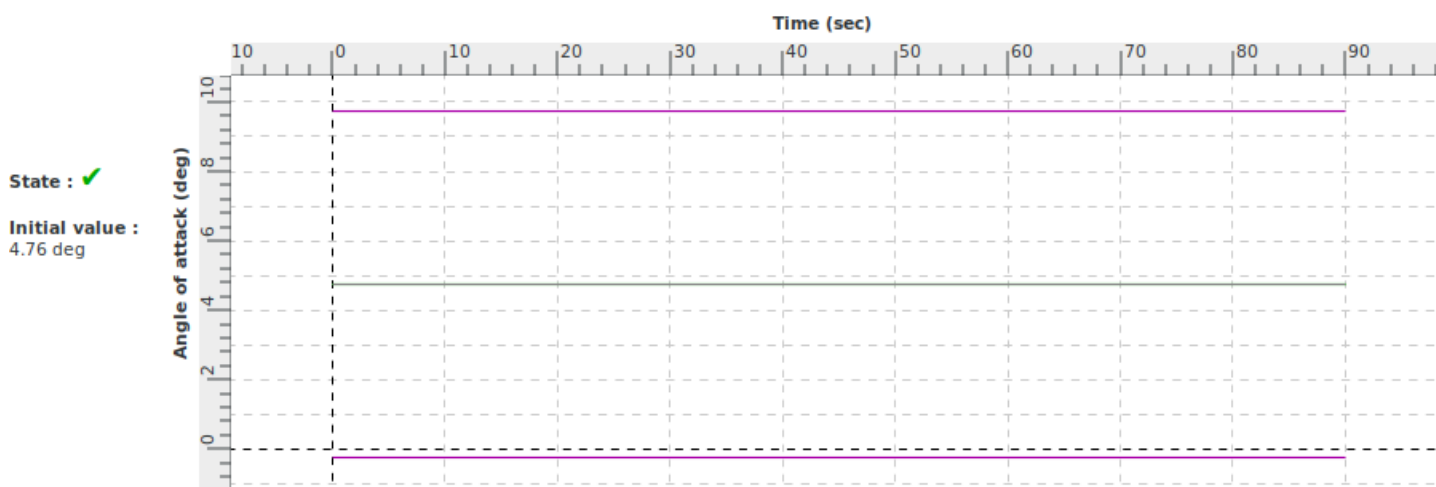
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<b>Title</b>	Normal climb all engines operating.		
<b>Id</b>	1 c i	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Result Date</b>	14/06/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902



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# VALIDATION TEST

<b>Title</b>	One engine inoperative second segment climb		
<b>Id</b>	1 c ii	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the simulation of engine thrust, aerodynamic drag and atmosphere in a steady state one engine inoperative climb conditions are conformed to the class of aeroplanes	Airspeed approx. 85kts VS (Rate of Climb) approx. 260 ft/mn
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Performances - Test 1.c.ii	+/-3 Kts Airspeed +/- 5 % or +/- 100ft/mn Rate of Climb

<b>Demonstration procedure</b>	The aeroplane is established in steady one engine inoperative second segment climb phase. Perform the steady climb and check the minimum second-segment climb gradient requirement to satisfy the WAT limiting conditions.
<b>Manual test procedure</b>	The pilot performs a one engine inoperative climb, maintaining constant power setting for at least 1000 ft, using trim as required to maintain airspeed. The left engine propeller is feathered. Test performed at WAT limiting conditions. See the initial parameters next page.
<b>Automatic test procedure</b>	1 c ii

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

<b>Title</b>	One engine inoperative second segment climb		
<b>Id</b>	1 c ii	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Autopilot mode</b>	AUTO_HDG_AND_IAS

<b>Initial parameters</b>	CLIMB N-1
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 3000 Vertical speed (ft/min) : 230 (free) IAS (kt) : 85 Heading (°) : 0 Bank (°) : 0 (free) Attitude (°) : 9 Pedal Position (%) : 25 Column Position (%) : 60 Wheel Position (%) : -5	Flaps lever position : 0 Gear lever position : 0 Left Load (%) : 0 Right Load (%) : 92 Left RPM : 0 Right RPM : 2090

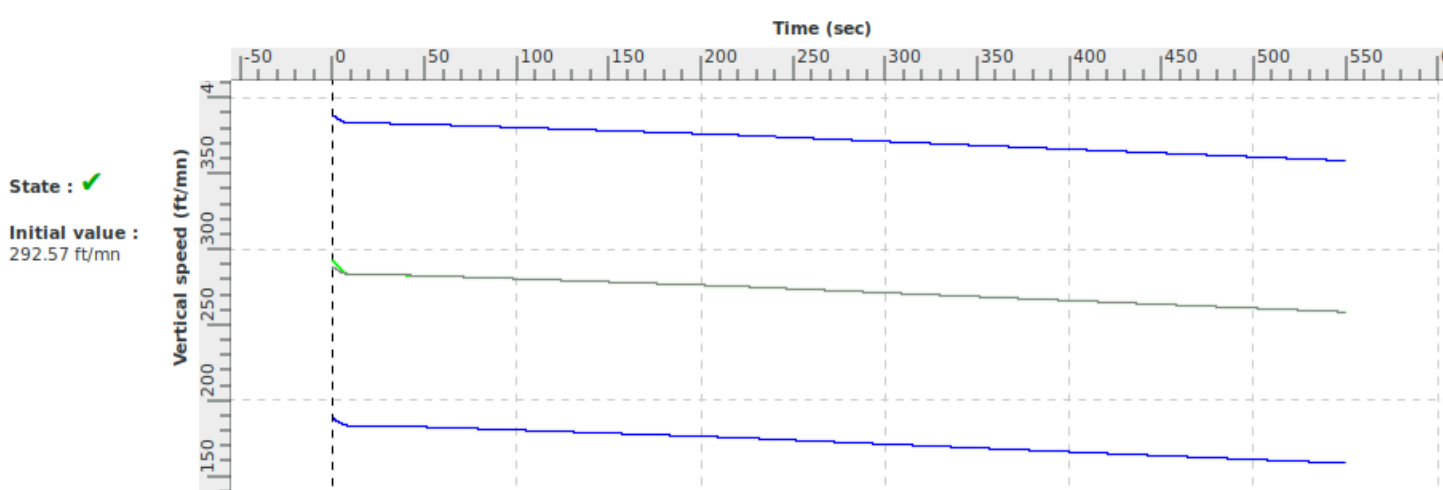
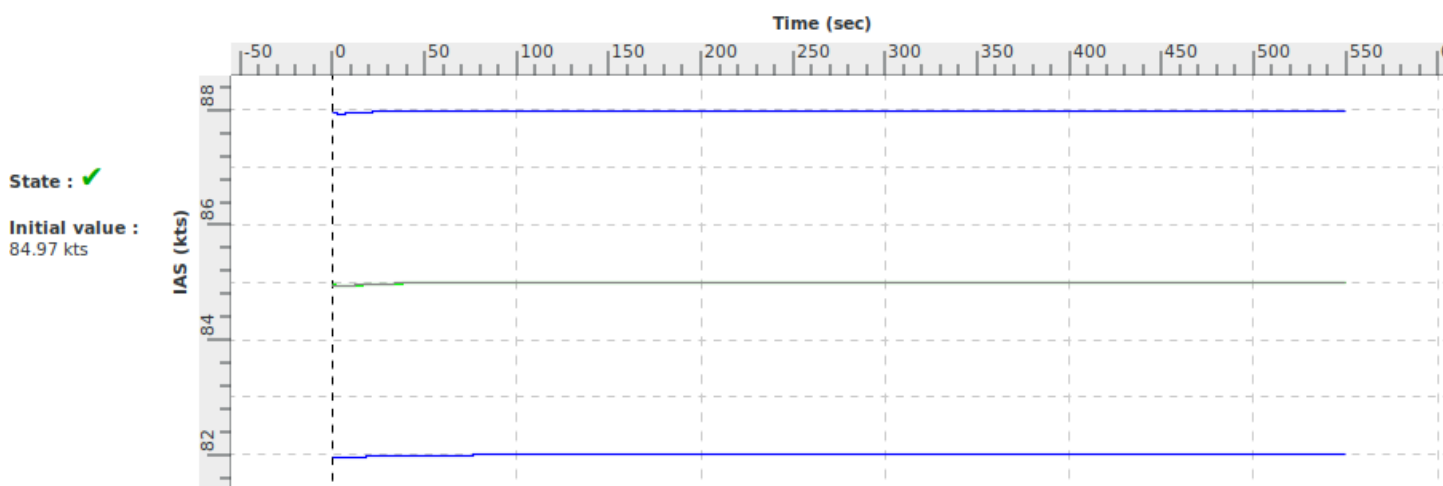
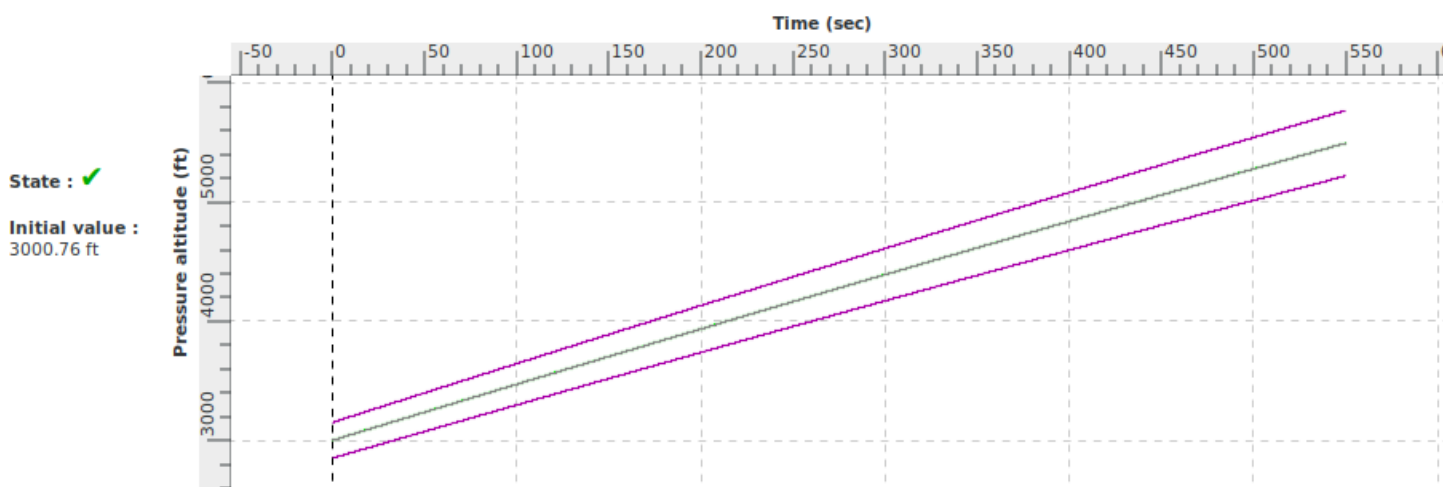
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
550.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	One engine inoperative second segment climb		
<b>Id</b>	1 c ii	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

Log of Revision		
Rev. Nbr	Date	Reason for revision
1.01	29/03/21	1909 Master. Expected results unchanged.
1.02	27/07/21	2012-R1 Master. Expected results unchanged.

Notes

Title	One engine inoperative second segment climb		
Id	1 c ii	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	22/08/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



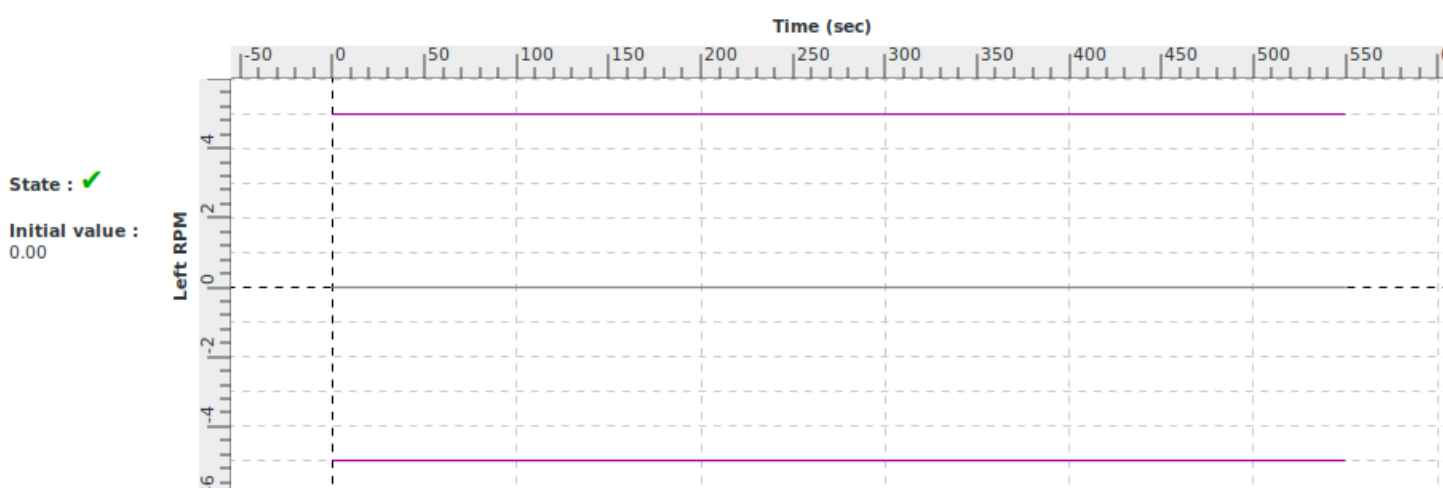
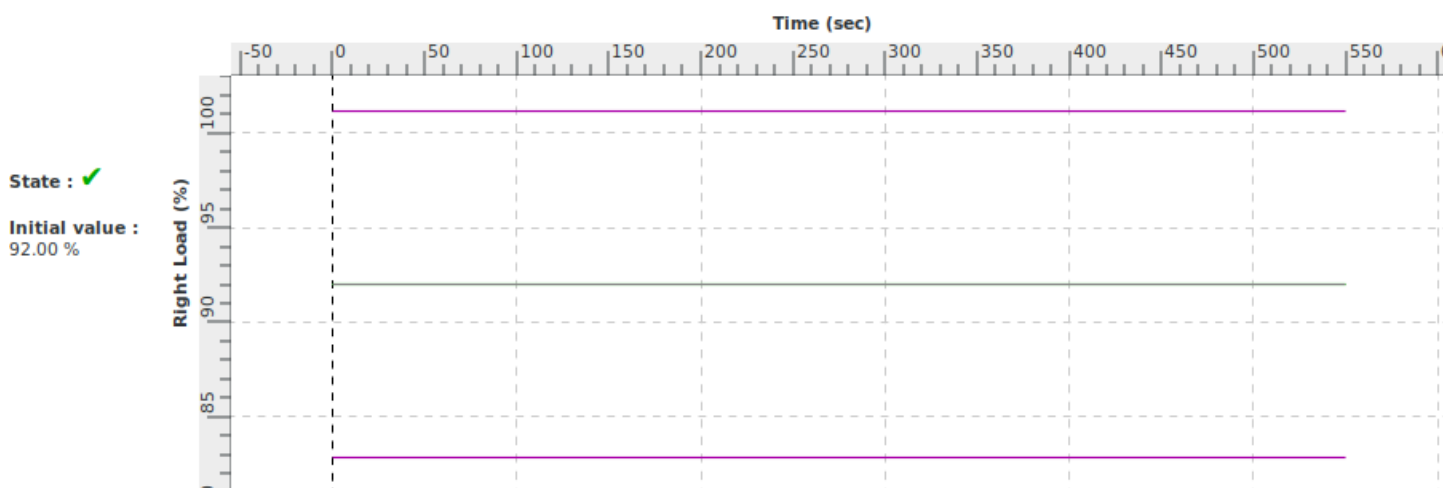
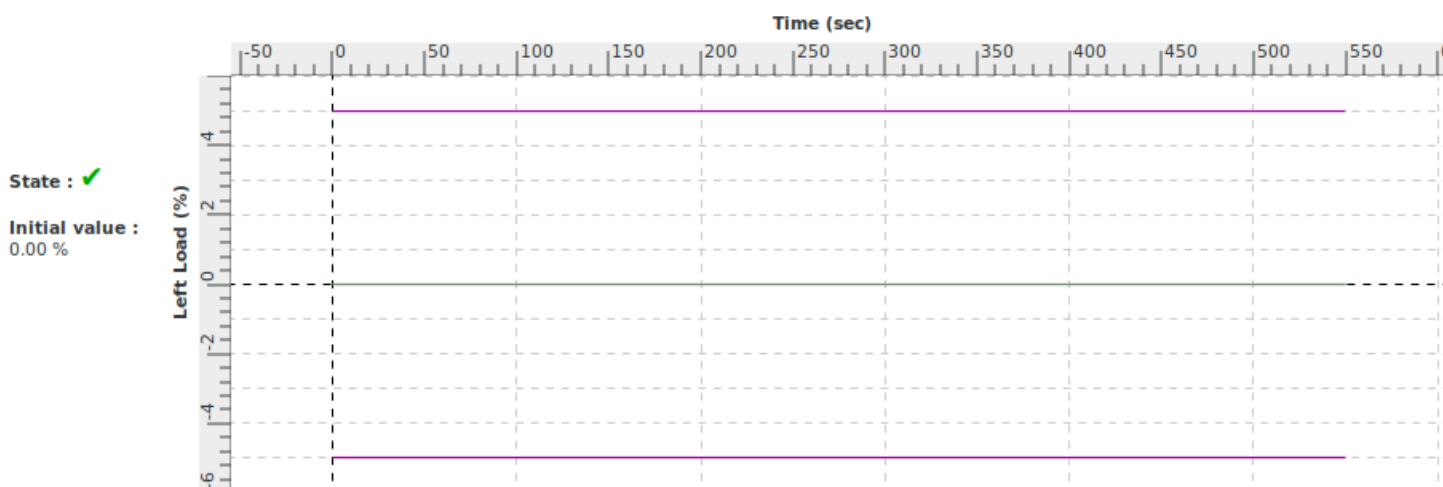
### Legend :

green : results within tolerances  
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violet : tolerances Alsim

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Id	1 c ii	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	22/08/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



### Legend :

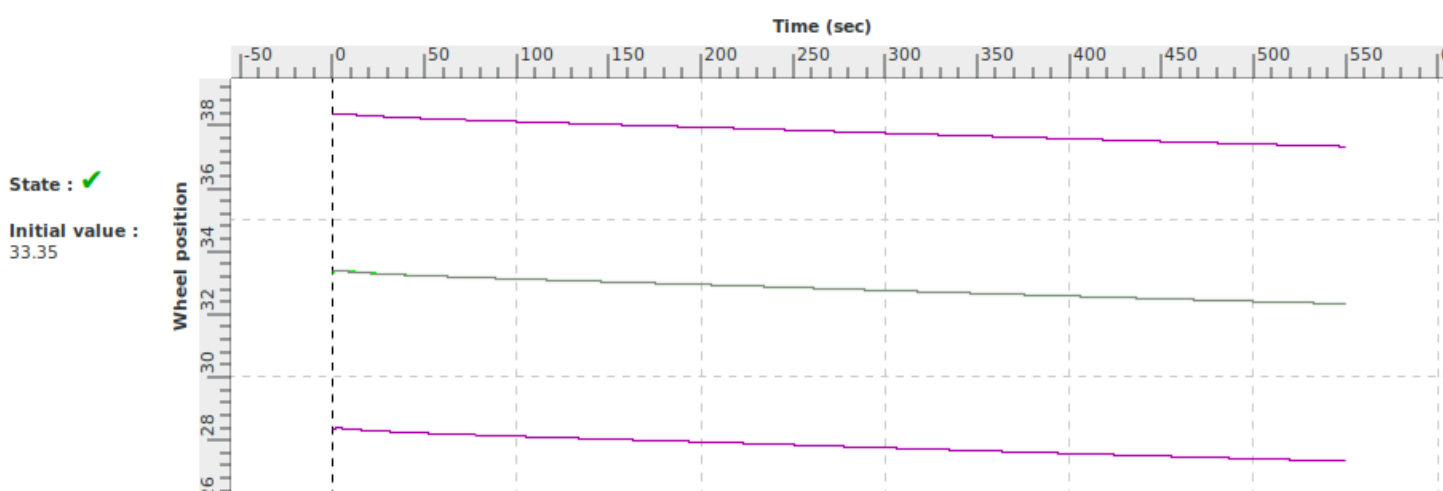
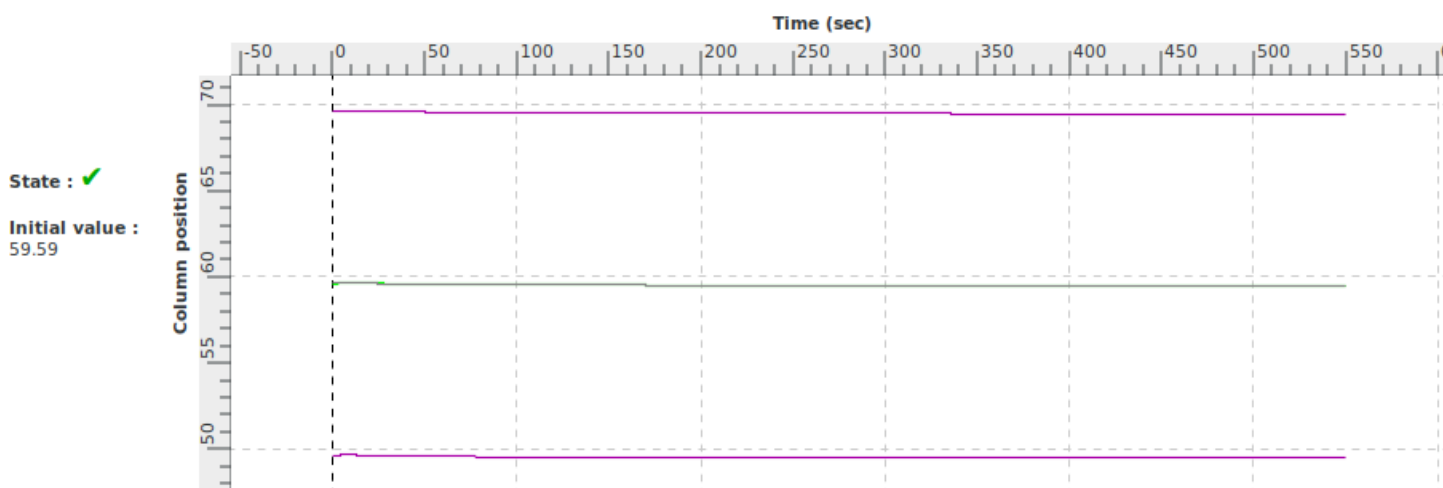
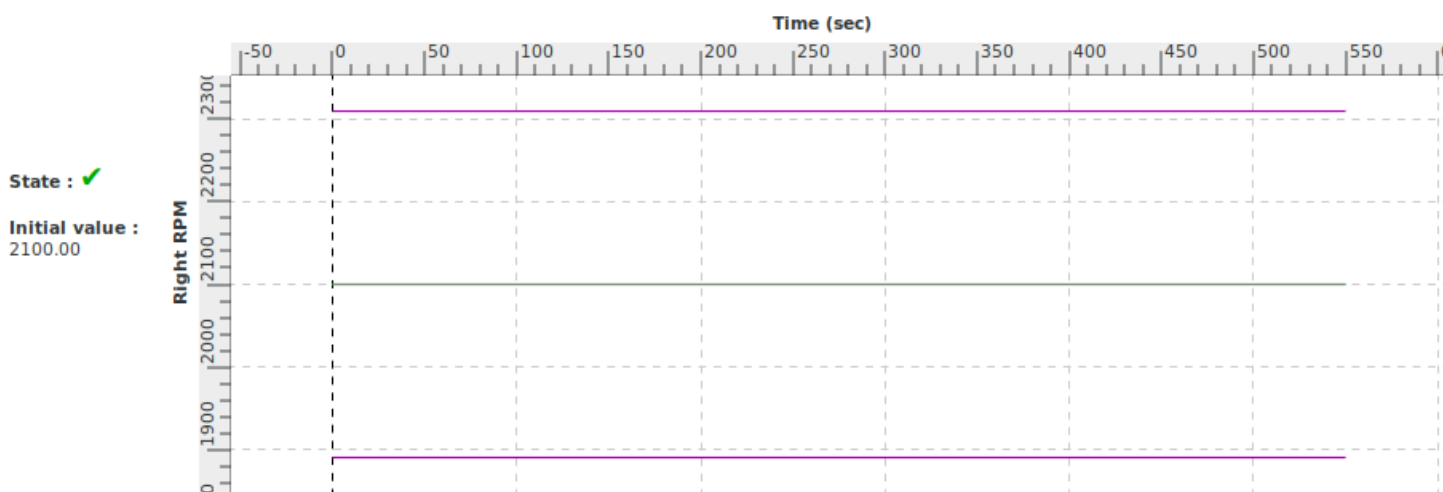
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Id	1 c ii	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	22/08/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



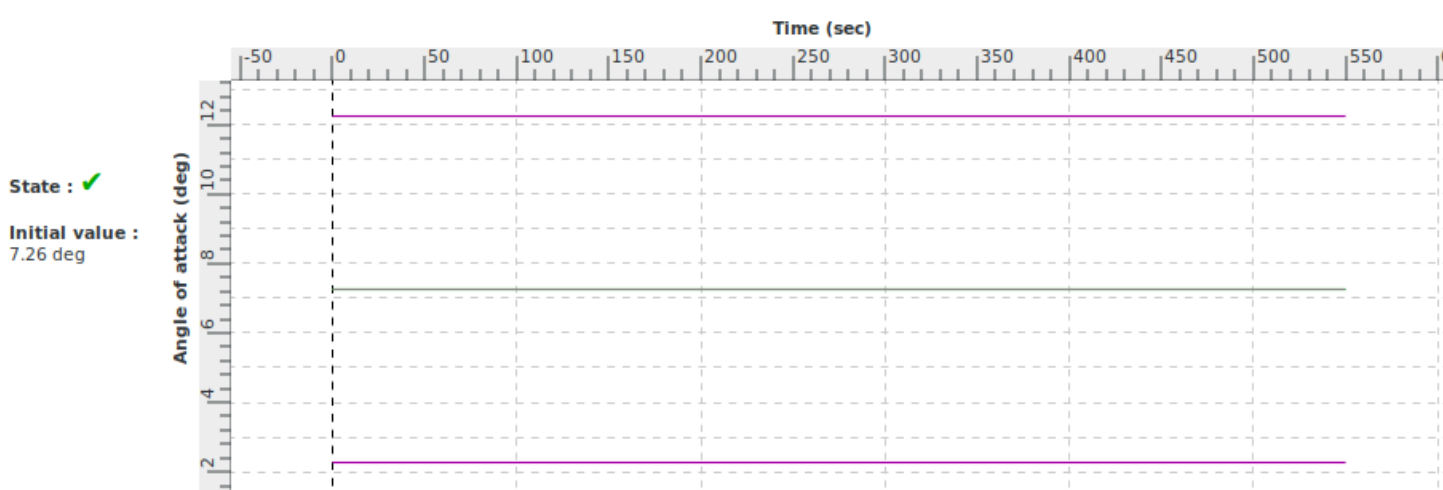
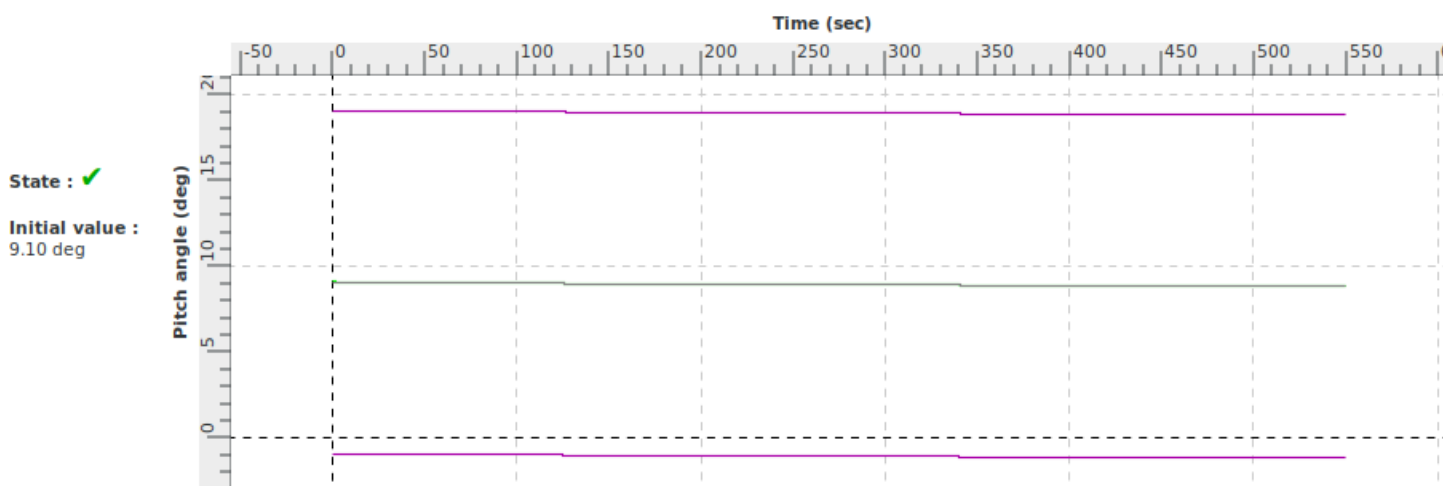
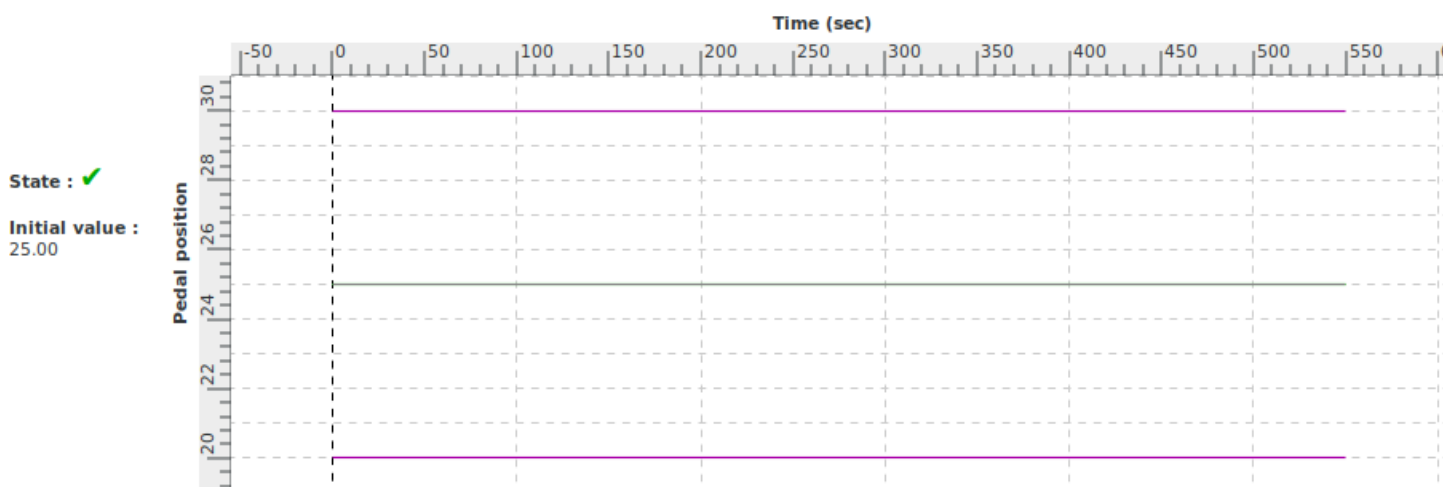
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Title	One engine inoperative second segment climb		
Id	1 c ii	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	22/08/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



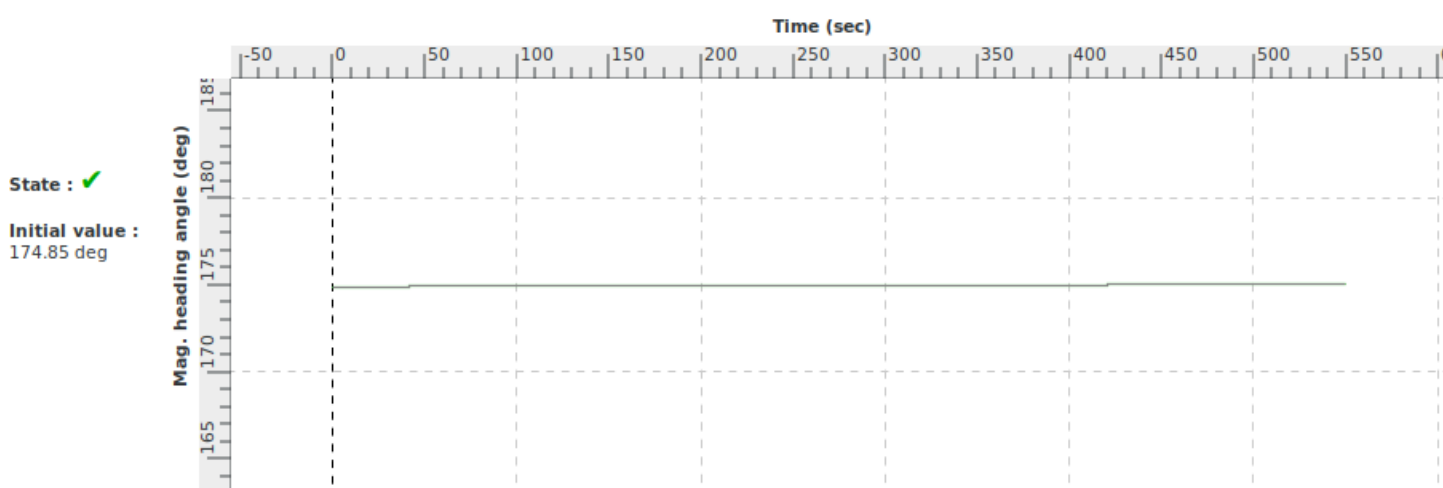
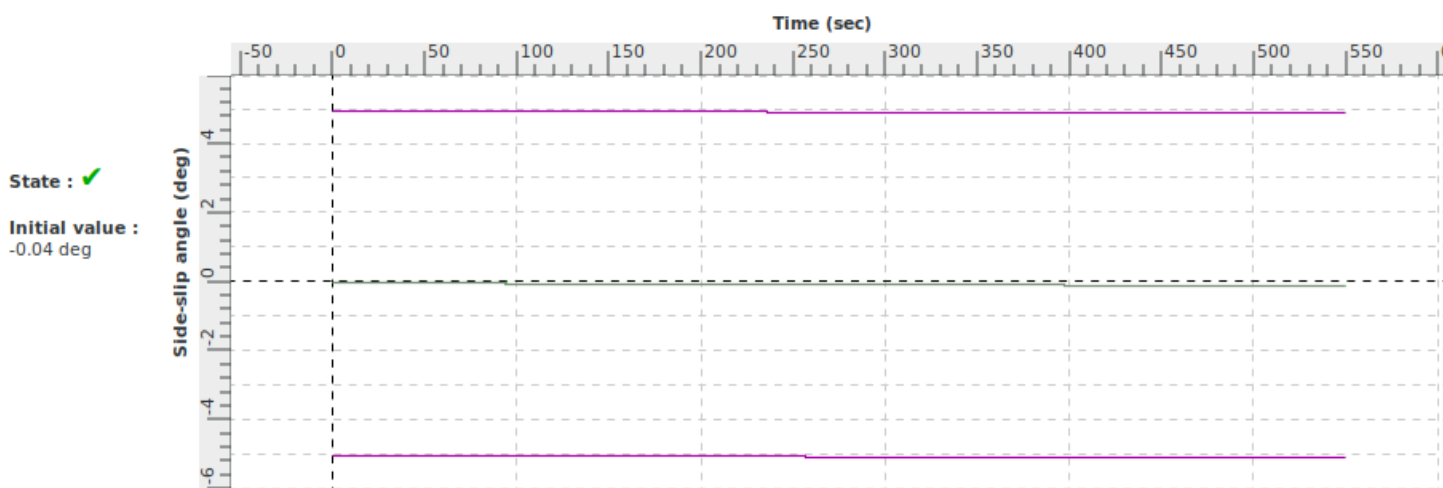
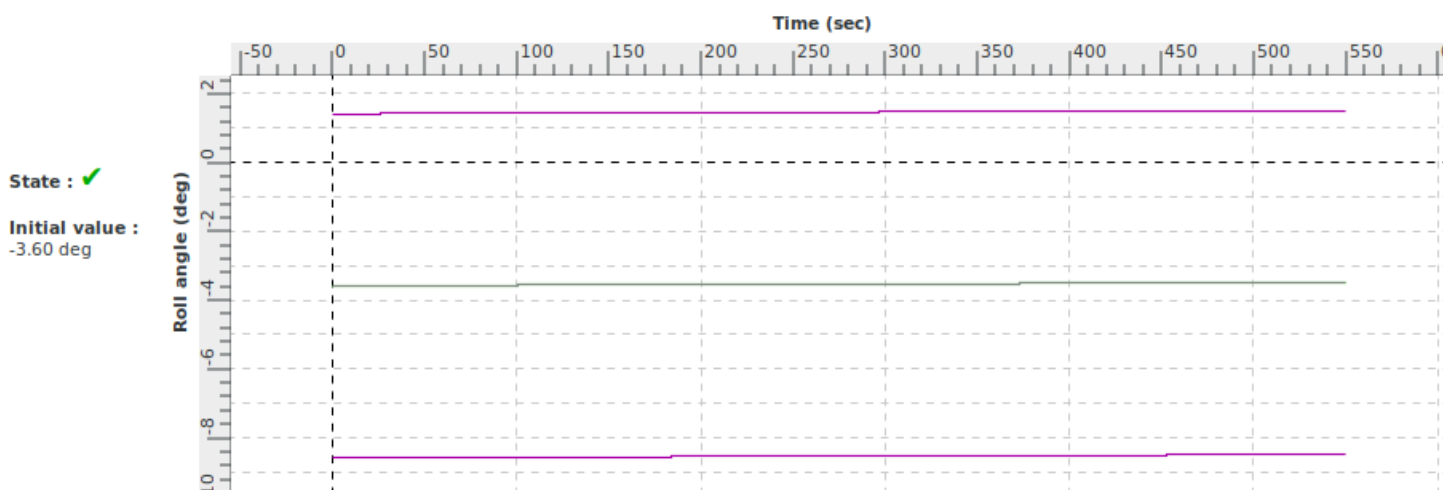
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Title	One engine inoperative second segment climb		
Id	1 c ii	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	22/08/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



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# VALIDATION TEST

<b>Title</b>	Engines acceleration during approach		
<b>Id</b>	1 f i	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that simulation of engine acceleration (time from idle to 90% of Go-Around power) conforms to the class of aeroplanes	Time from idle to 10% of maximum load : Time 0.2 sec approx Time from idle to 90% of maximum load : Time 1.3 sec approx
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Performances - Test 1.f.i	Correct Trend and Magnitude

<b>Demonstration procedure</b>	From steady approach initial conditions, throttle is rapidly moved to idle power and then rapidly advanced to go-around power position. Time to accelerate to specified power is measured.
<b>Manual test procedure</b>	Trim the airplane to approach conditions (the parameters are given in the next page).The throttles are moved to idle power and then rapidly advanced to go around power. Load and Power Lever Position are recorded. Transient time (to new steady state) is read from the record and compared versus airplane data.
<b>Automatic test procedure</b>	1 f i

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

Title	Engines acceleration during approach		
Id	1 f i	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Qualification Level	FNPT2	Operator	AFTA
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902

Autopilot mode	AUTO_VZ
Automatic IAS (airspeed) and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and IAS. Roll Trim is computed to maintain 0° bank angle.	

Initial parameters	HOLD_FLAPS_APP_GEAR
Gross weight (kg) : 1900	Flaps lever position : 1
Balance (%) : 50	Gear lever position : 1
Altitude (ft) : 3000	Left Load (%) : 70
Vertical speed (ft/min) : 0 (free)	Right Load (%) : 70
IAS (kt) : 106	Left RPM : 2060
Heading (°) : 0 (free)	Right RPM : 2060
Bank (°) : 0	
Attitude (°) : -1	
Pedal Position (%) : 0	
Column Position (%) : 32	
Wheel Position (%) : 0	

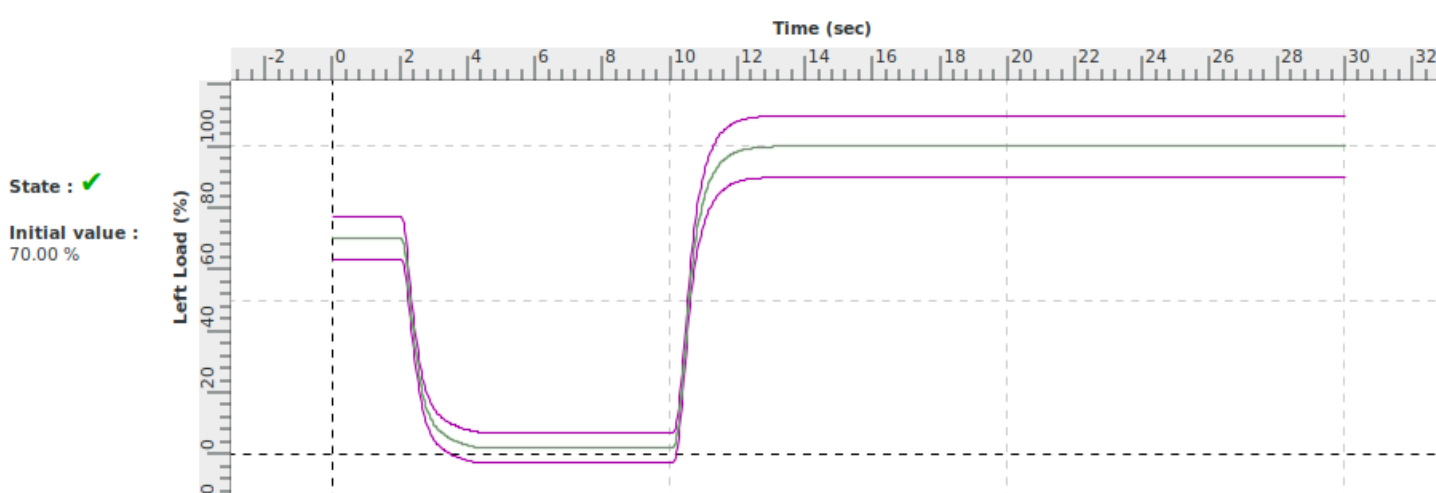
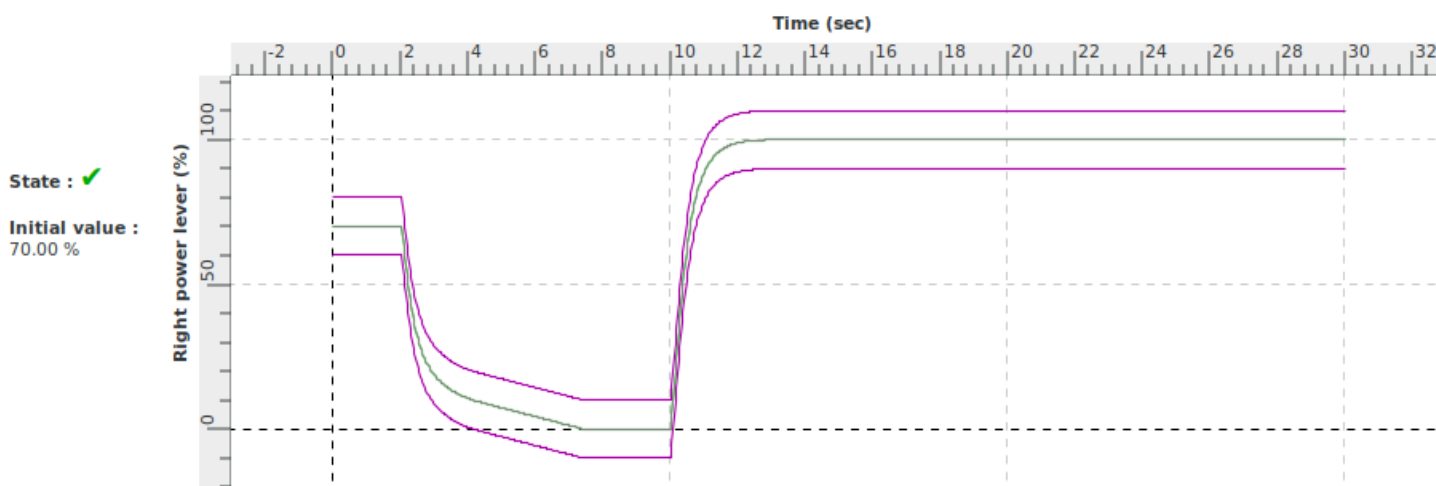
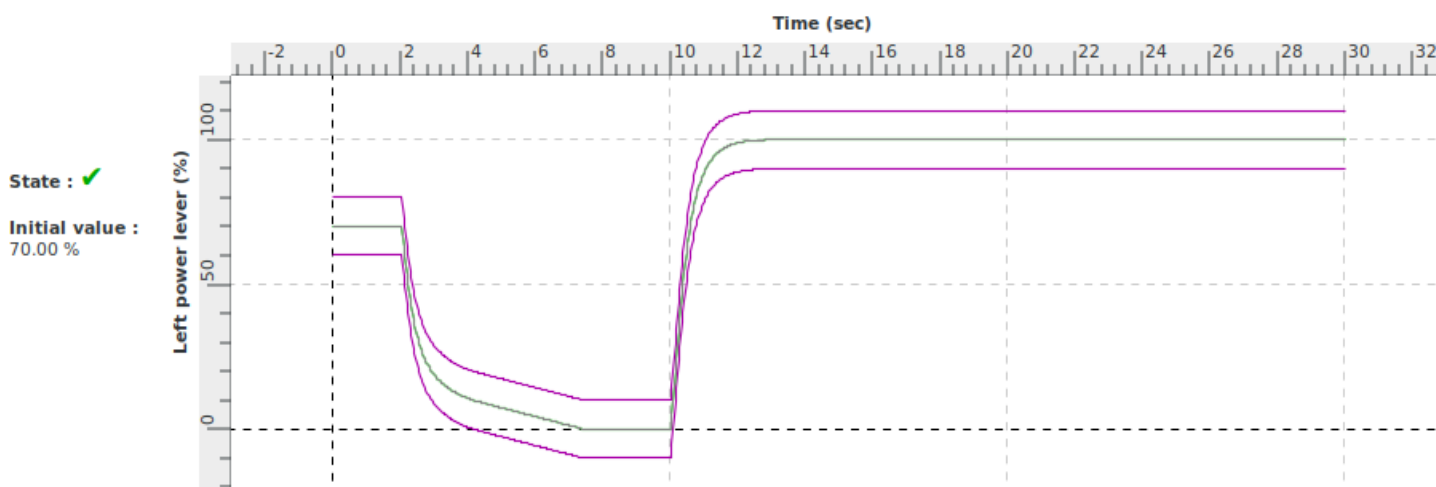
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
0.0	mode_stop	1.0	Set the aircraft to STOP or GO mode (0 means GO and 1 means STOP)
2.0	power_FLIGHT_IDLE	0.0	Set engine parameters to flight iddle power
10.0	power_GOAROUND_MAX	0.0	Set engine parameters to go-around power
30.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Engines acceleration during approach		
<b>Id</b>	1 f i	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

Log of Revision		
Rev. Nbr	Date	Reason for revision

Notes

Title	Engines acceleration during approach		
Id	1 f i	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



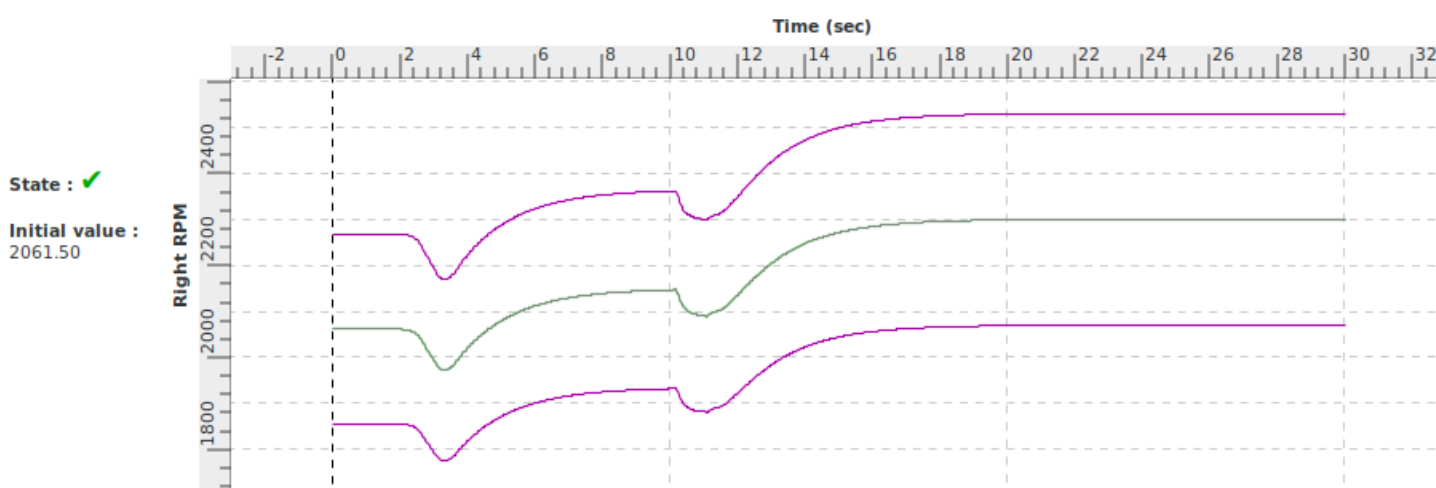
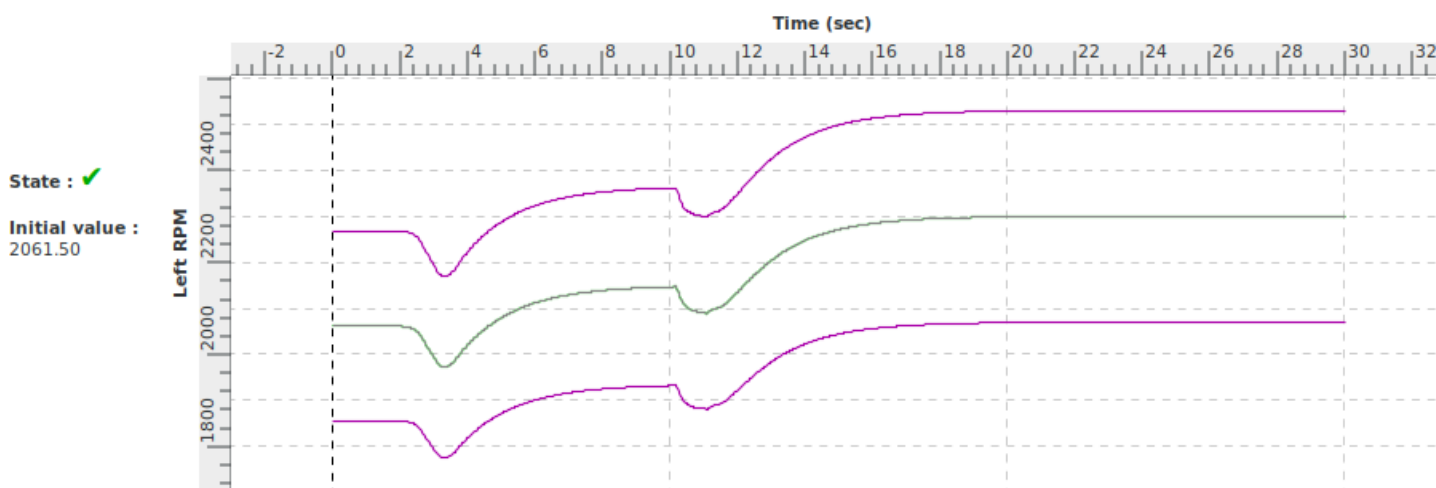
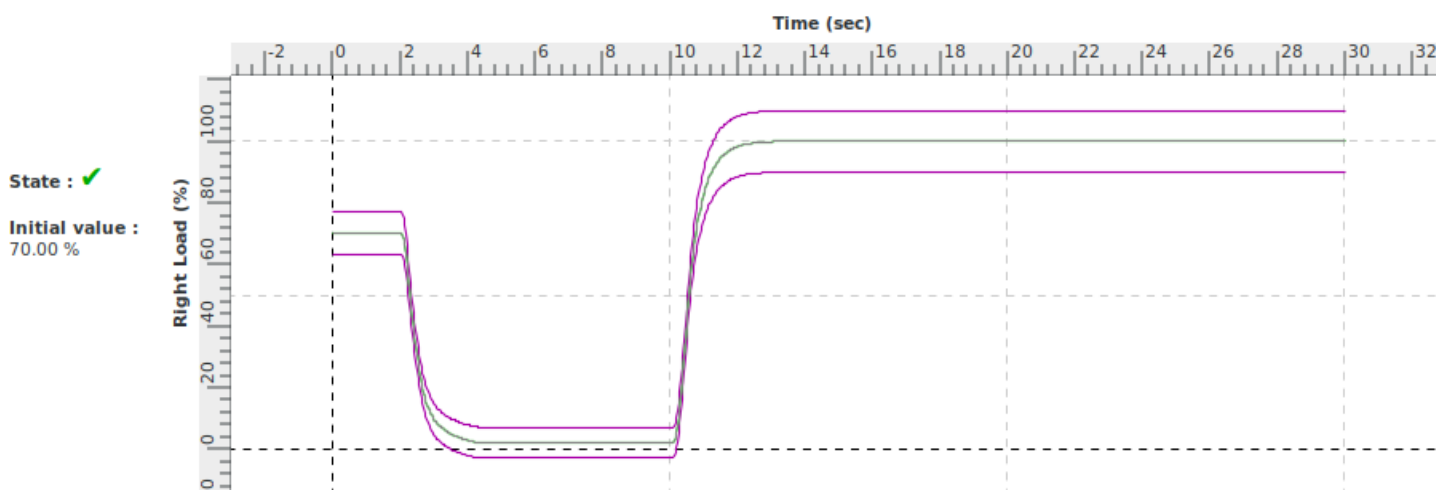
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Title	Engines acceleration during approach		
Id	1 f i	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



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# VALIDATION TEST

<b>Title</b>	Engines deceleration on ground		
<b>Id</b>	1 f ii	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	04/02/24	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that simulation of engine deceleration (time from initial throttle movement to 90% decay of maximum take-off power) conforms to the class of aeroplanes	Time from maximum load to 10% decay : Time 0.2 sec approx Time from maximum load to 90% decay : Time 1.1 sec approx
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Performances - Test 1.f.ii	Correct Trend and Magnitude

<b>Demonstration procedure</b>	On ground initial conditions (before take-off), the power is first increased to maximum take-off power then decreased to idle position. Time to decelerate to specified power (90% of decay) is measured.
<b>Manual test procedure</b>	On ground conditions (the parameters are given in the next page) with parking brakes: the throttles are rapidly advanced to take-off power then they are decreased to idle position. Load and Power Lever Position are recorded. Transient time (to new steady state) is read from the record and compared versus airplane data.
<b>Automatic test procedure</b>	1 f ii

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

Title	Engines deceleration on ground		
Id	1 f ii	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Qualification Level	FNPT2	Operator	AFTA
Result Date	04/02/24	Master Date	01/03/19
Result Load	2012.01	Master Load	1902

Autopilot mode	AUTO_SPEED
Automatic Vertical Speed and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and VS. Roll Trim is computed to maintain 0° bank angle.	

Initial parameters	ON_GROUND
Gross weight (kg) : 1900	Flaps lever position : 0
Balance (%) : 50	Gear lever position : 1
Altitude (ft) : 0	Left Load (%) : 0
Vertical speed (ft/min) : 0	Right Load (%) : 0
IAS (kt) : 0 (free)	Left RPM : 750
Heading (°) : 0 (free)	Right RPM : 750
Bank (°) : 0	
Attitude (°) : 0	
Pedal Position (%) : 0	
Column Position (%) : 0	
Wheel Position (%) : 0	

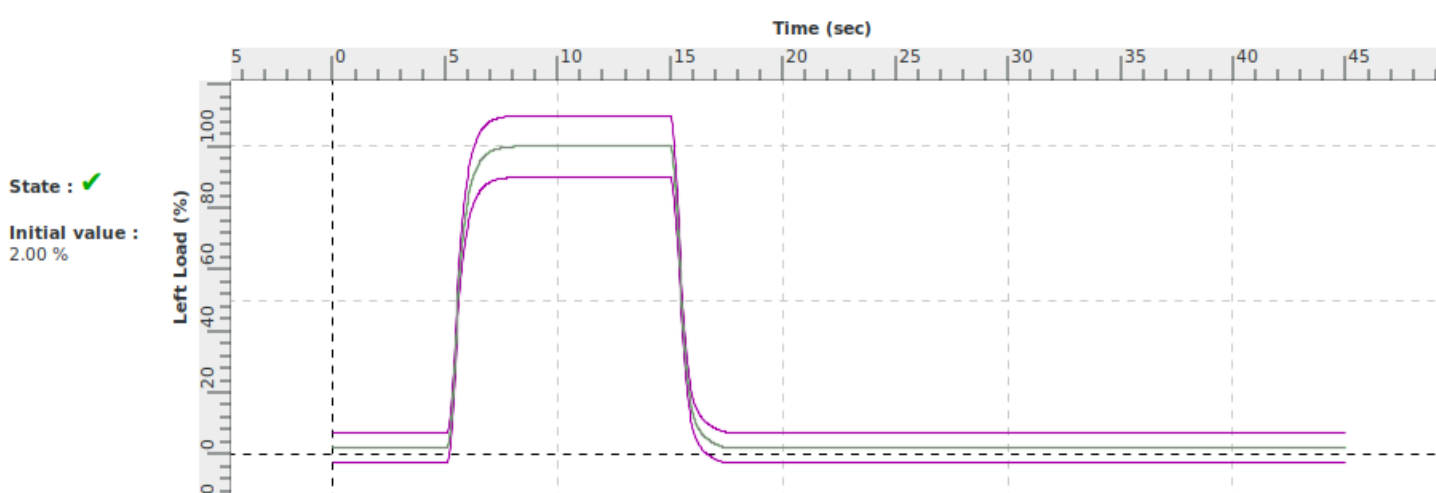
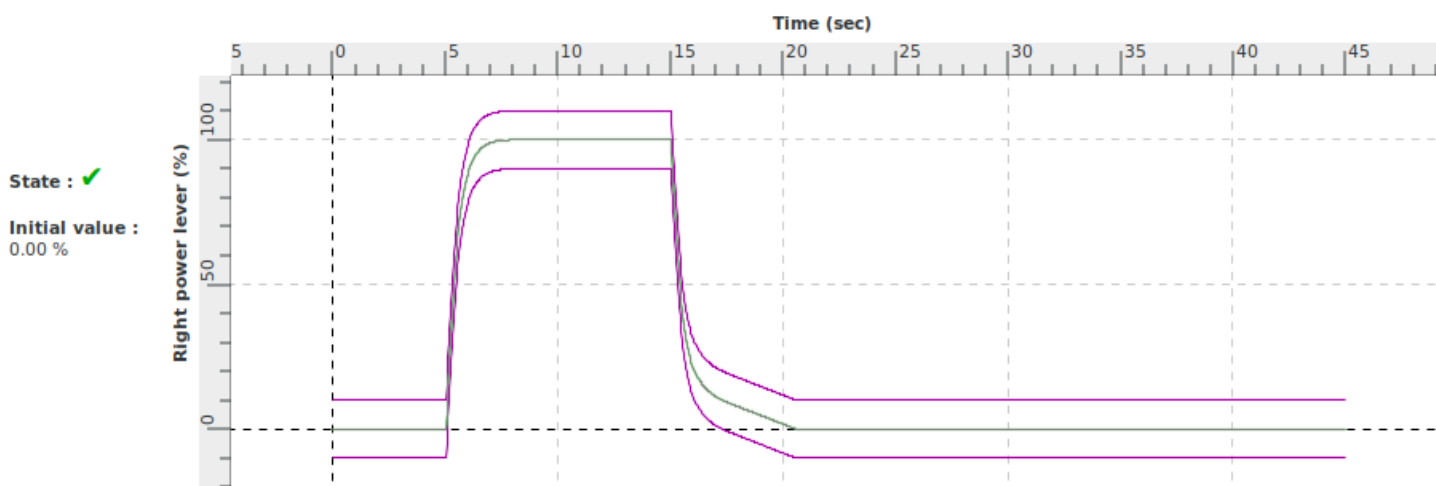
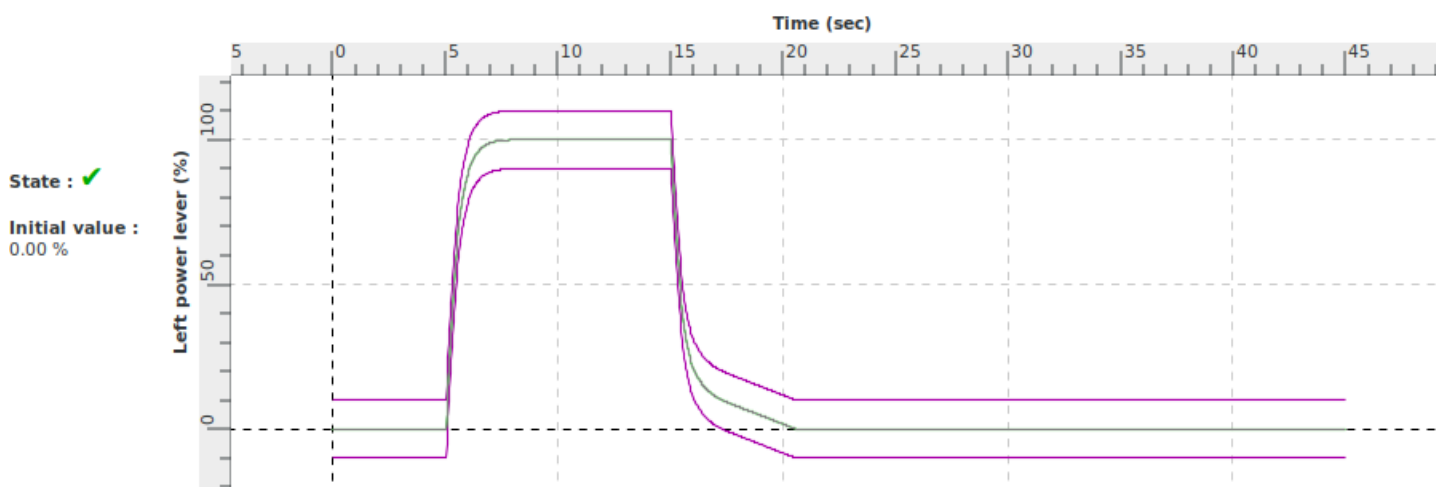
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
0.0	mode_stop	1.0	Set the aircraft to STOP or GO mode (0 means GO and 1 means STOP)
5.0	power_GOAROUND_MAX	0.0	Set engine parameters to go-around power
15.0	power_GROUND_IDLE	0.0	Set engine parameters to ground iddle power
45.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Engines deceleration on ground		
<b>Id</b>	1 f ii	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	04/02/24	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

Log of Revision		
Rev. Nbr	Date	Reason for revision

Notes

Title	Engines deceleration on ground		
Id	1 f ii	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	04/02/24	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



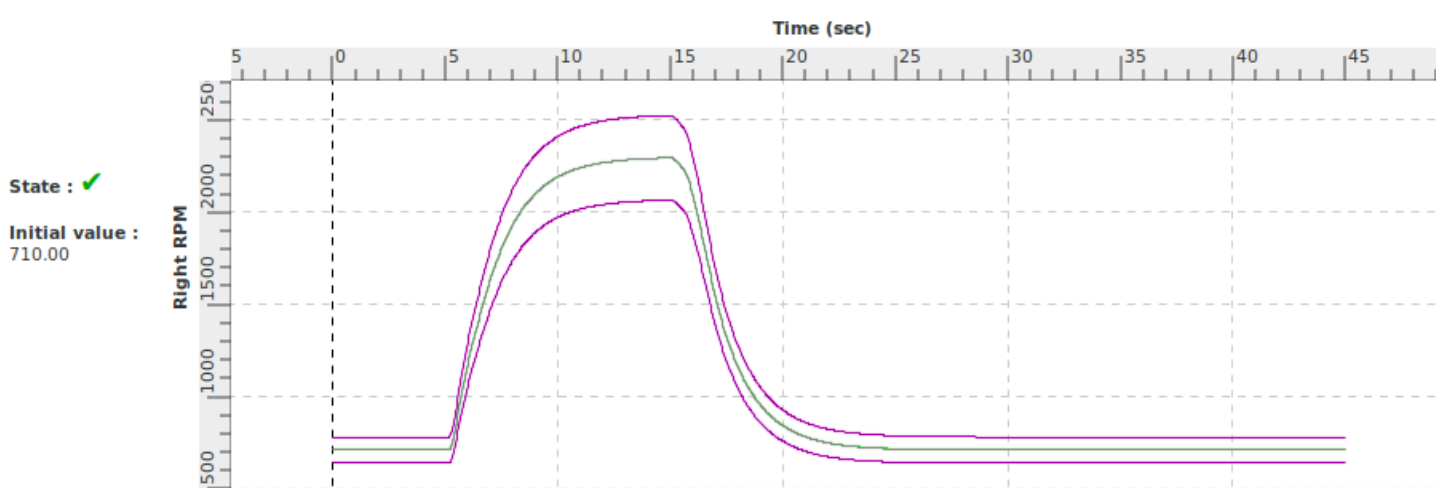
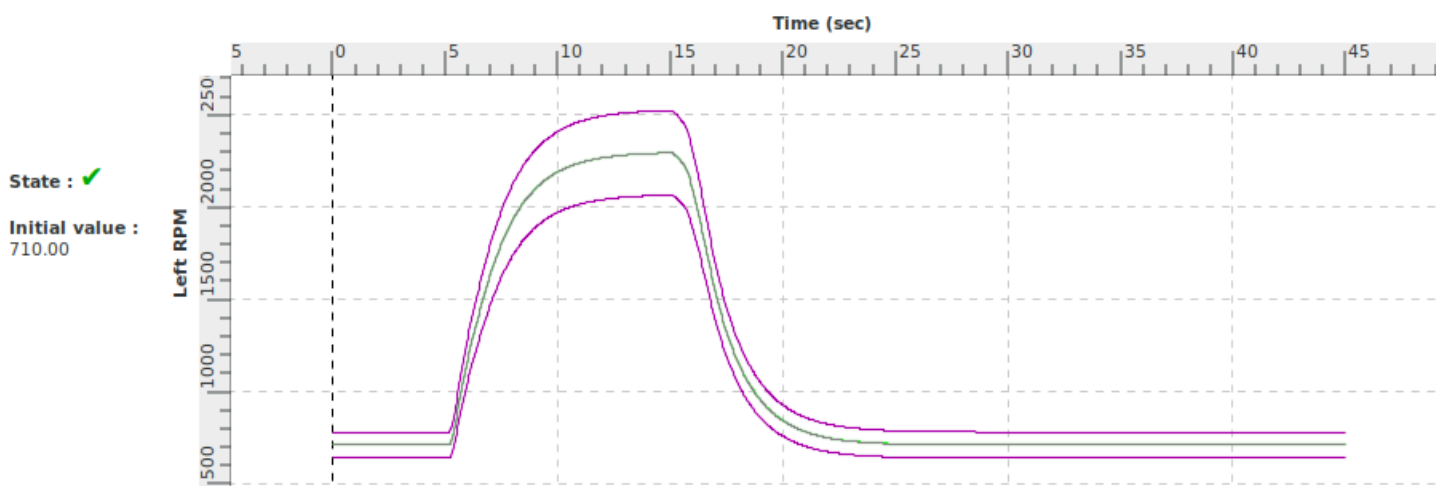
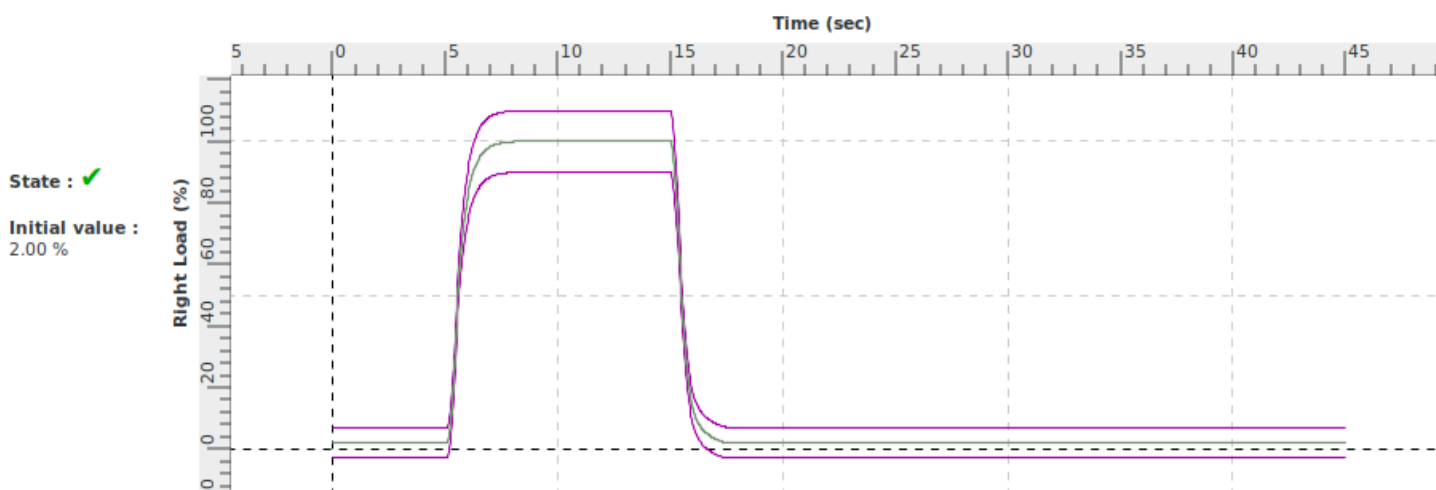
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Engines deceleration on ground		
Id	1 f ii	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	04/02/24	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

# VALIDATION TEST

<b>Title</b>	Column position vs force during cruise		
<b>Id</b>	2 a i 2	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the simulator column position vs. control column characteristics conform to the class of aeroplanes	Column Position / Force -100% / -78 N -50% / -46 N 0% / -7 N 50% / 38 N 100% / 75 N
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.a.i.2	+/- 2.2 daN (5 Lbs) or +/- 10 % Force

<b>Demonstration procedure</b>	At the given trimmed flight conditions, the control column is moved at slow rate over its full range. Control Force is plotted versus position and then compared to the aircraft reference data.
<b>Manual test procedure</b>	Airplane is trimmed at cruise conditions and put in freeze mode, then the pilot slowly moves column over its full travel in both directions, using a dynamometer (results to be determined using the Table Sheet AL42_DA42VI_Tables_QTG_VolIII.xls).
<b>Automatic test procedure</b>	2 a i 2

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

Title	Column position vs force during cruise		
<b>Id</b>	2 a i 2	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Autopilot mode</b>	AUTO_VZ
<p>Automatic IAS (airspeed) and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and IAS. Roll Trim is computed to maintain 0° bank angle.</p>	

<b>Initial parameters</b>	CRUISE
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 6000 Vertical speed (ft/min) : 0 (free) IAS (kt) : 139 Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : 0 Pedal Position (%) : 0 Column Position (%) : 9 Wheel Position (%) : 0	Flaps lever position : 0 Gear lever position : 0 Left Load (%) : 70 Right Load (%) : 70 Left RPM : 2060 Right RPM : 2060

Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
0.0	mode_stop	1.0	Set the aircraft to STOP or GO mode (0 means GO and 1 means STOP)
3.0	SetAttCmdPalier	107.0	Send a step in the attitude govern
25.0	SetAttCmdPalier	-100.0	Send a step in the attitude govern
65.0	SetAttCmdPalier	0.0	Send a step in the attitude govern
80.0	Stop_Test	0.0	Stop the test procedure

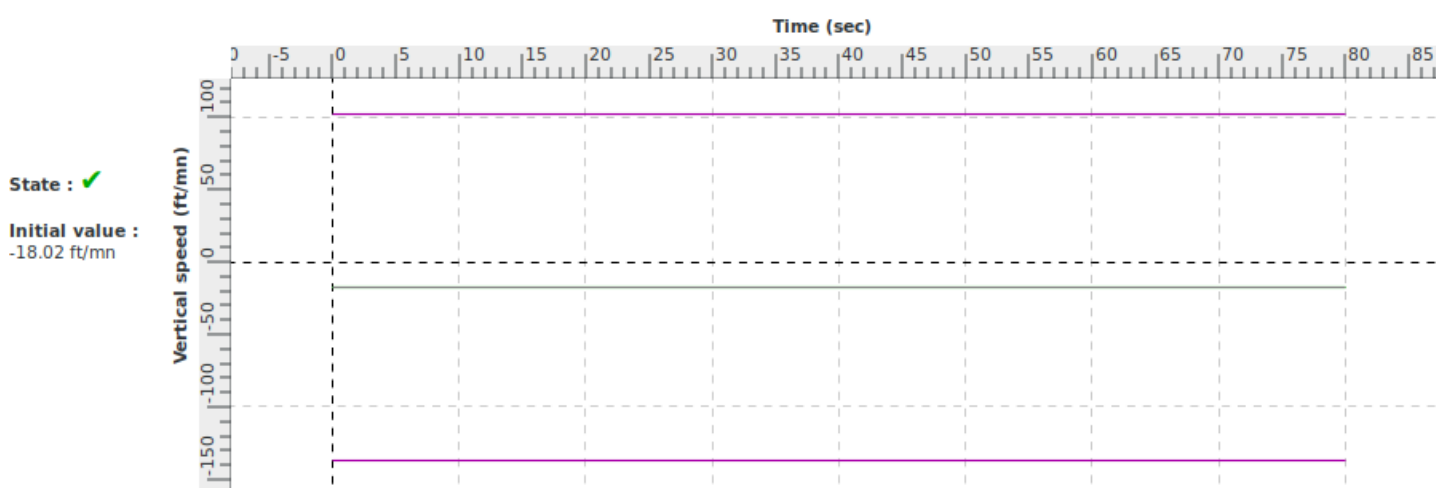
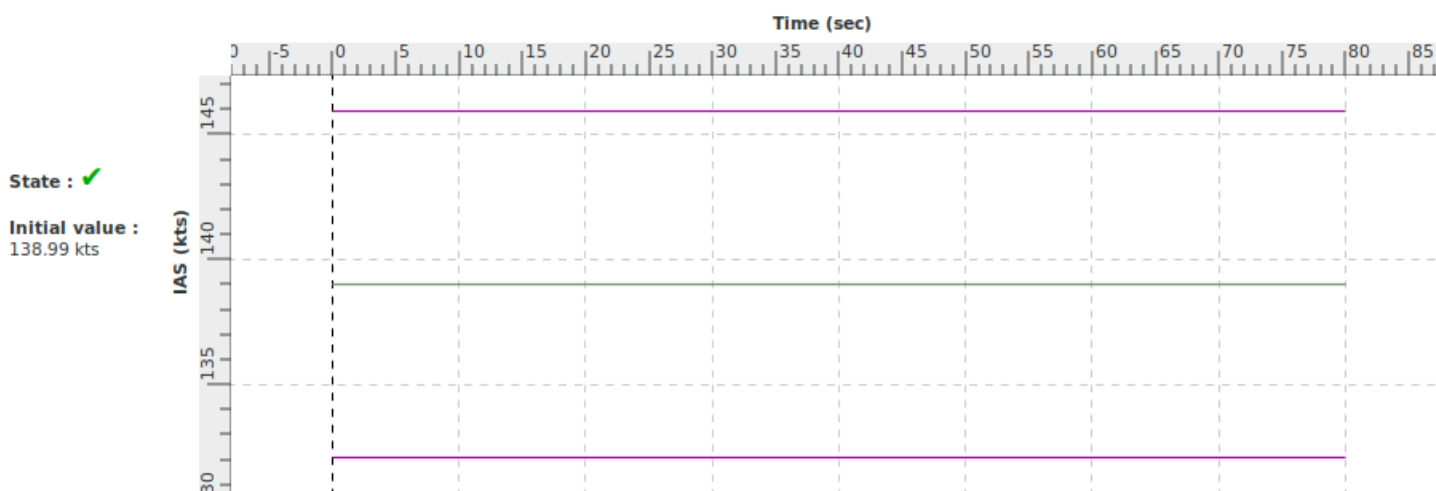
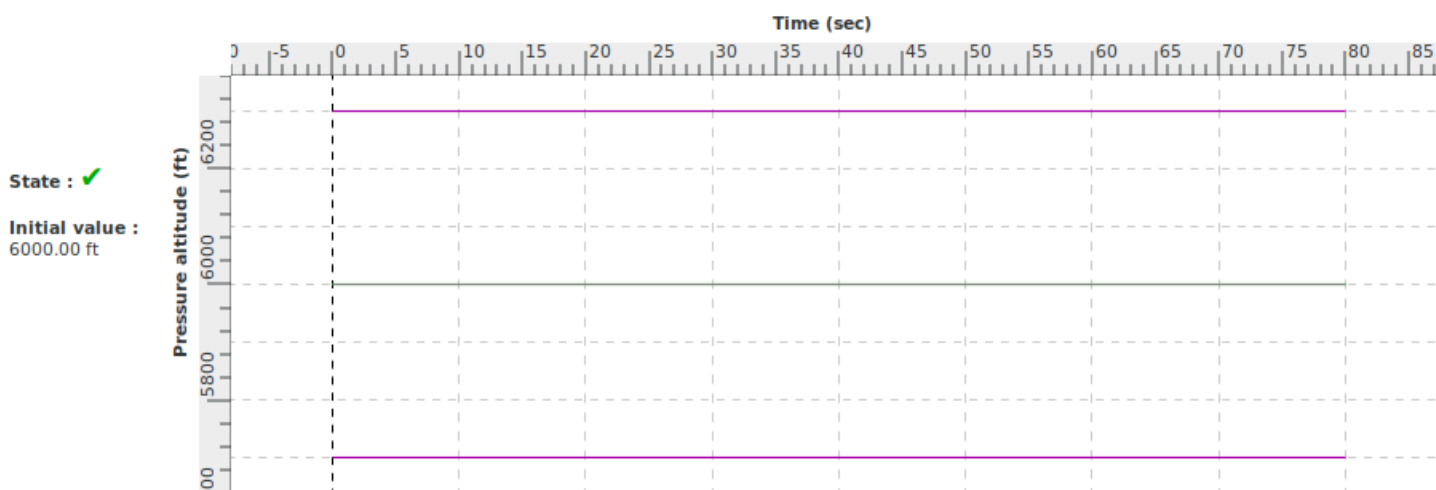
<b>Title</b>	Column position vs force during cruise		
<b>Id</b>	2 a i 2	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

Log of Revision		
Rev. Nbr	Date	Reason for revision

Notes



Title	Column position vs force during cruise		
Id	2 a i 2	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	14/06/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



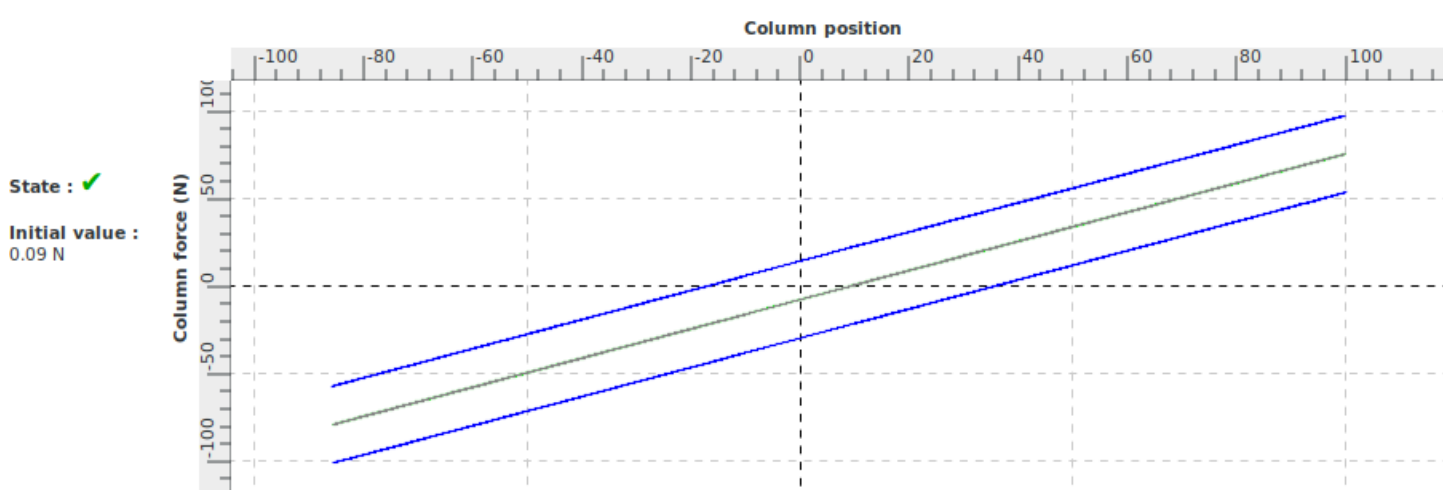
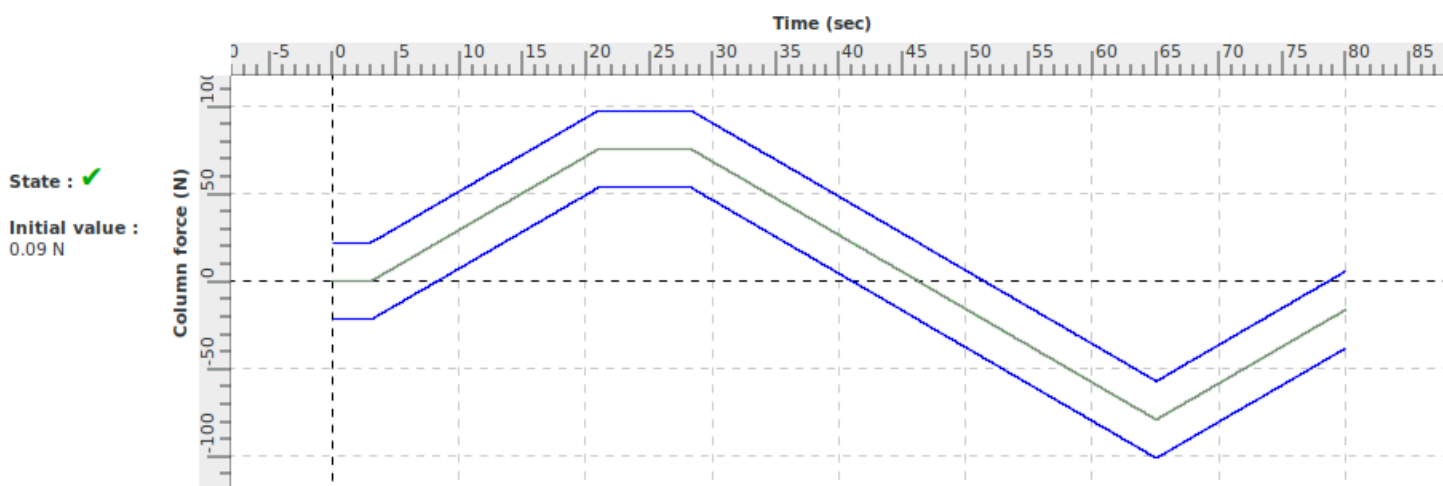
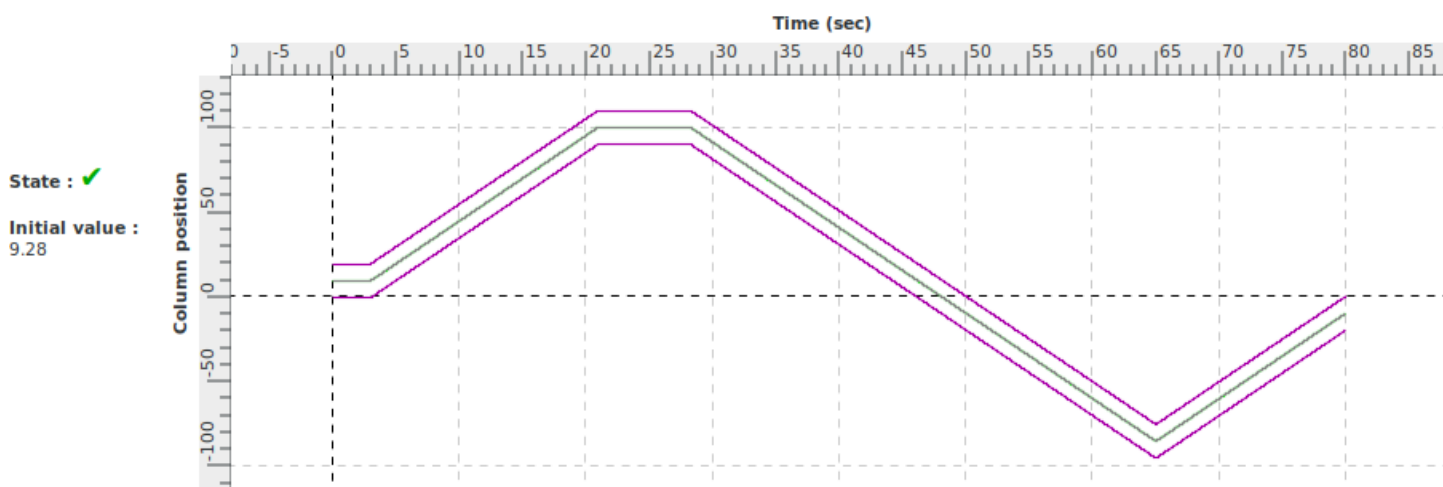
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master

Title	Column position vs force during cruise		
Id	2 a i 2	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	14/06/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

# VALIDATION TEST

<b>Title</b>	Wheel position vs force during cruise		
<b>Id</b>	2 a ii 2	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the simulator roll controller position vs. roll controller force characteristics conform to the class of aeroplanes	Wheel Position / Force -100% / -87 N -50% / -44 N 0% / 0N 50% / 44 N 100% / 88 N
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.a.ii.2	+/- 1.3 daN (3 Lbs) or +/- 10 % force

<b>Demonstration procedure</b>	At the given trimmed flight conditions, the control wheel is moved at slow rate over its full range. Control Force is plotted versus position and then compared to the aircraft reference data.
<b>Manual test procedure</b>	Airplane is trimmed at cruise conditions and put in freeze mode, then the pilot slowly moves wheel over its full travel in both directions using a dynamometer (results to be determined using the Table Sheet AL42_DA42VI_Tables_QTG_VolIII.xls).
<b>Automatic test procedure</b>	2 a ii 2

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

Title	Wheel position vs force during cruise		
<b>Id</b>	2 a ii 2	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Autopilot mode</b>	AUTO_HEADING
Automatic AUTO_HEADING mode : Heading is maintained constant through roll and yaw trim and Vertical Speed through pitch trim.	

<b>Initial parameters</b>	CRUISE
Gross weight (kg) : 1900	Flaps lever position : 0
Balance (%) : 50	Gear lever position : 0
Altitude (ft) : 6000	Left Load (%) : 70
Vertical speed (ft/min) : 0	Right Load (%) : 70
IAS (kt) : 139 (free)	Left RPM : 2060
Heading (°) : 0	Right RPM : 2060
Bank (°) : 0 (free)	
Attitude (°) : 0	
Pedal Position (%) : 0	
Column Position (%) : 9	
Wheel Position (%) : 0	

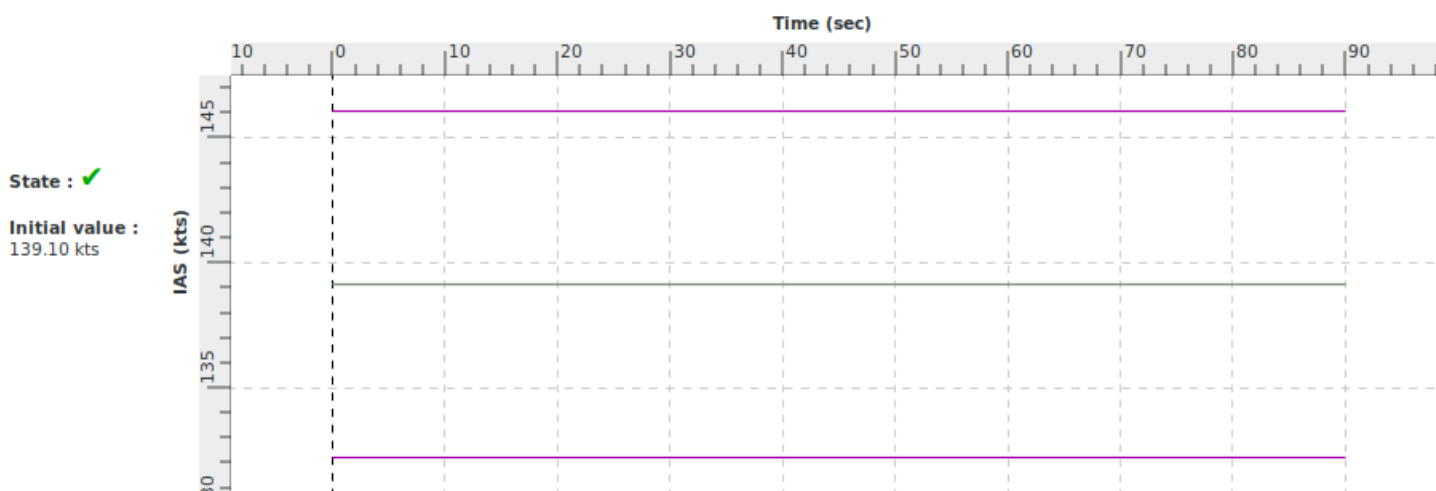
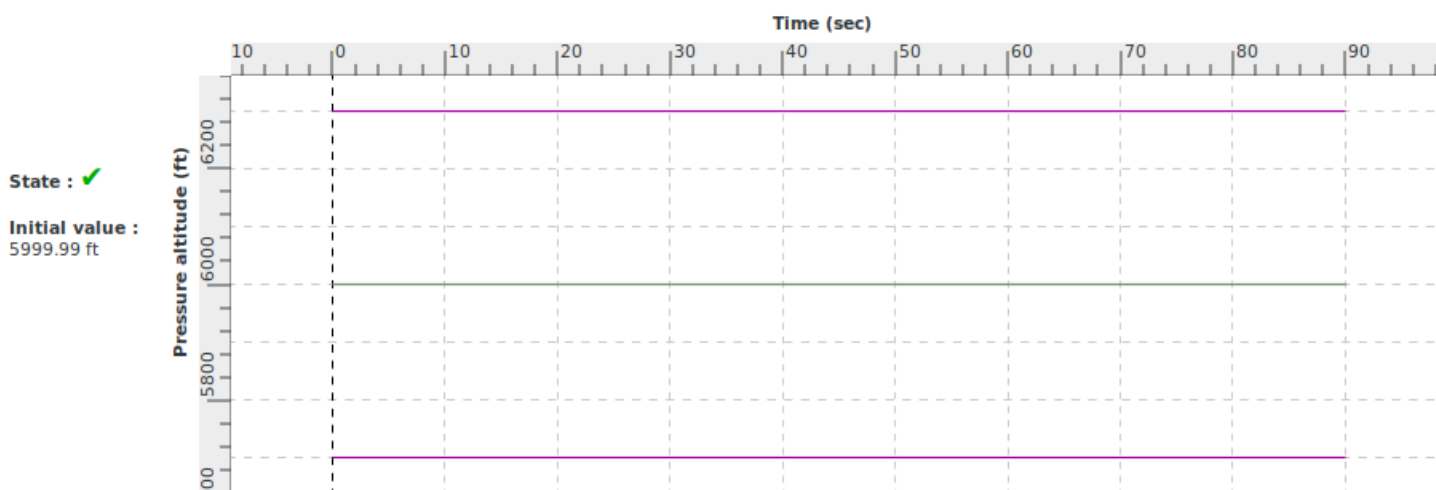
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
0.0	mode_stop	1.0	Set the aircraft to STOP or GO mode (0 means GO and 1 means STOP)
3.0	SetRollCmdPalier	103.0	Send a step in the roll govern
24.0	SetRollCmdPalier	-100.0	Send a step in the roll govern
64.3	SetRollCmdPalier	0.0	Send a step in the roll govern
90.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Wheel position vs force during cruise		
<b>Id</b>	2 a ii 2	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

Log of Revision		
Rev. Nbr	Date	Reason for revision

Notes

Title	Wheel position vs force during cruise		
Id	2 a ii 2	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



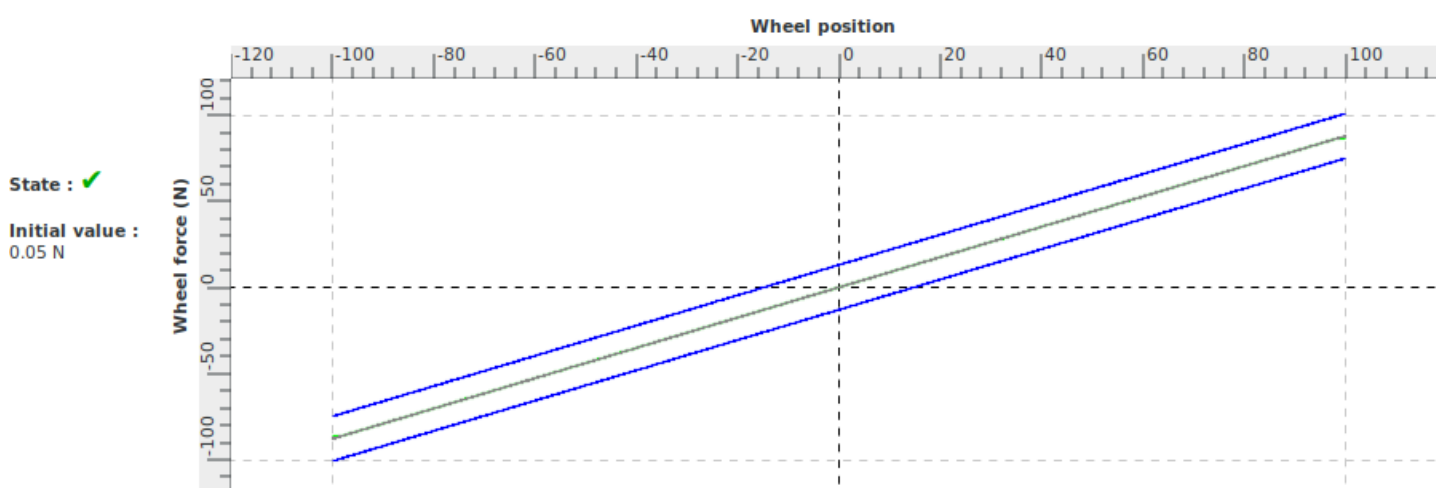
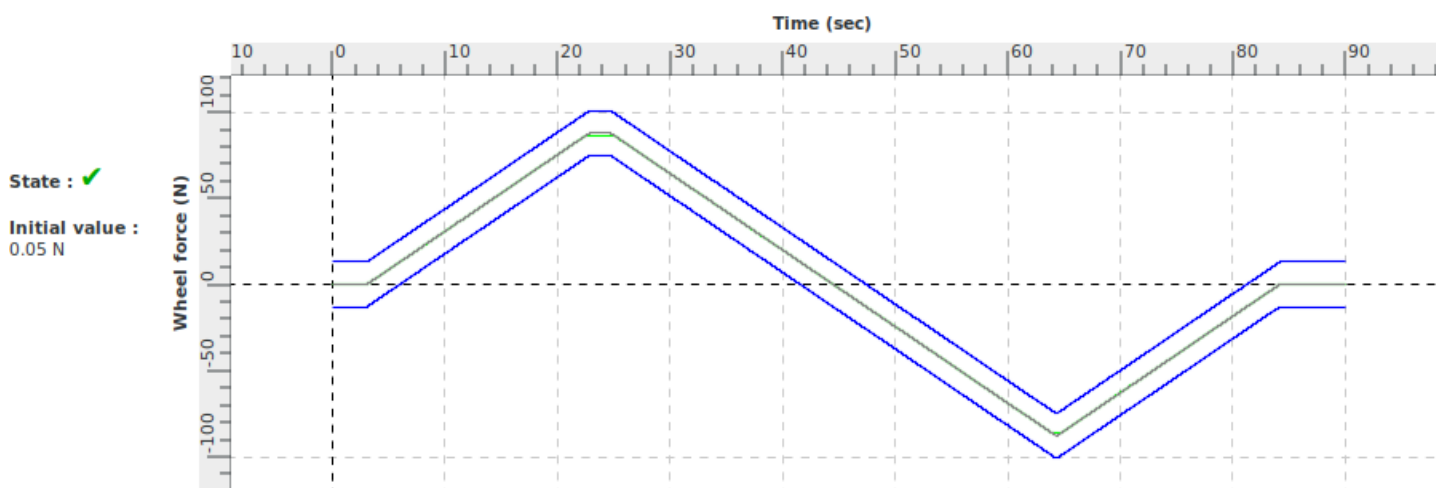
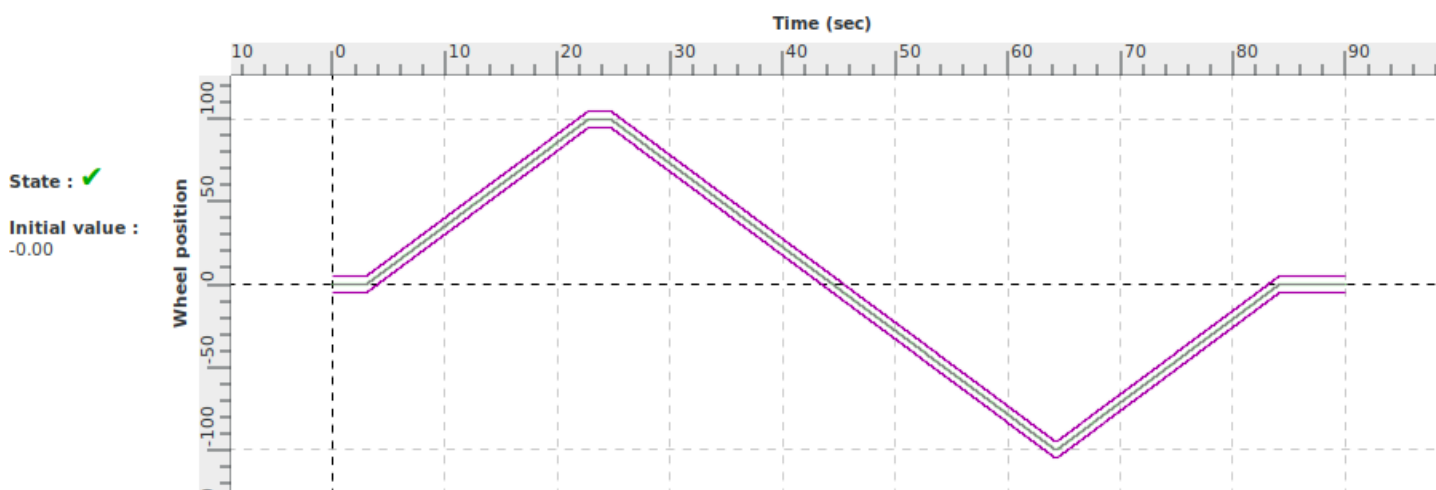
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Wheel position vs force during cruise		
Id	2 a ii 2	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

# VALIDATION TEST

<b>Title</b>	Rudder position vs force during cruise		
<b>Id</b>	2 a iii 2	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the simulator pedal controller position vs. pedal controller force characteristics conform to the class of aeroplanes	Rudder Position / Pedal Force -100% / -353 N -50% / -175 N 0% / 0 N 50% / 176 N 100% / 353 N
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.a.iii.2	+/- 2.2.daN (5 Lbs) or +/- 10 % force

<b>Demonstration procedure</b>	At the given trimmed flight conditions, the control rudder is moved at slow rate over its full range. Control Force is plotted versus position and then compared to the aircraft reference data.
<b>Manual test procedure</b>	Airplane is trimmed at cruise conditions and put in freeze mode, then the pilot slowly moves pedals over its full travel in both directions using a dynamometer (results to be determined using the Table Sheet AL42_DA42VI_Tables_QTG_VolIII.xls).
<b>Automatic test procedure</b>	2 a iii 2

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>



Title	Rudder position vs force during cruise		
Id	2 a iii 2	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Qualification Level	FNPT2	Operator	AFTA
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902

Autopilot mode	AUTO_HEADING
Automatic AUTO_HEADING mode : Heading is maintained constant through roll and yaw trim and Vertical Speed through pitch trim.	

Initial parameters	CRUISE
Gross weight (kg) : 1900	Flaps lever position : 0
Balance (%) : 50	Gear lever position : 0
Altitude (ft) : 6000	Left Load (%) : 70
Vertical speed (ft/min) : 0	Right Load (%) : 70
IAS (kt) : 139 (free)	Left RPM : 2060
Heading (°) : 0	Right RPM : 2060
Bank (°) : 0 (free)	
Attitude (°) : 0	
Pedal Position (%) : 0	
Column Position (%) : 9	
Wheel Position (%) : 0	

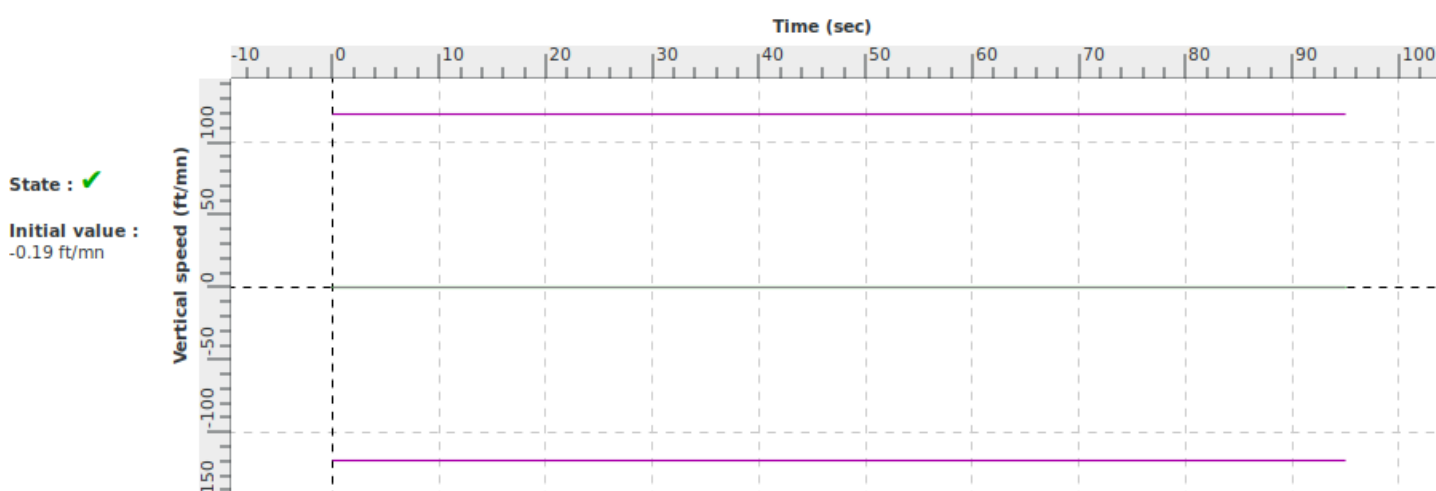
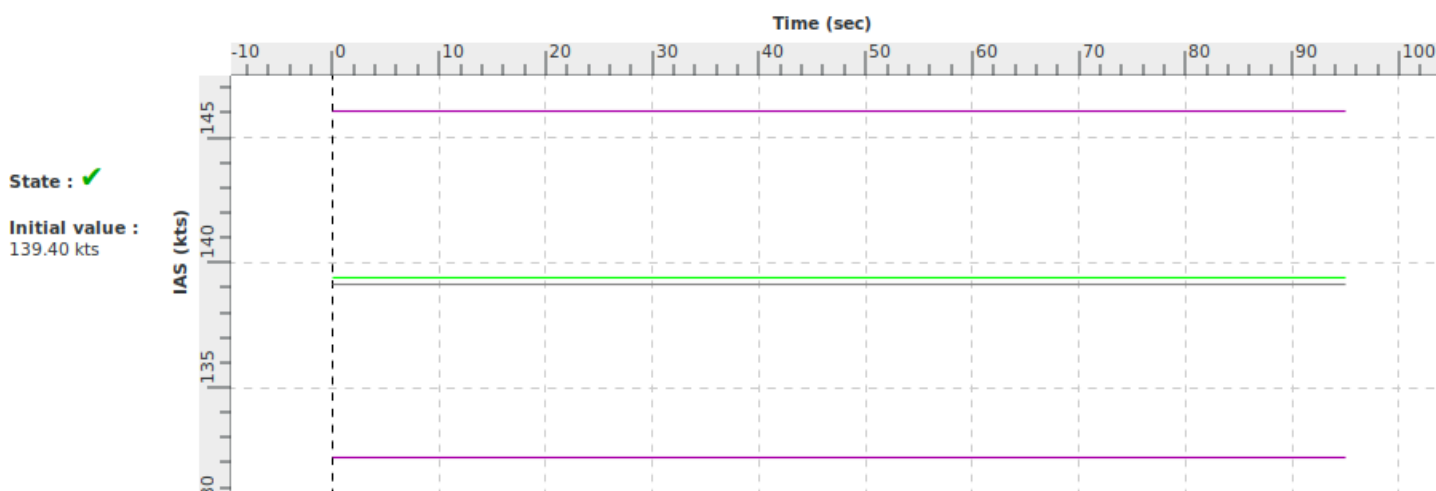
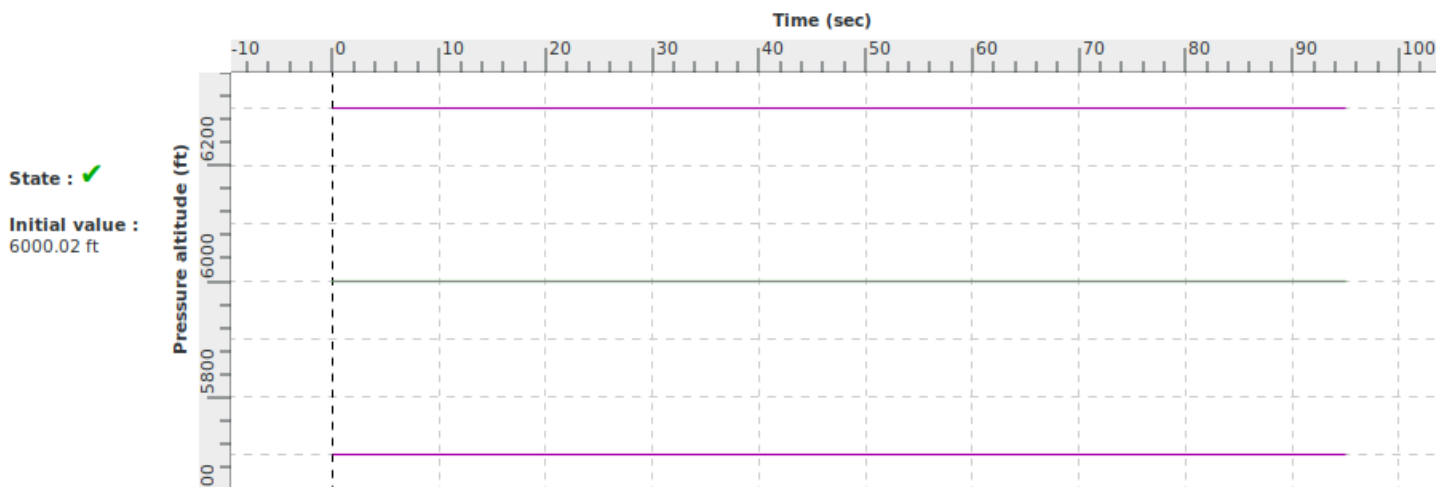
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
0.0	mode_stop	1.0	Set the aircraft to STOP or GO mode (0 means GO and 1 means STOP)
3.0	SetRudderCmdPalier	100.0	Send a step in the rudder govern
23.0	SetRudderCmdPalier	-100.0	Send a step in the rudder govern
63.5	SetRudderCmdPalier	0.0	Send a step in the rudder govern
95.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Rudder position vs force during cruise		
<b>Id</b>	2 a iii 2	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

Log of Revision		
Rev. Nbr	Date	Reason for revision

Notes

Title	Rudder position vs force during cruise		
Id	2 a iii 2	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



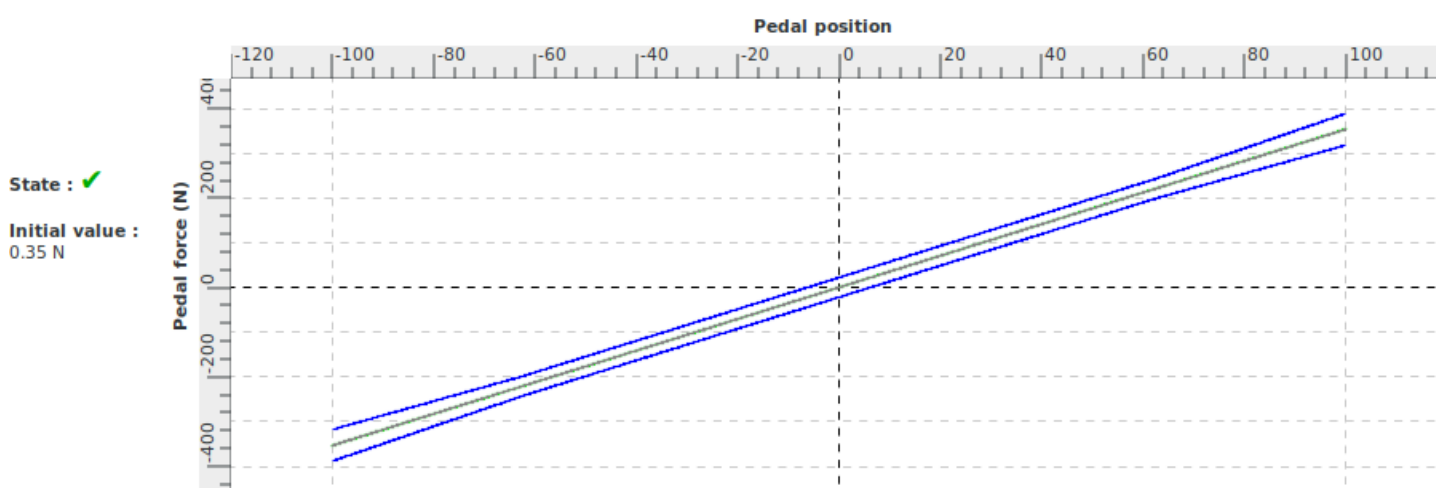
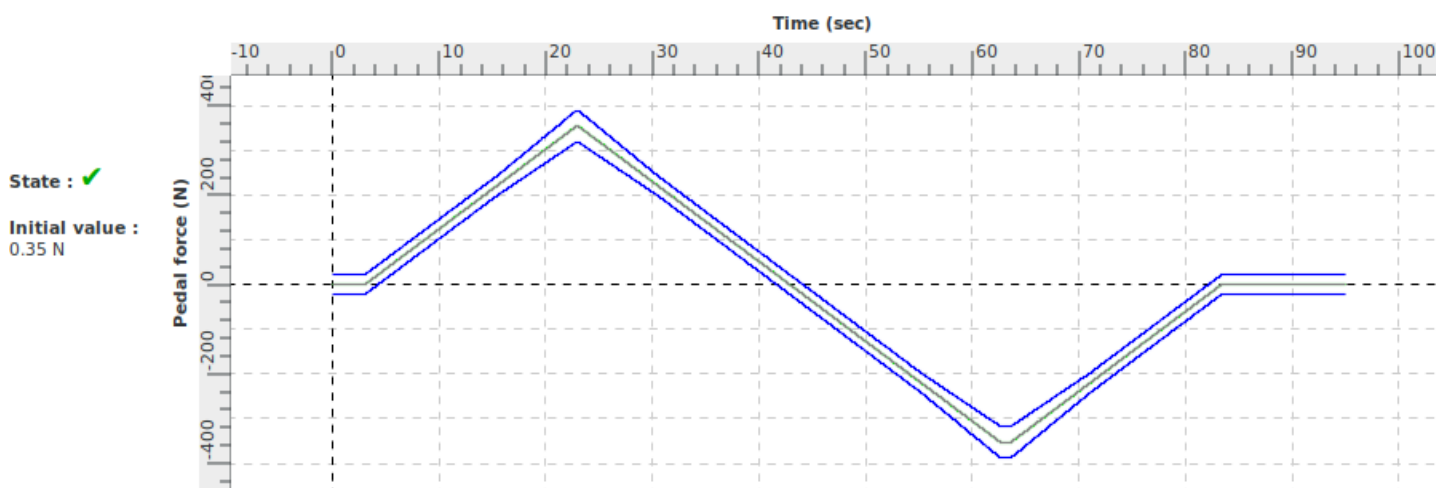
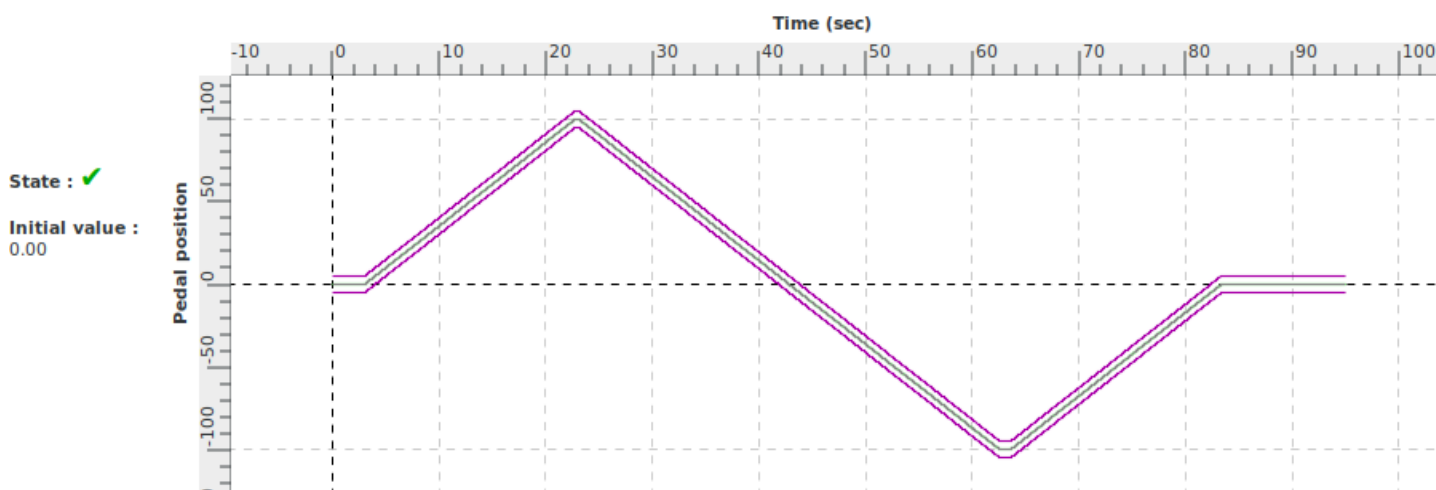
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master

Title	Rudder position vs force during cruise		
Id	2 a iii 2	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

# VALIDATION TEST

<b>Title</b>	Power change dynamics during approach		
<b>Id</b>	2 c i 1	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	04/02/24	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the power change induced longitudinal dynamics during approach conforms to the class of aeroplanes	Max. Dynamics Variations: Airspeed 0 kt Pitch angle +3 deg Altitude +700 ft
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.c.i.1	Airspeed +/- 3 kt Altitude +/- 100 ft Pitch +/- 1.5° or 20%

<b>Demonstration procedure</b>	From steady approach initial conditions, power lever is set to maximum go-around position.
<b>Manual test procedure</b>	Pilot trims the airplane in approach flight condition and then, the power is increased to maximum go-around position, allowing free uncontrolled aircraft response. The results are recorded and compared to the airplane data.
<b>Automatic test procedure</b>	2 c i 1

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

Title	Power change dynamics during approach		
Id	2 c i 1	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Qualification Level	FNPT2	Operator	AFTA
Result Date	04/02/24	Master Date	01/03/19
Result Load	2012.01	Master Load	1902

Autopilot mode	AUTO_SPEED
Automatic Vertical Speed and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and VS. Roll Trim is computed to maintain 0° bank angle.	

Initial parameters	HOLD_FLAPS_APP_GEAR
Gross weight (kg) : 1900	Flaps lever position : 1
Balance (%) : 50	Gear lever position : 1
Altitude (ft) : 3000	Left Load (%) : 70
Vertical speed (ft/min) : 0	Right Load (%) : 70
IAS (kt) : 106 (free)	Left RPM : 2060
Heading (°) : 0 (free)	Right RPM : 2060
Bank (°) : 0	
Attitude (°) : -1	
Pedal Position (%) : 0	
Column Position (%) : 32	
Wheel Position (%) : 0	

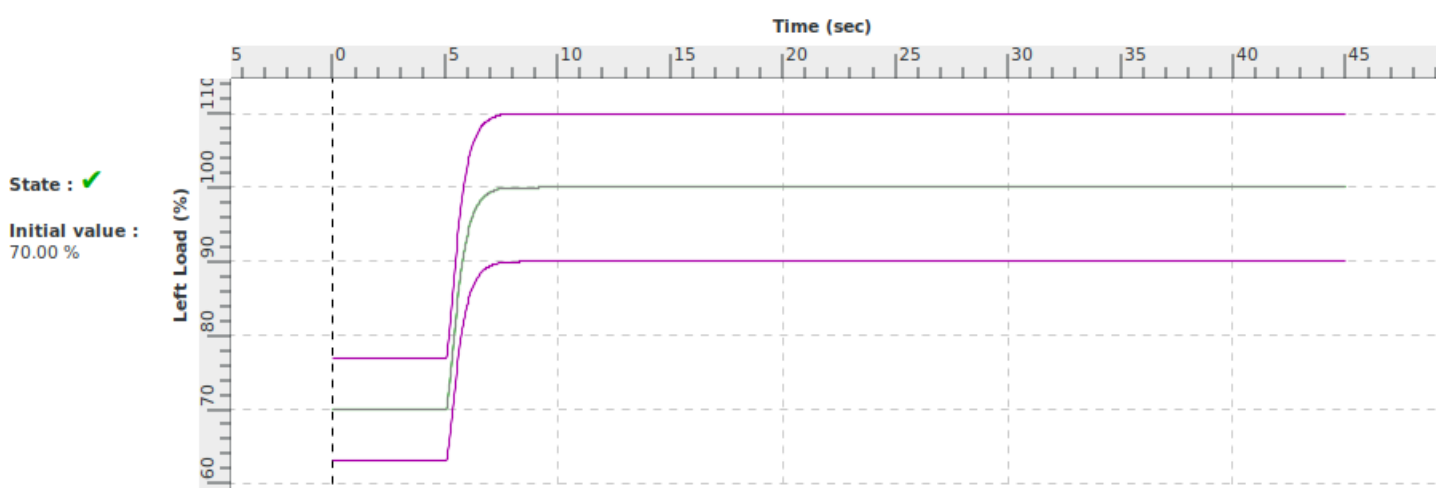
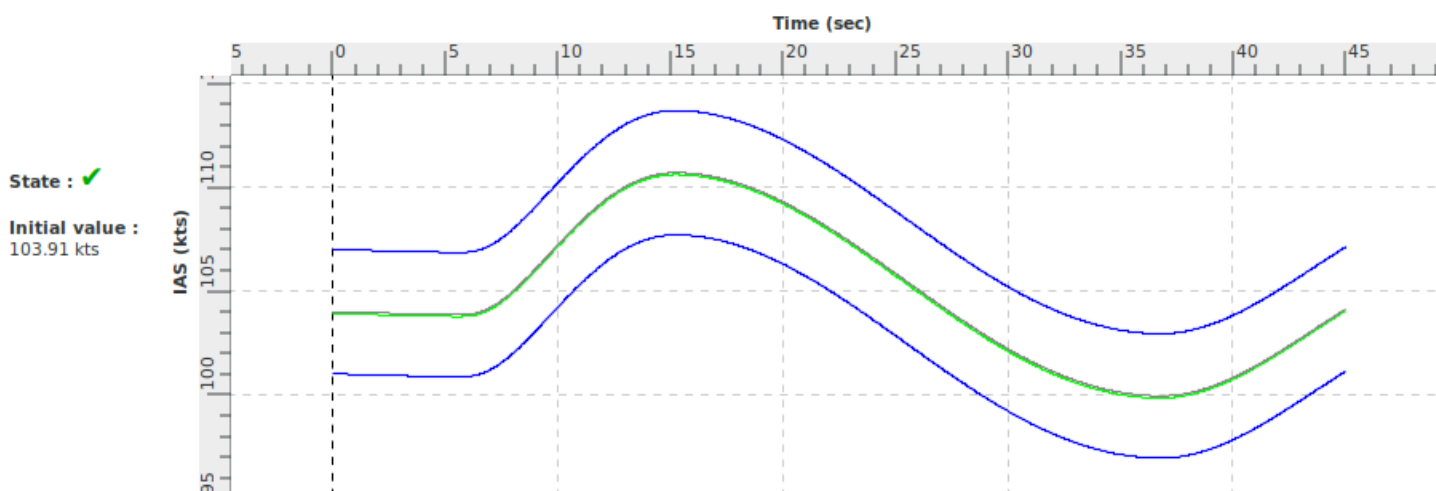
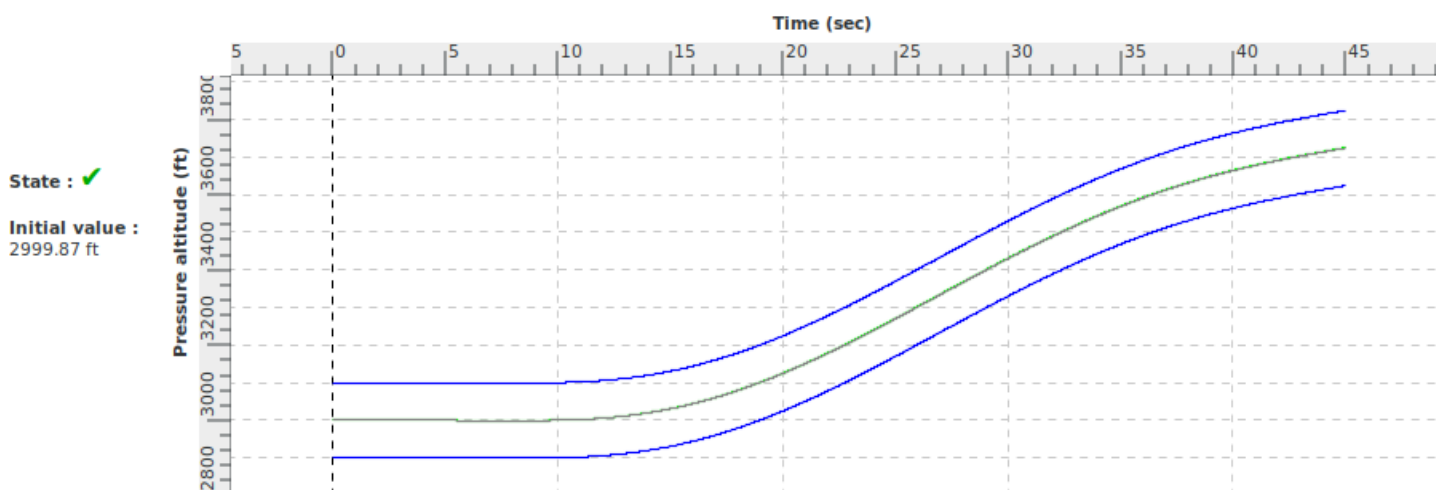
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
0.0	deconnectionPA_att	0.0	disable QTG Autopilot in attitude axis
0.0	deconnectionPA_roll	0.0	disable QTG Autopilot in roll axis
0.0	deconnectionPA_rudder	0.0	disable QTG Autopilot in yaw axis
5.0	power_GOAROUND_MAX	29.0	Set engine parameters to go-around power
45.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Power change dynamics during approach		
<b>Id</b>	2 c i 1	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	04/02/24	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

Log of Revision		
Rev. Nbr	Date	Reason for revision

Notes

Title	Power change dynamics during approach		
Id	2 c i 1	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	04/02/24	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

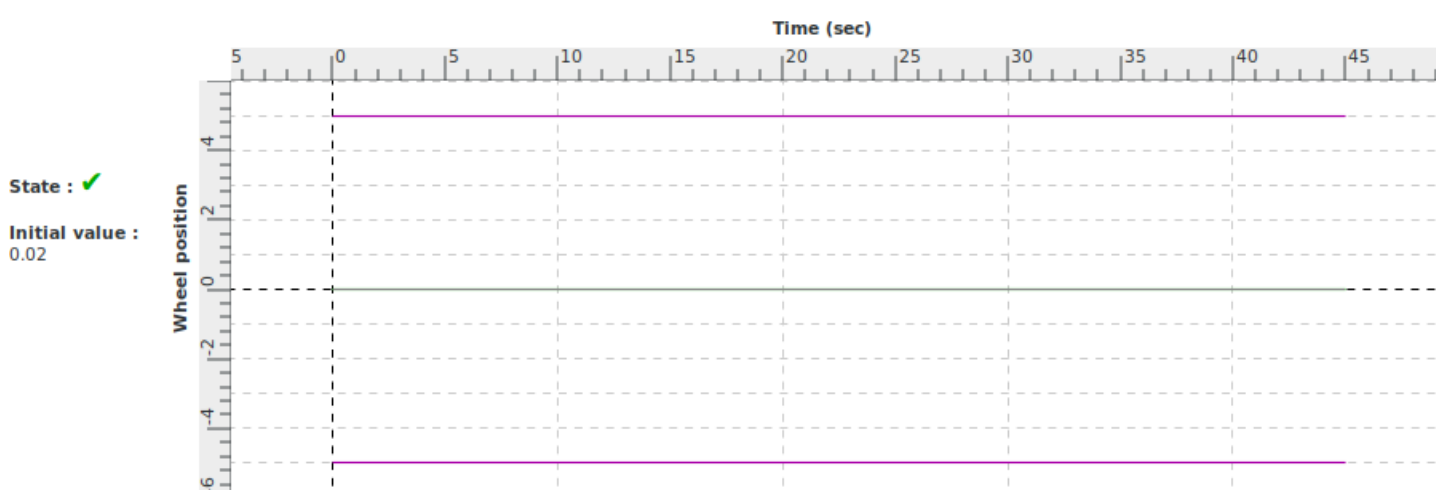
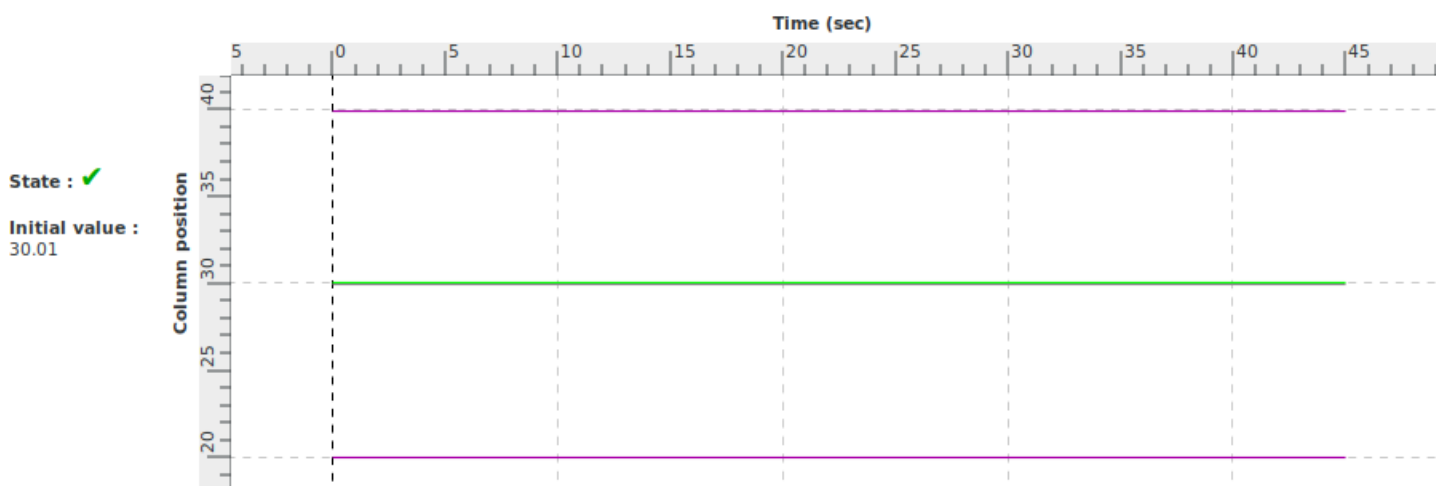
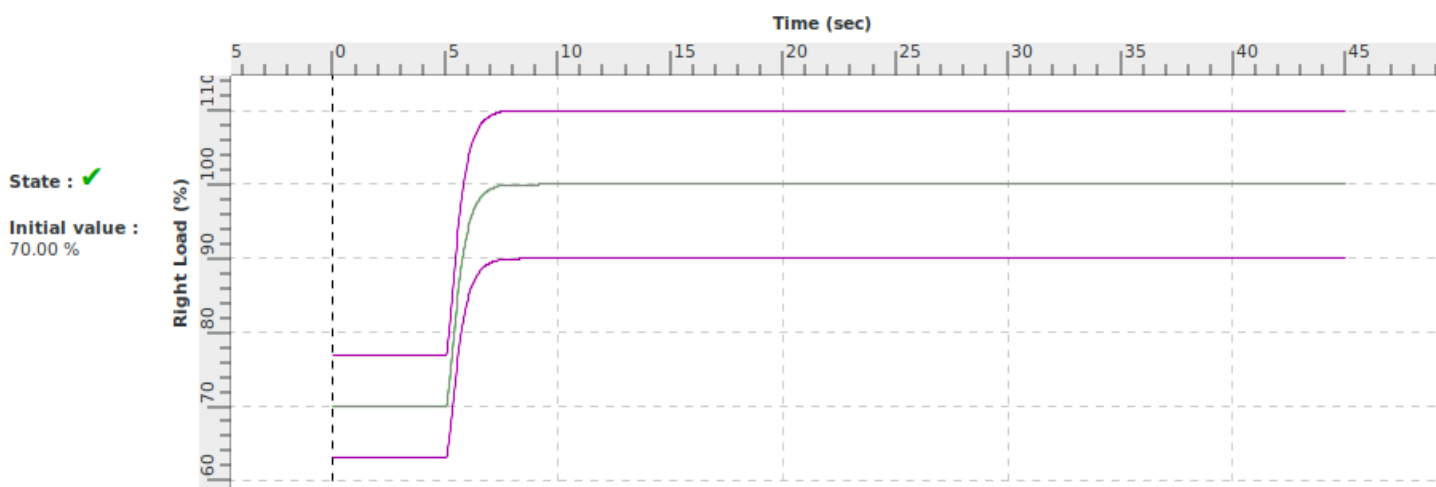
green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master



Title	Power change dynamics during approach		
Id	2 c i 1	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	04/02/24	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



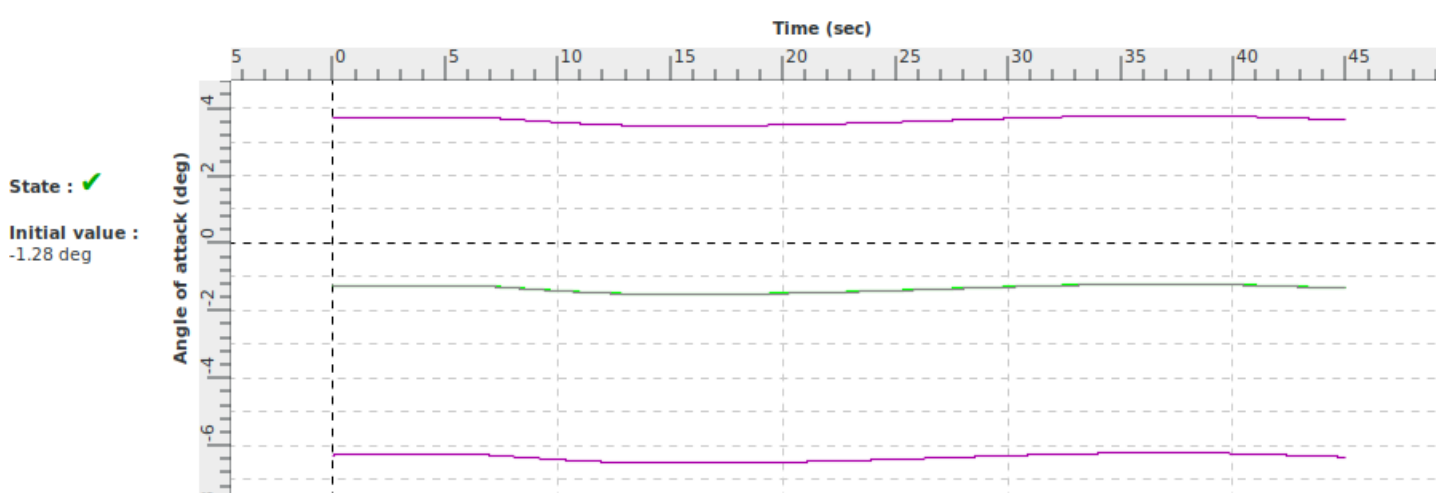
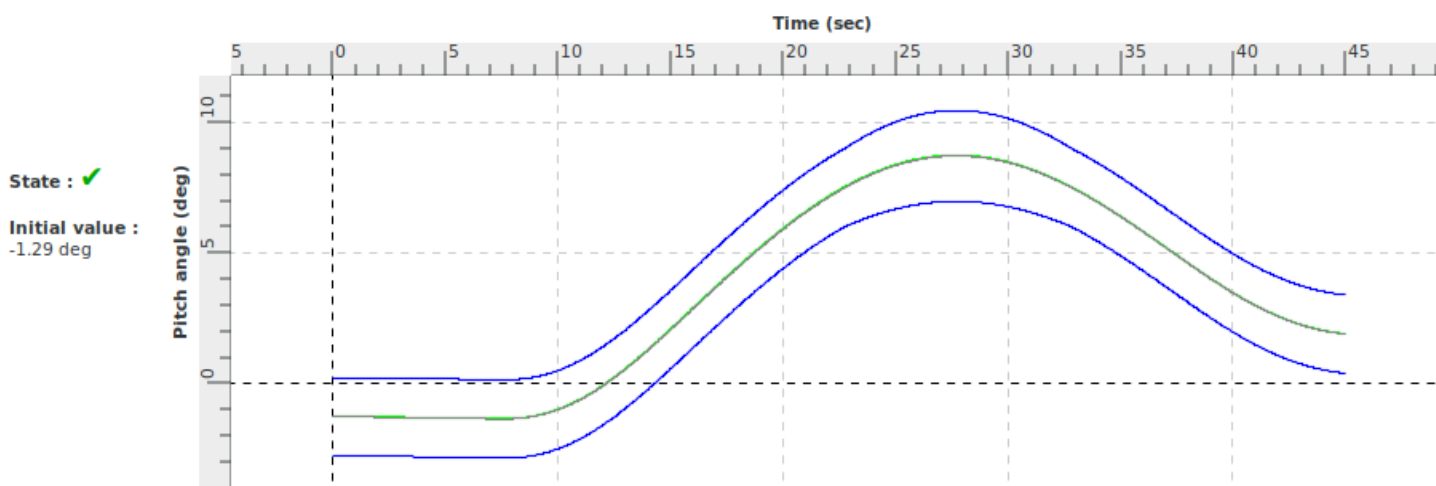
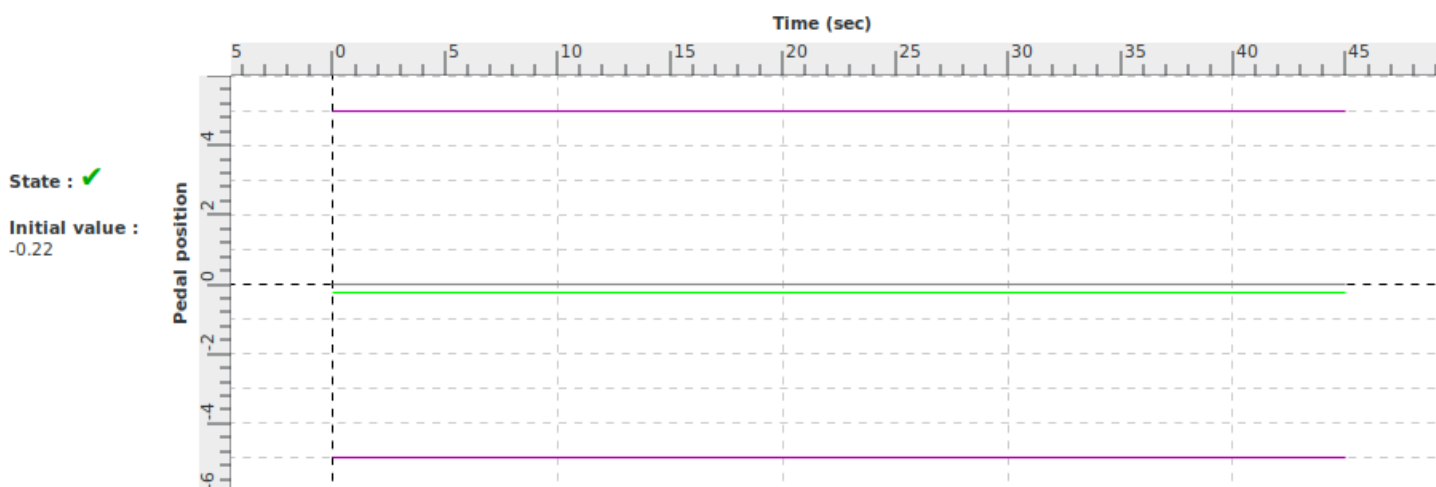
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Power change dynamics during approach		
Id	2 c i 1	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	04/02/24	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



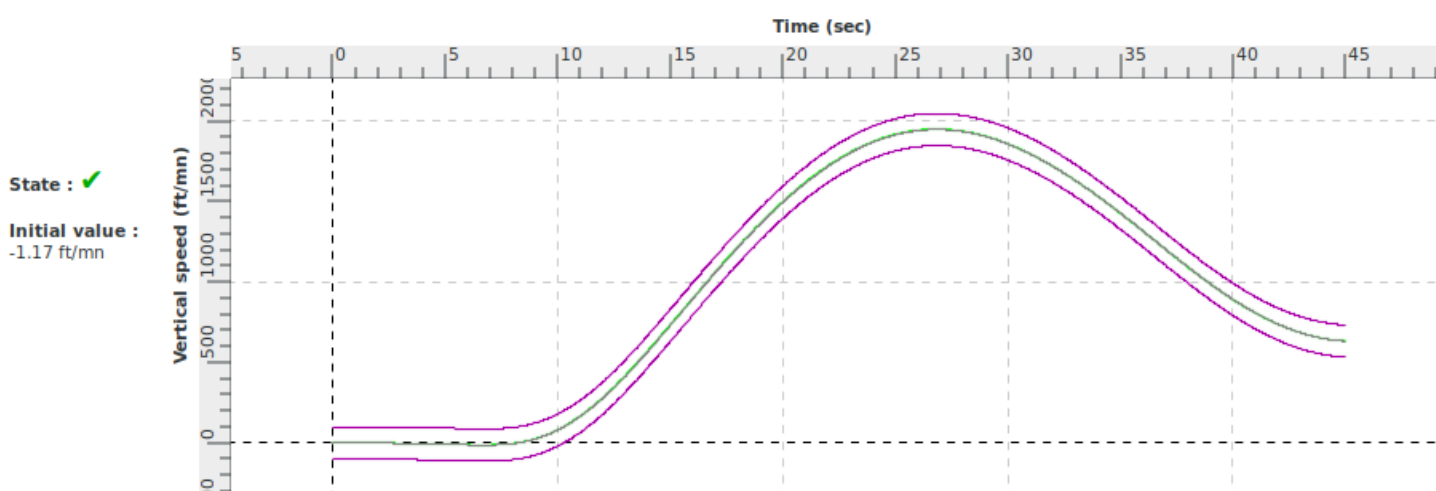
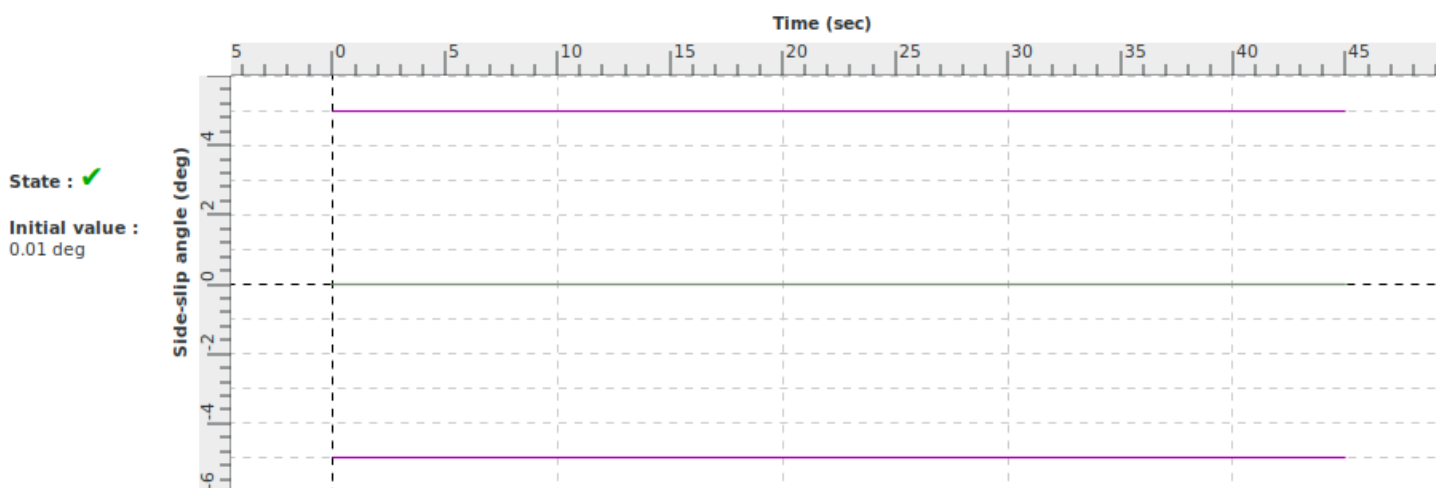
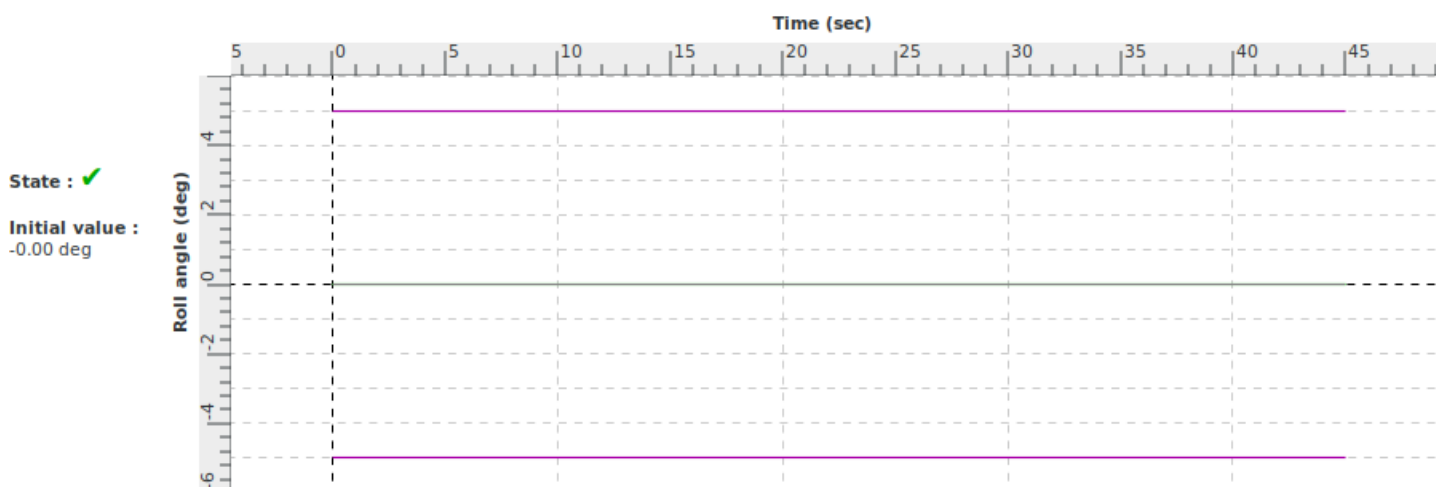
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Power change dynamics during approach		
Id	2 c i 1	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	04/02/24	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Power change dynamics during approach		
Id	2 c i 1	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	04/02/24	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



Legend :

green : results within tolerances    red : results out of tolerances  
blue : tolerances    violet : tolerances Alsim    grey : master

# VALIDATION TEST

<b>Title</b>	Power change force during approach		
<b>Id</b>	2 c i 2	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the power change induced pitch control force during approach conforms to the class of aeroplanes	Max. force variation : -30 N
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.c.i.2	+/- 2,2 daN (5Lbs) +/- or 10% Force

<b>Demonstration procedure</b>	From steady approach initial conditions, power lever is set to maximum go-around position.
<b>Manual test procedure</b>	Pilot trims the airplane in approach flight condition. Maintaining approach conditions, using control column, pilot increases the power. The results are recorded and compared to the airplane data
<b>Automatic test procedure</b>	2 c i 2

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

Title	Power change force during approach		
<b>Id</b>	2 c i 2	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Autopilot mode</b>	AUTO_SPEED
<p>Automatic Vertical Speed and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and VS. Roll Trim is computed to maintain 0° bank angle.</p>	

<b>Initial parameters</b>	DESCENT_FLAPS_APP
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 3000 Vertical speed (ft/min) : -450 IAS (kt) : 90 (free) Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : -2 Pedal Position (%) : 0 Column Position (%) : 44 Wheel Position (%) : 0	Flaps lever position : 1 Gear lever position : 1 Left Load (%) : 30 Right Load (%) : 30 Left RPM : 1930 Right RPM : 1930

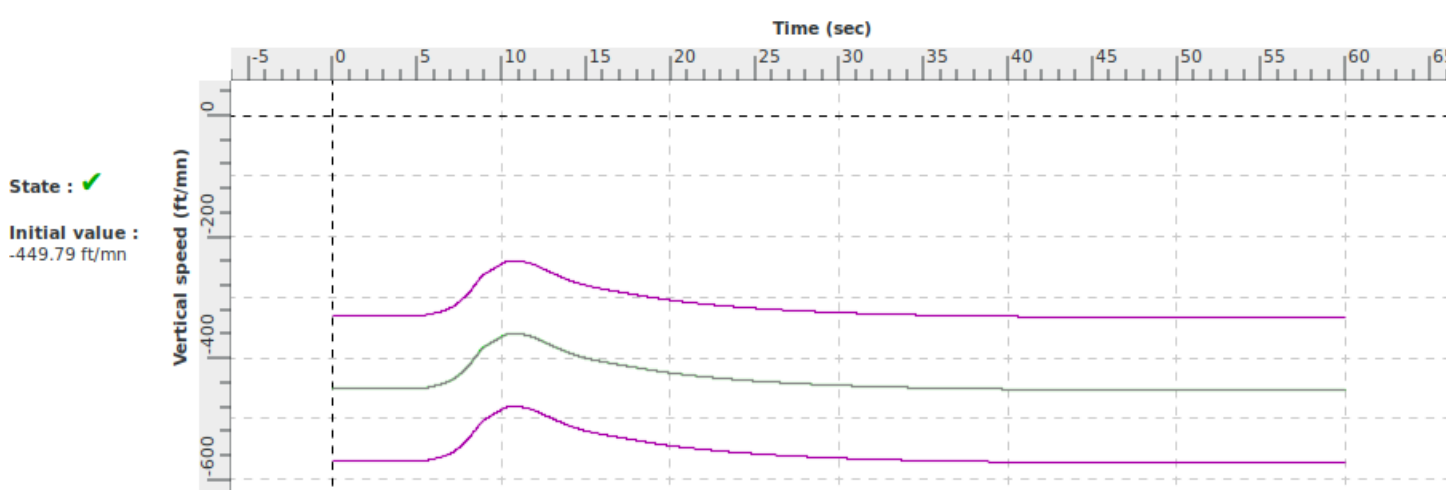
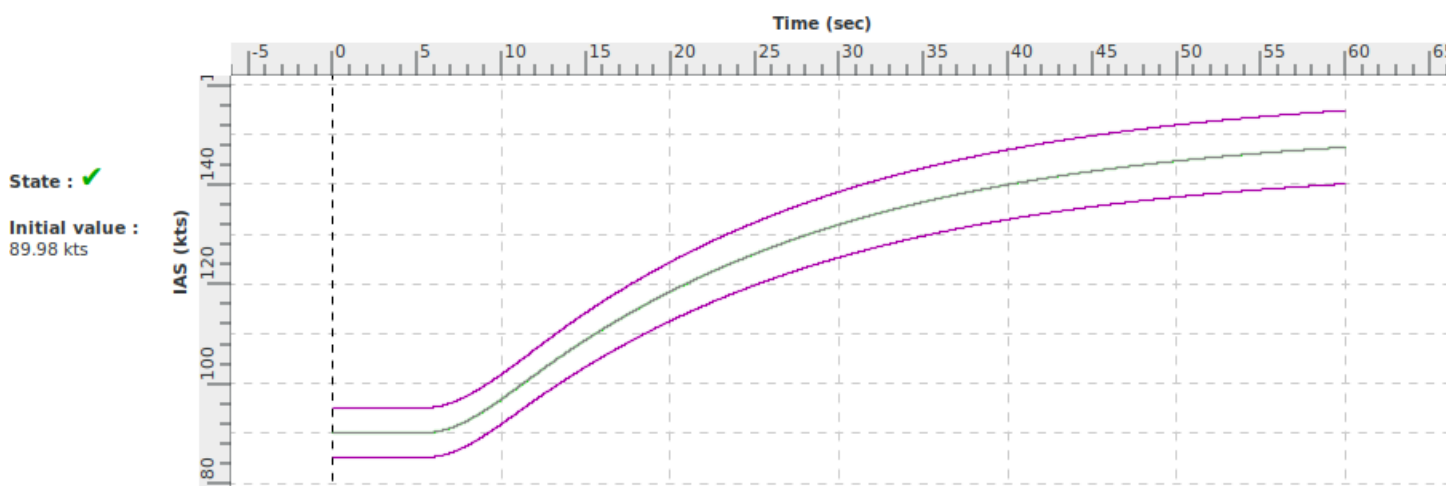
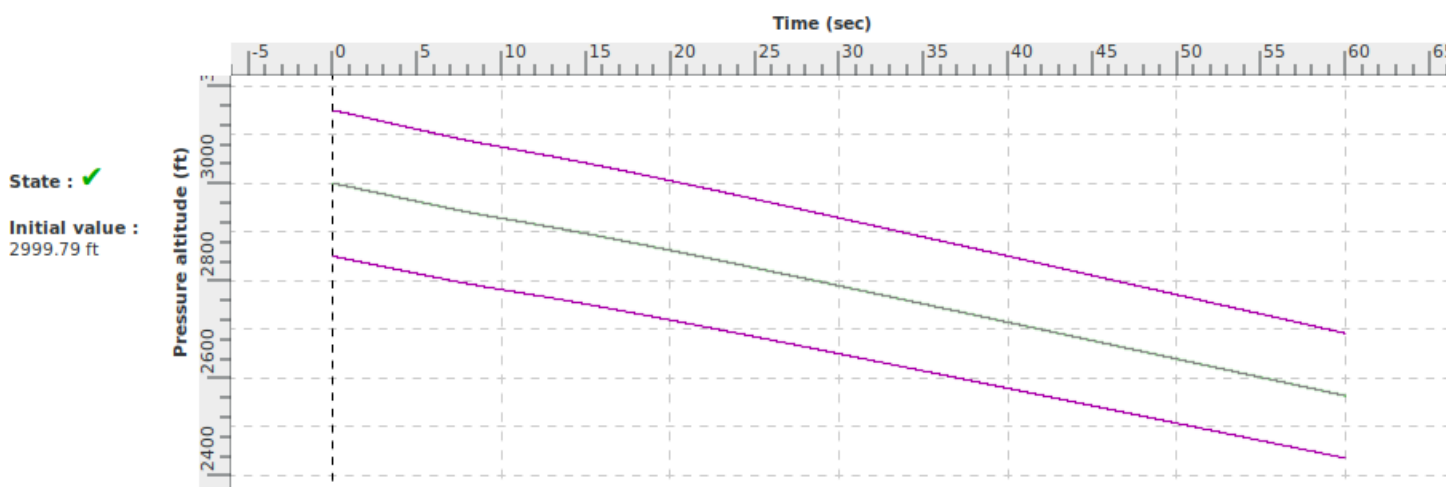
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
5.0	power_GOAROUND_MAX	29.0	Set engine parameters to go-around power
60.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Power change force during approach		
<b>Id</b>	2 c i 2	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

Log of Revision		
Rev. Nbr	Date	Reason for revision

Notes

Title	Power change force during approach		
Id	2 c i 2	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	14/06/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

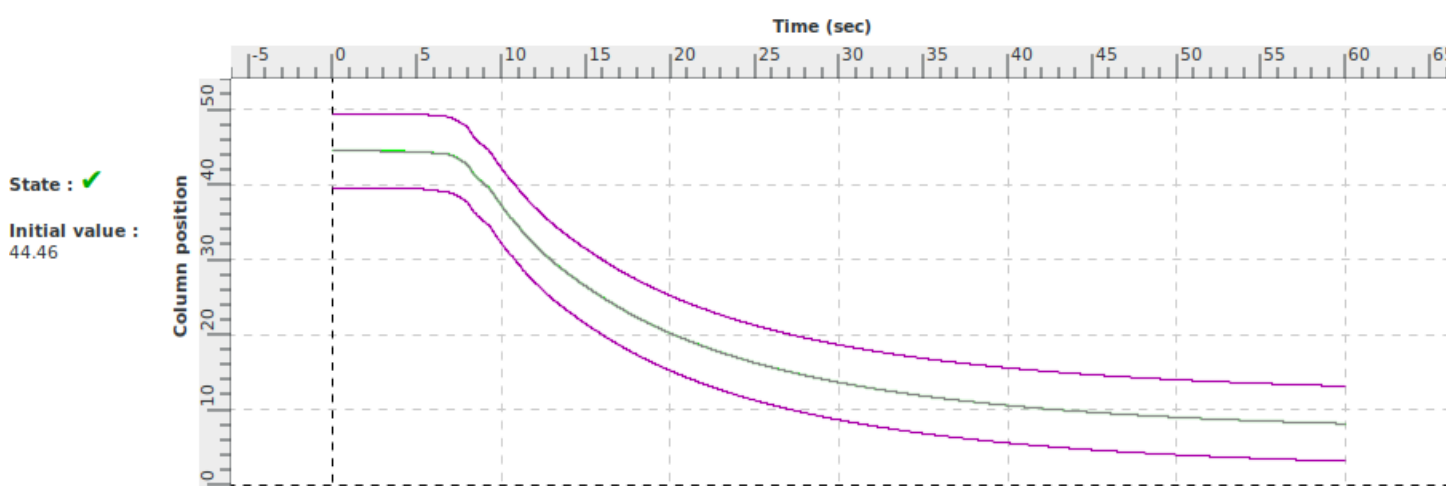
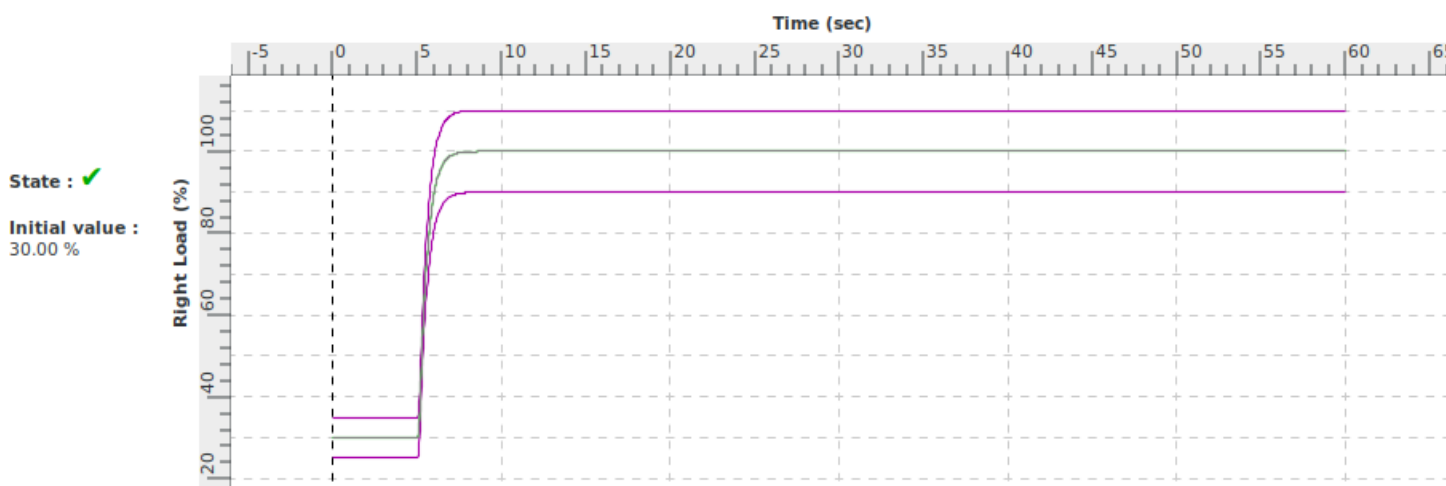
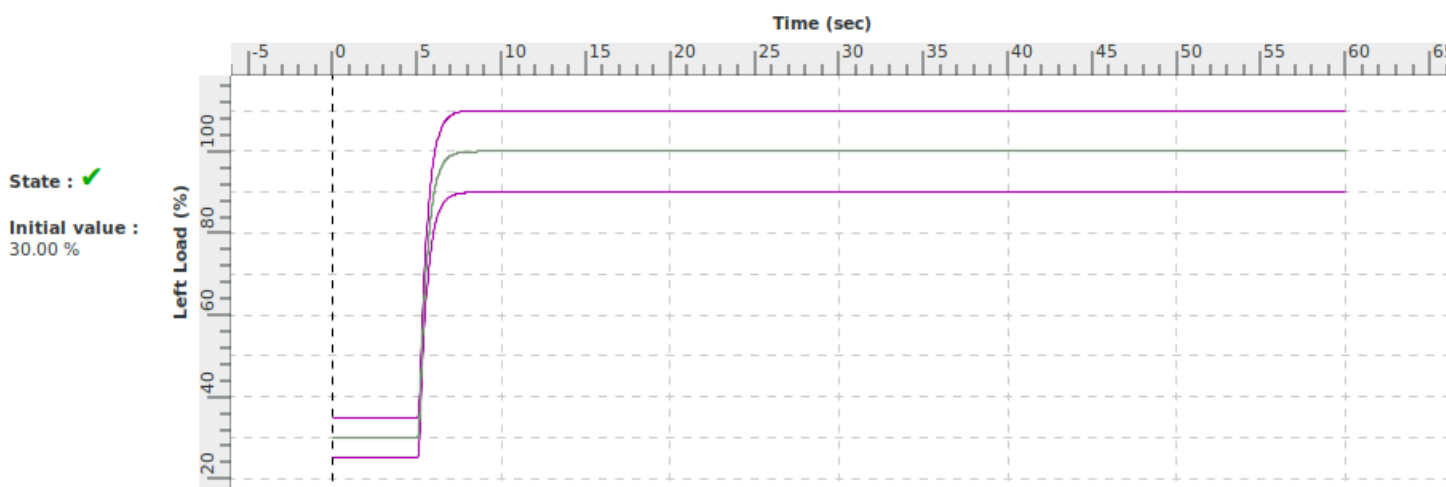
green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master



Title	Power change force during approach		
Id	2 c i 2	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	14/06/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



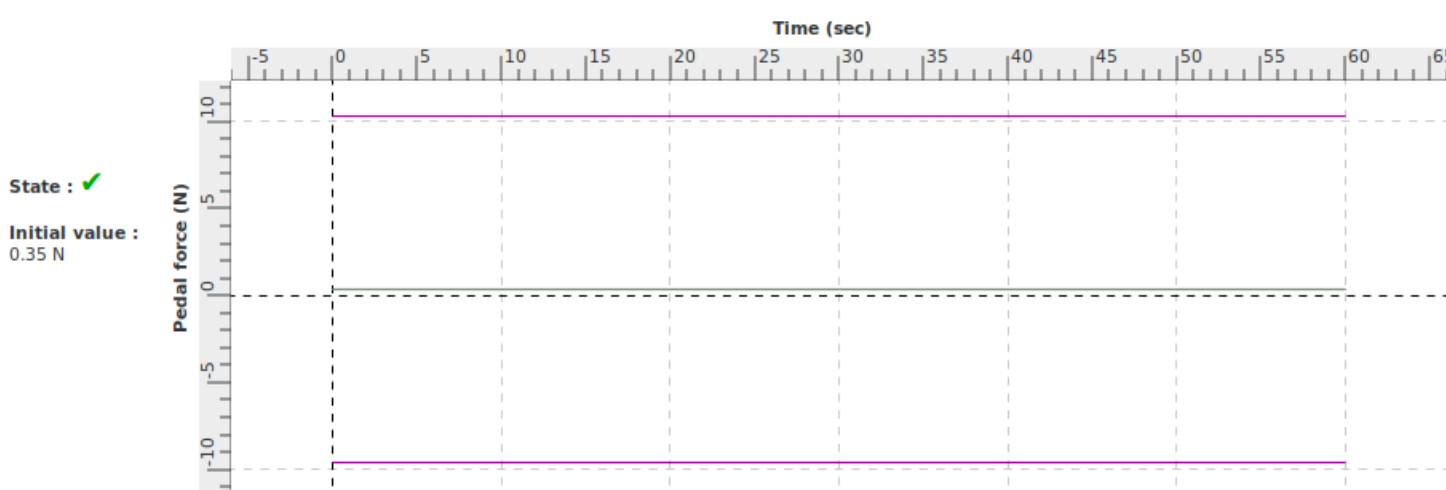
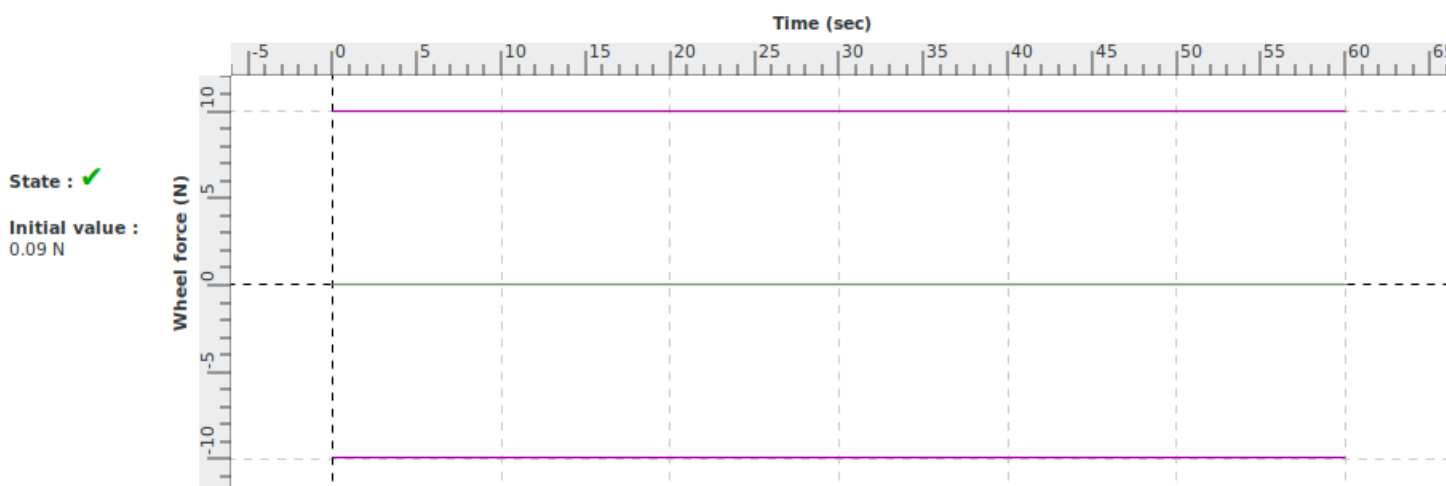
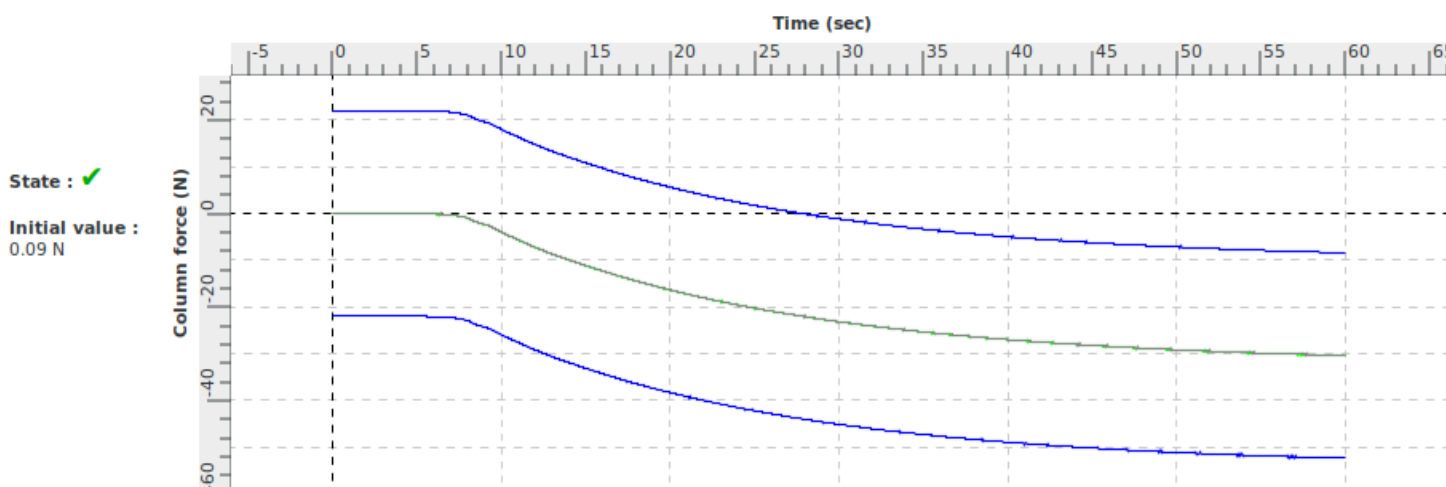
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master

Title	Power change force during approach		
Id	2 c i 2	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	14/06/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



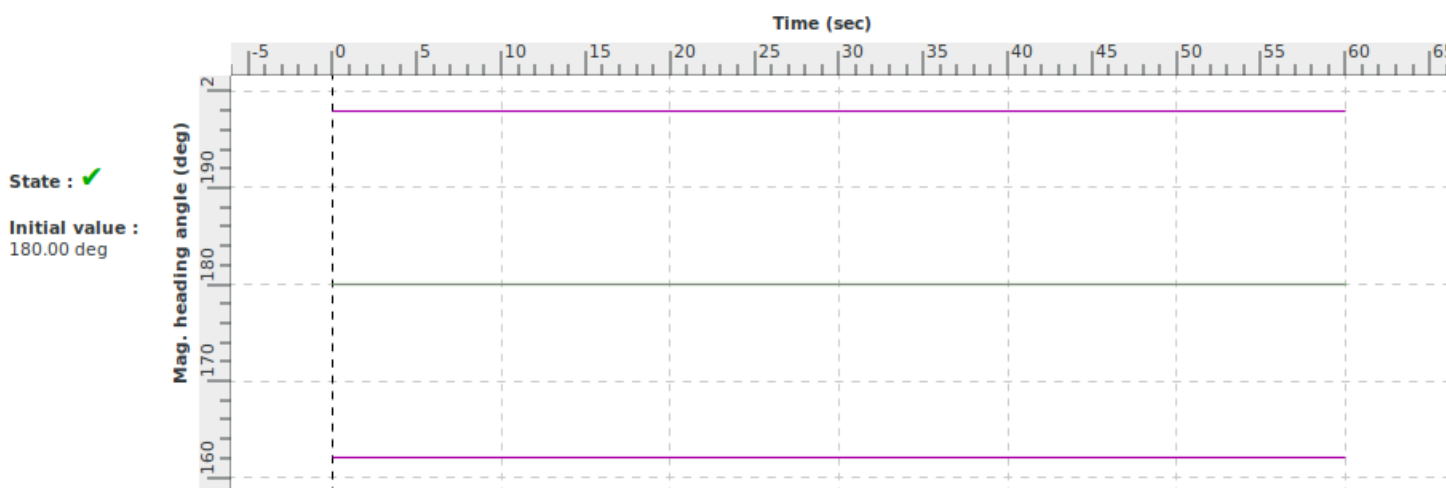
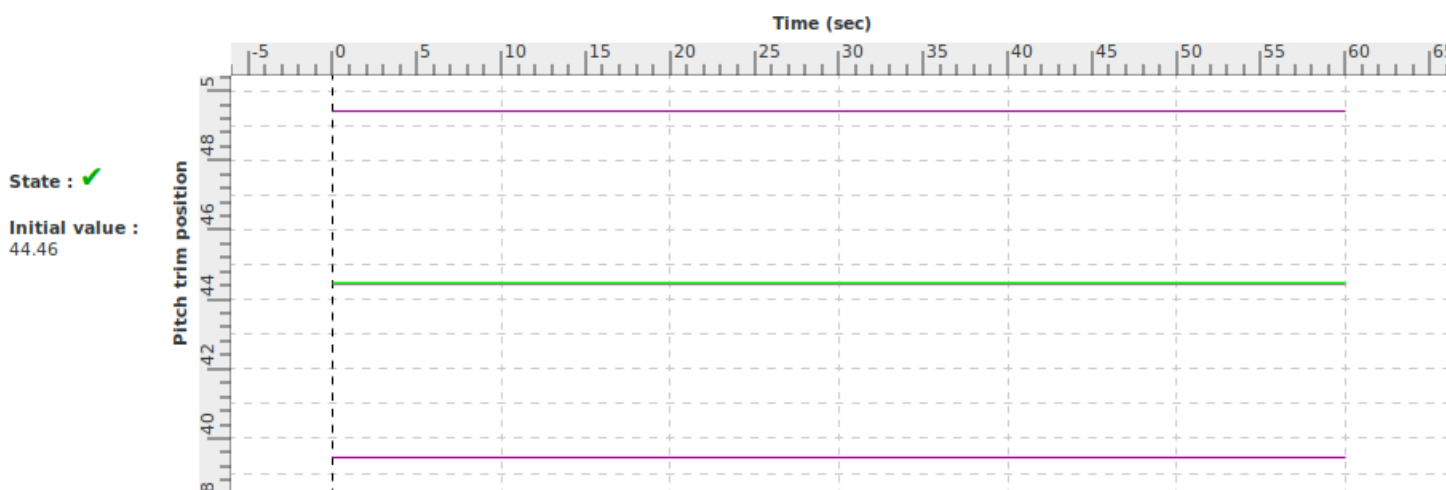
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Power change force during approach		
Id	2 c i 2	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	14/06/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

# VALIDATION TEST

<b>Title</b>	Flaps change dynamics during take-off (retraction)		
<b>Id</b>	2 c ii 1 a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the simulator response to a flap retraction during take-off conforms to the class of aeroplanes	<p>Increments (from configuration change to 20s after):</p> <p>Airspeed: -1.6 Kts</p> <p>Pitch Angle: +7.5 deg</p> <p>Altitude: 600 ft</p>
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.c.ii.1.a	<p>Airspeed +/- 3 kt</p> <p>Altitude +/- 100 ft</p> <p>Pitch +/- 1.5° or 20%</p>

<b>Demonstration procedure</b>	From steady take-off initial conditions, flaps are retracted.
<b>Manual test procedure</b>	The aircraft is trimmed at take-off flight condition. Then, the pilot sets the flaps from position 1 to 0 and allows the airplane to respond freely.
<b>Automatic test procedure</b>	2 c ii 1 a

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

Title	Flaps change dynamics during take-off (retraction)		
Id	2 c ii 1 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Qualification Level	FNPT2	Operator	AFTA
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902

Autopilot mode	AUTO_VZ
Automatic IAS (airspeed) and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and IAS. Roll Trim is computed to maintain 0° bank angle.	

Initial parameters	TAKE_OFF
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 3000 Vertical speed (ft/min) : 1000 (free) IAS (kt) : 85 Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : 13 Pedal Position (%) : 0 Column Position (%) : 41 Wheel Position (%) : 0	Flaps lever position : 1 Gear lever position : 0 Left Load (%) : 100 Right Load (%) : 100 Left RPM : 2090 Right RPM : 2090

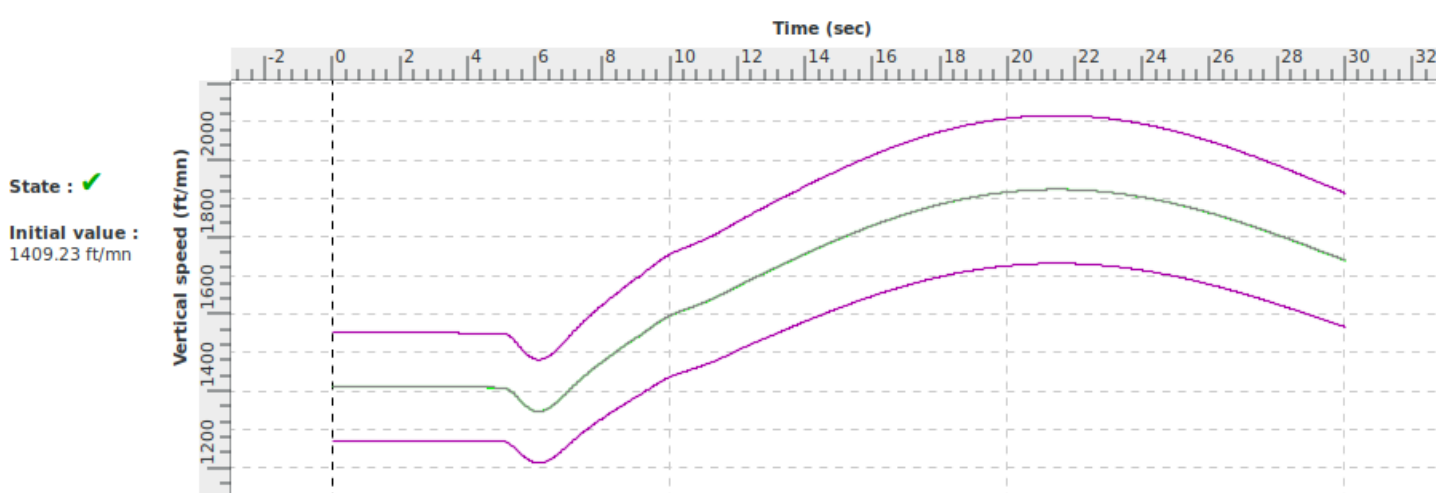
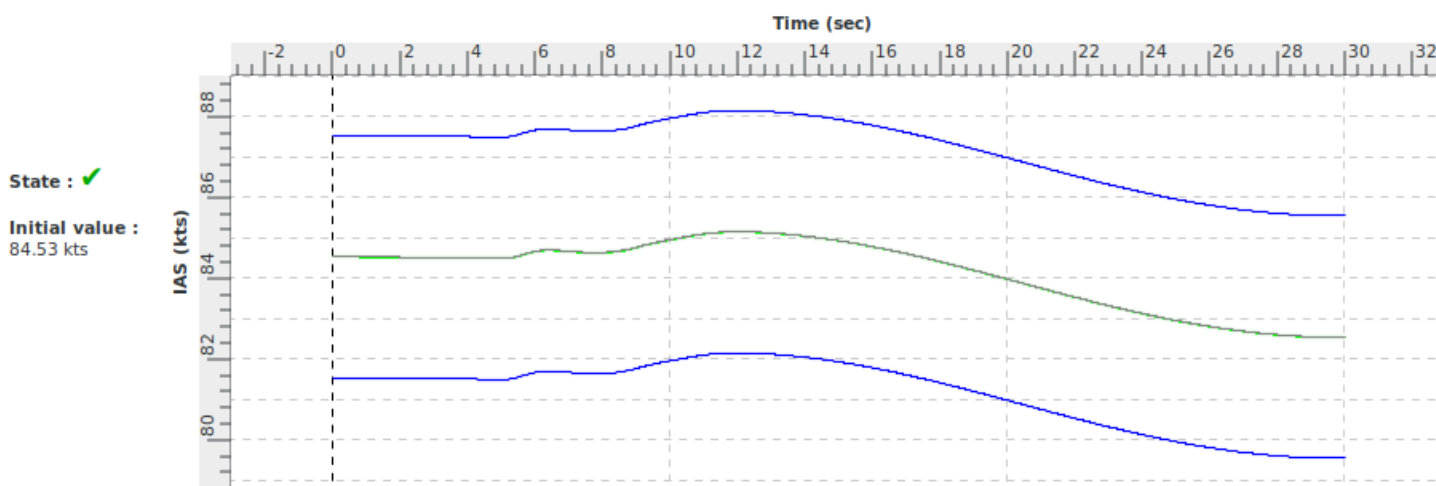
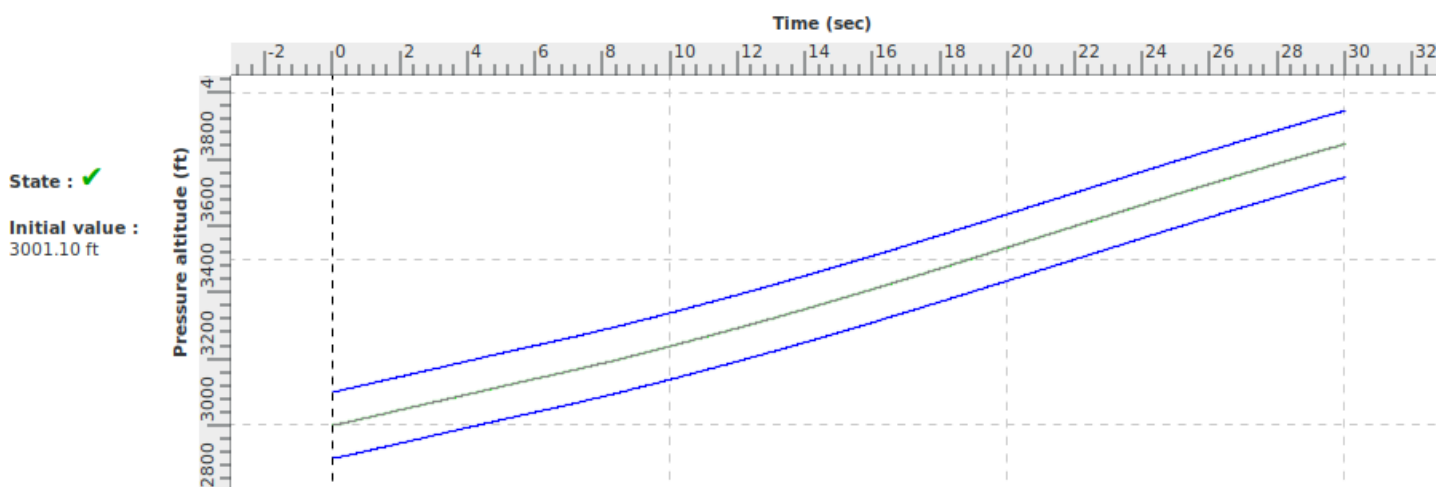
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
0.0	deconnectionPA_att	0.0	disable QTG Autopilot in attitude axis
0.0	deconnectionPA_roll	0.0	disable QTG Autopilot in roll axis
0.0	deconnectionPA_rudder	0.0	disable QTG Autopilot in yaw axis
5.0	Flaps	0.0	Move the flaps lever to the desired position
30.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Flaps change dynamics during take-off (retraction)		
<b>Id</b>	2 c ii 1 a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

Log of Revision		
Rev. Nbr	Date	Reason for revision

Notes

Title	Flaps change dynamics during take-off (retraction)		
Id	2 c ii 1 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



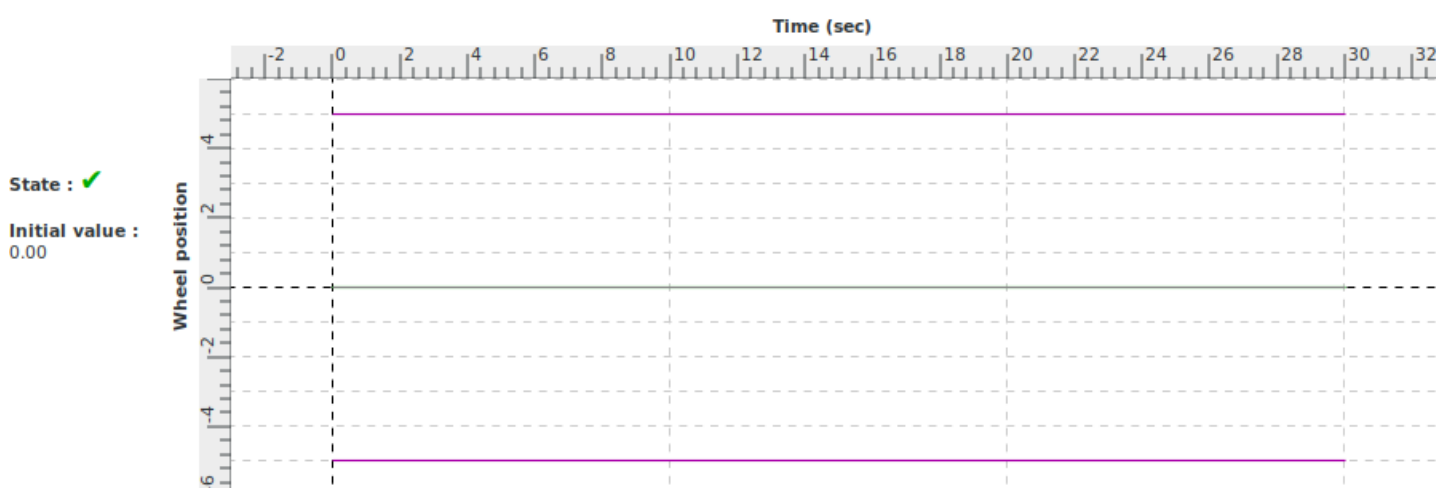
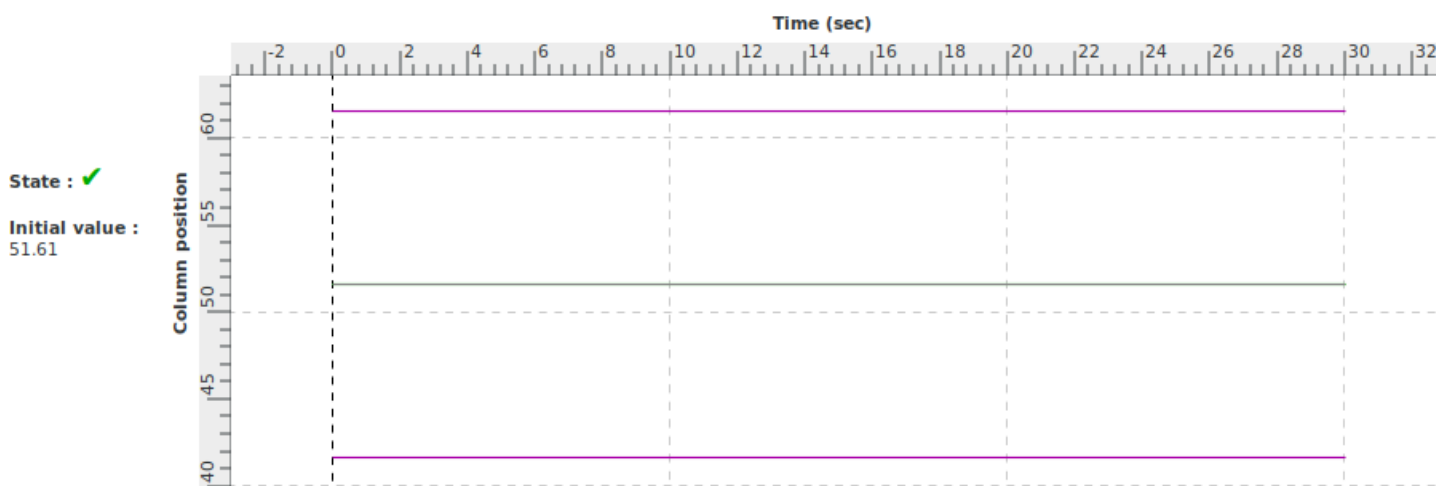
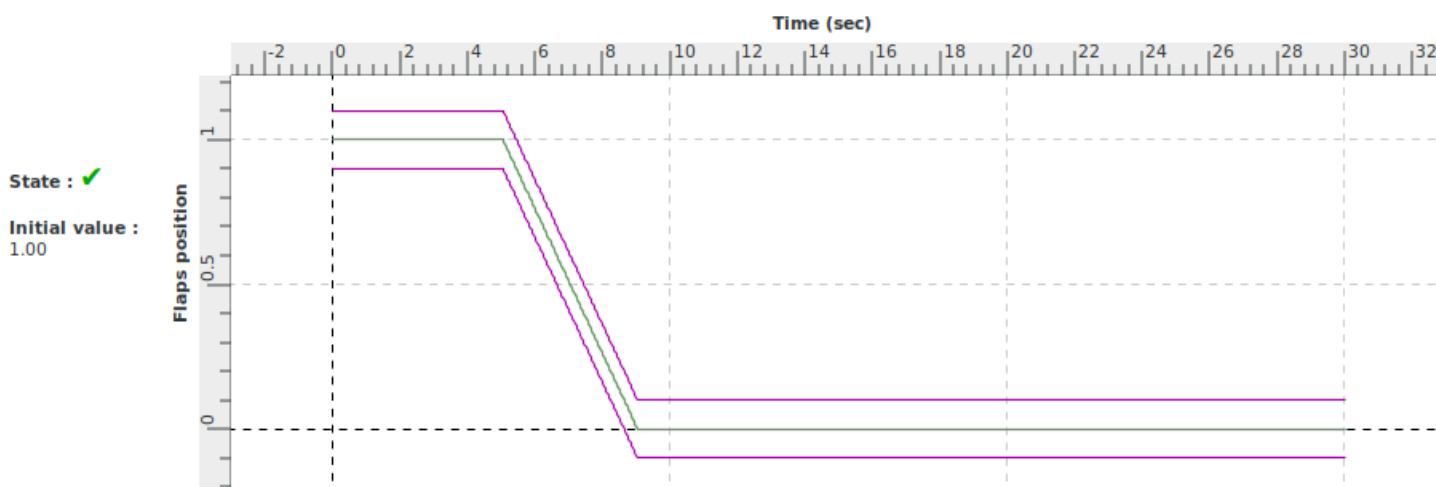
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Flaps change dynamics during take-off (retraction)		
Id	2 c ii 1 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

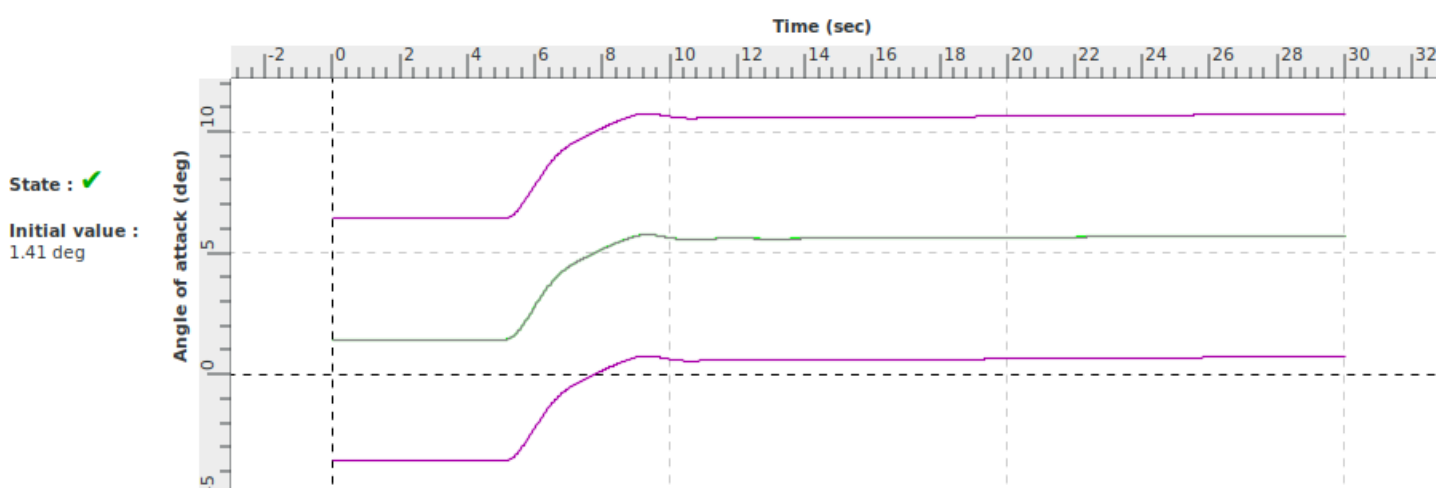
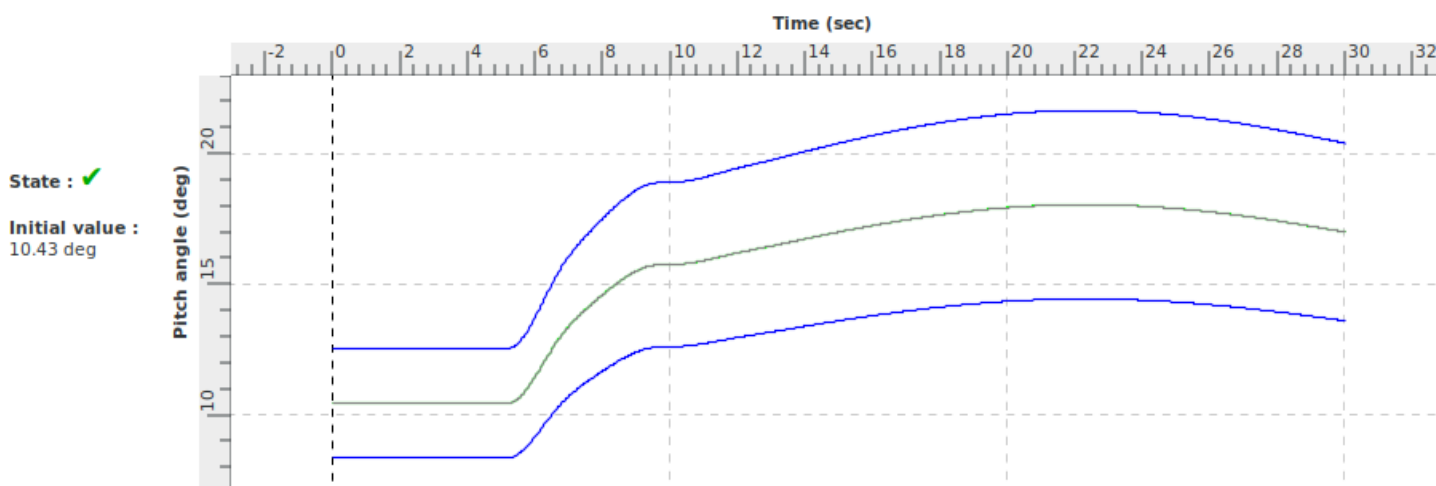
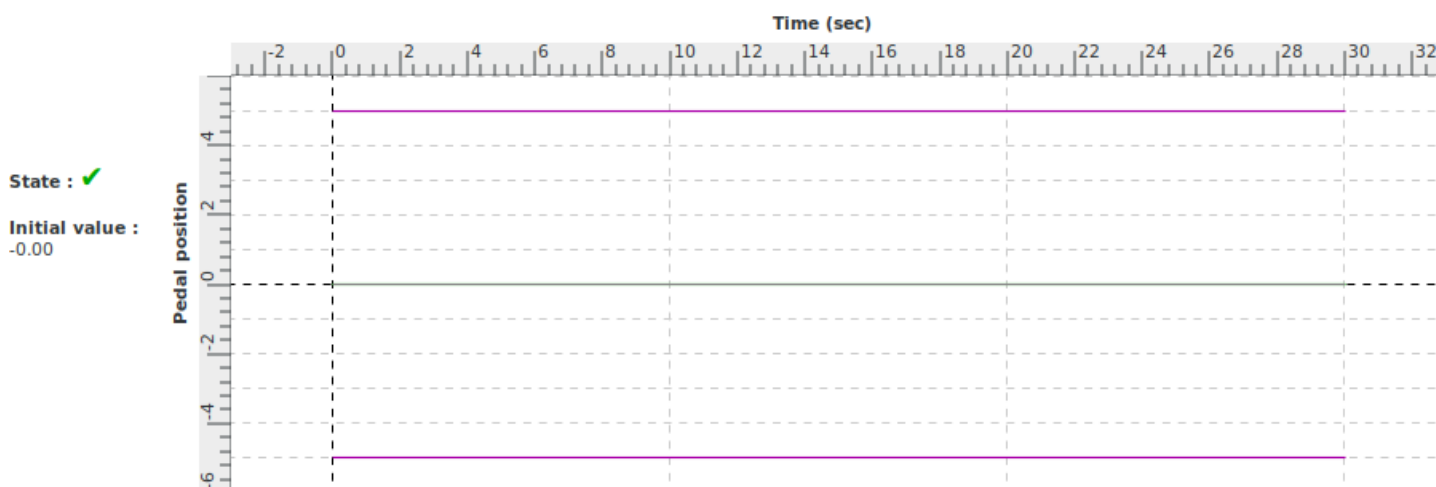
green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsimg

grey : master



Title	Flaps change dynamics during take-off (retraction)		
Id	2 c ii 1 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



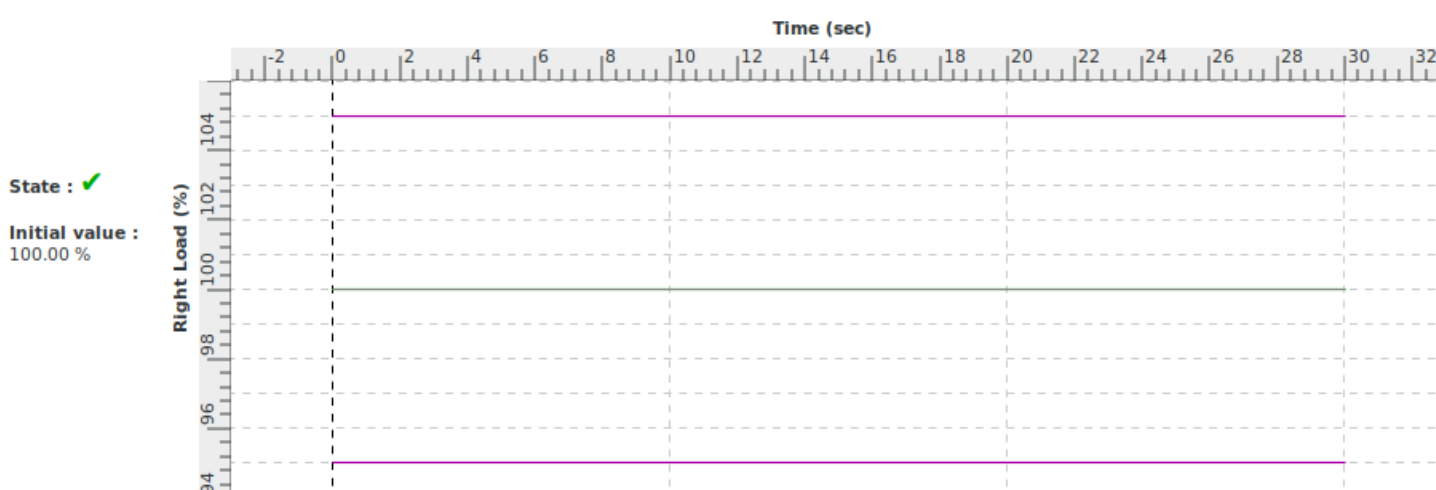
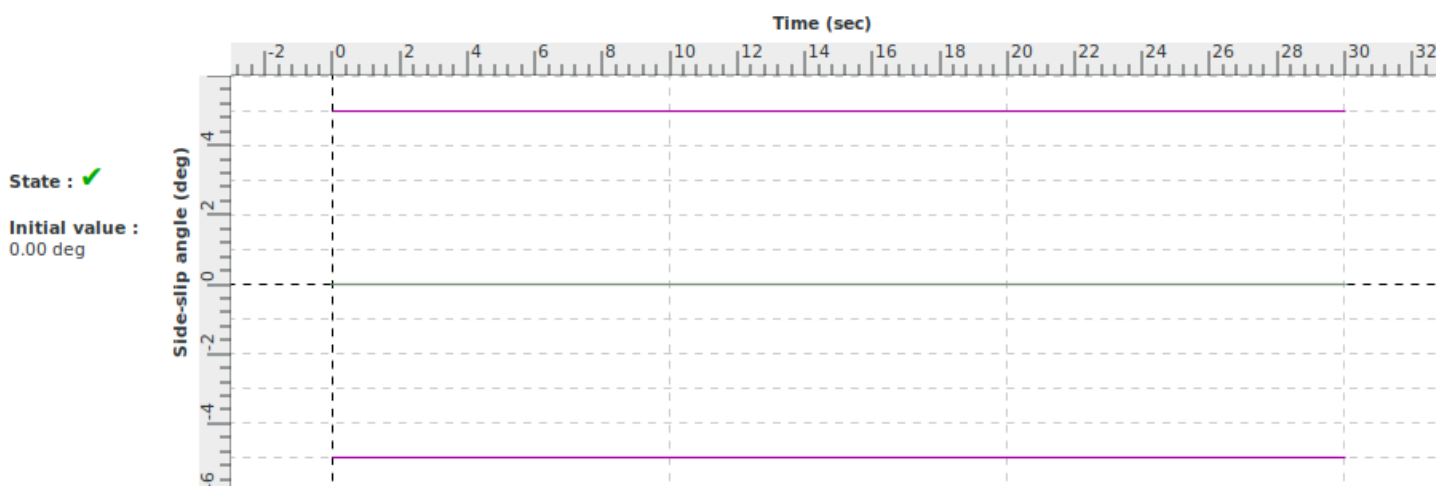
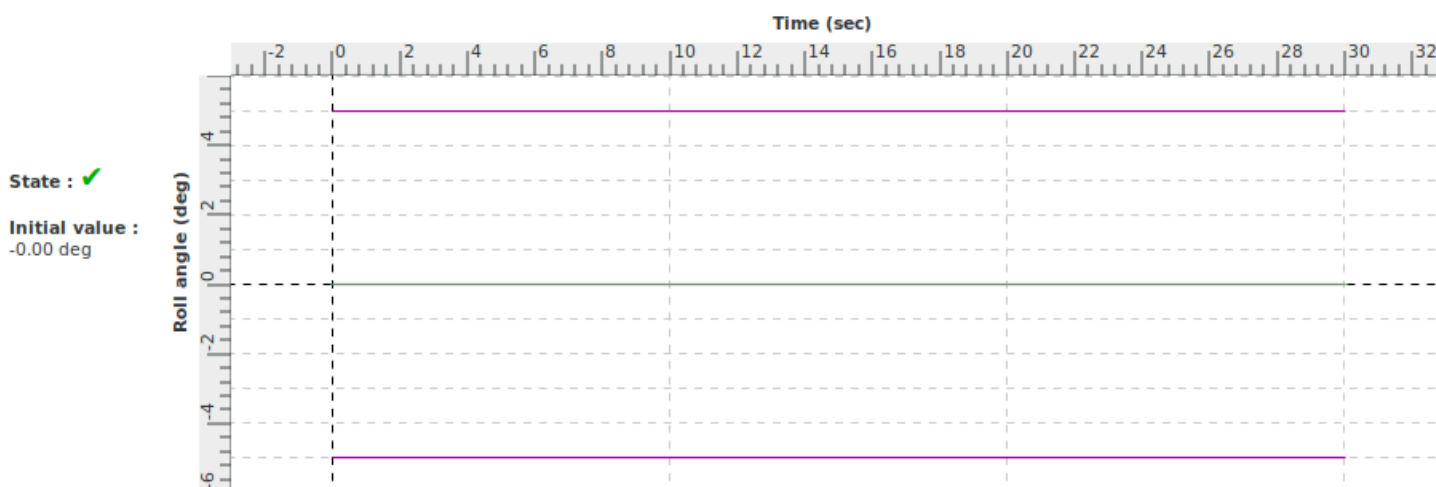
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master

Title	Flaps change dynamics during take-off (retraction)		
Id	2 c ii 1 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



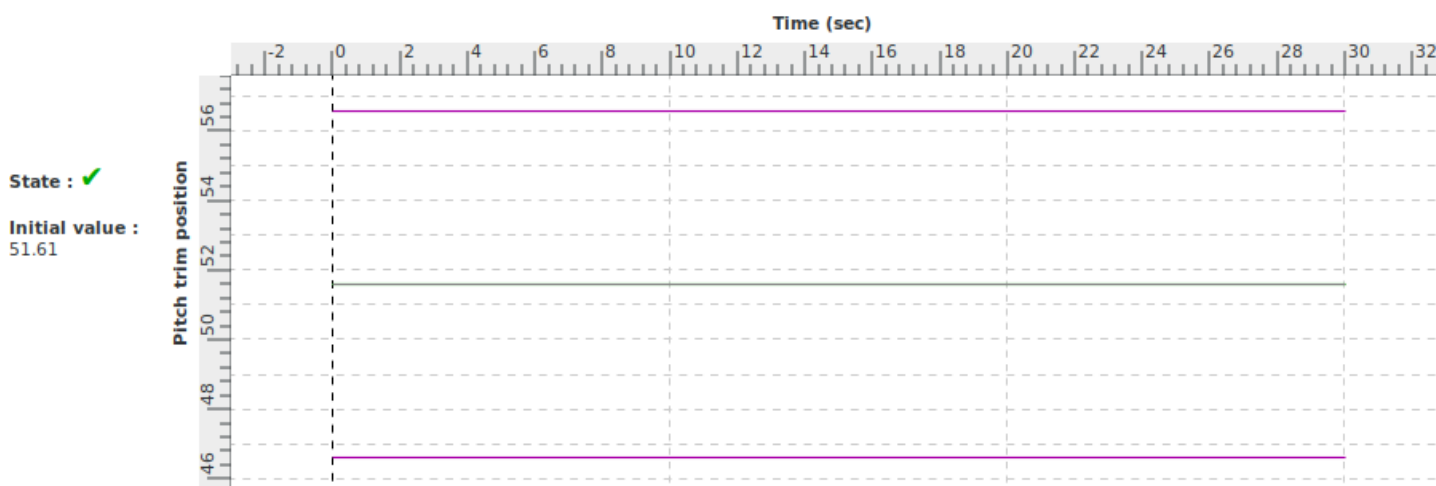
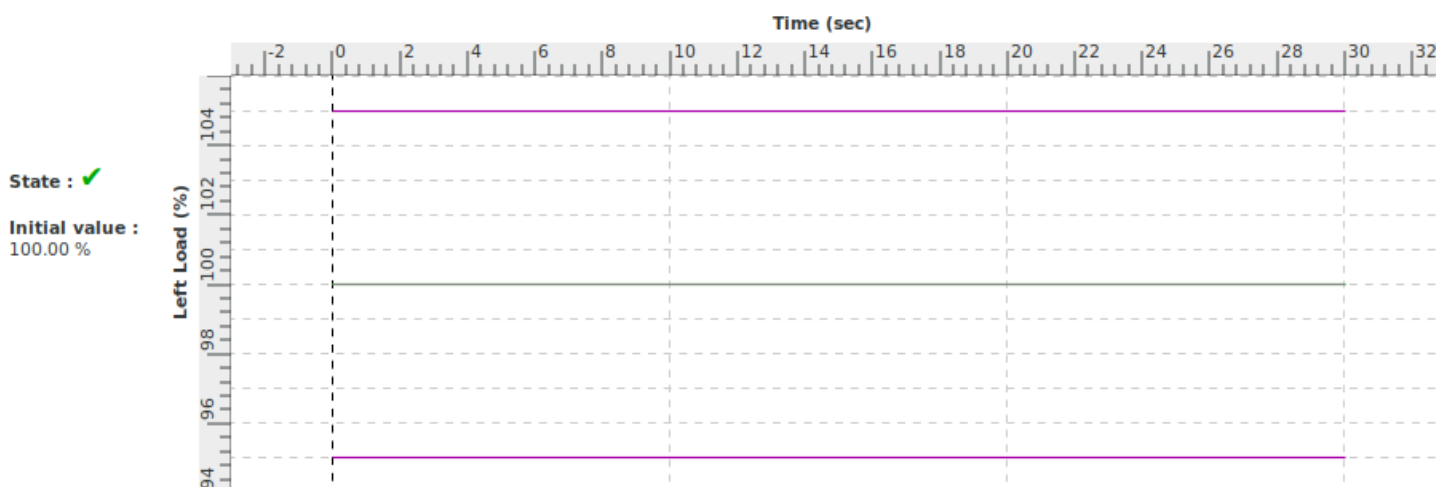
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsimg

grey : master

Title	Flaps change dynamics during take-off (retraction)		
Id	2 c ii 1 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master

# VALIDATION TEST

<b>Title</b>	Flaps change dynamics during approach (extension)		
<b>Id</b>	2 c ii 1 b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the simulator response to a flap extension during approach conforms to the class of aeroplanes	<p>Increments (from configuration change to 20s after):</p> <p>Airspeed: 0.4 Kts</p> <p>Pitch Angle: -2 deg</p> <p>Altitude: -220 ft</p>
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.c.ii.1.b	<p>Airspeed +/- 3 kt</p> <p>Altitude +/- 100 ft</p> <p>Pitch +/- 1.5° or 20%</p>

<b>Demonstration procedure</b>	From steady approach initial conditions, flaps are extended.
<b>Manual test procedure</b>	The aircraft is trimmed at approach flight condition. Then, the pilot sets the flaps from position 1 to 2, and allows the airplane to respond freely.
<b>Automatic test procedure</b>	2 c ii 1 b

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

<b>Title</b>	Flaps change dynamics during approach (extension)		
<b>Id</b>	2 c ii 1 b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Autopilot mode</b>	AUTO_VZ
<p>Automatic IAS (airspeed) and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and IAS. Roll Trim is computed to maintain 0° bank angle.</p>	

<b>Initial parameters</b>	DESCENT_FLAPS_APP
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 3000 Vertical speed (ft/min) : -450 (free) IAS (kt) : 90 Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : -2 Pedal Position (%) : 0 Column Position (%) : 44 Wheel Position (%) : 0	Flaps lever position : 1 Gear lever position : 1 Left Load (%) : 30 Right Load (%) : 30 Left RPM : 1930 Right RPM : 1930

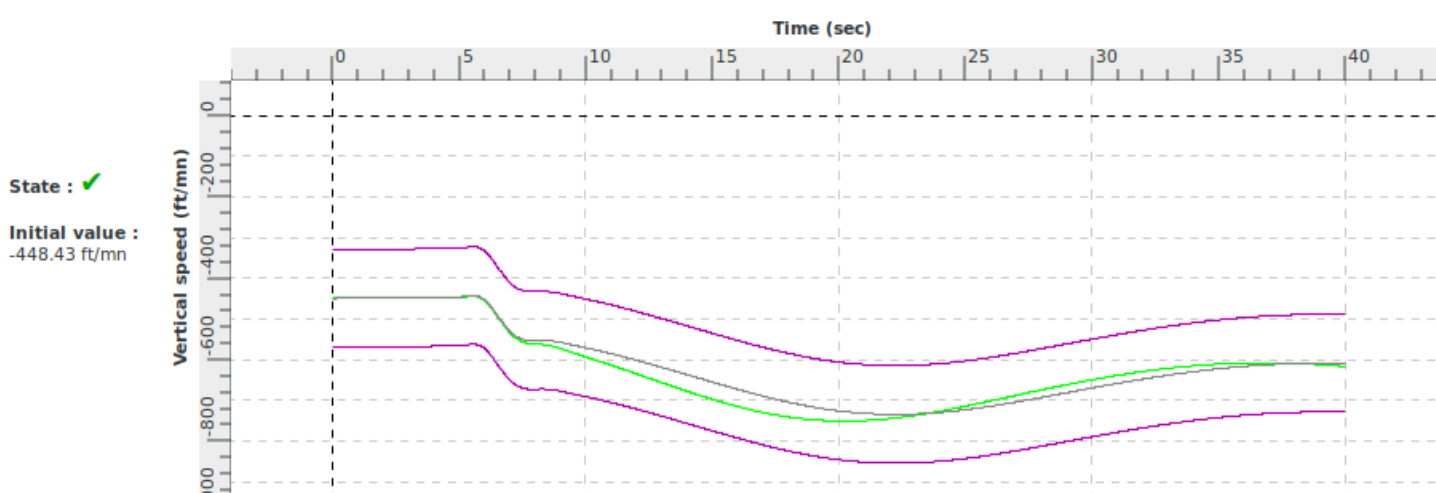
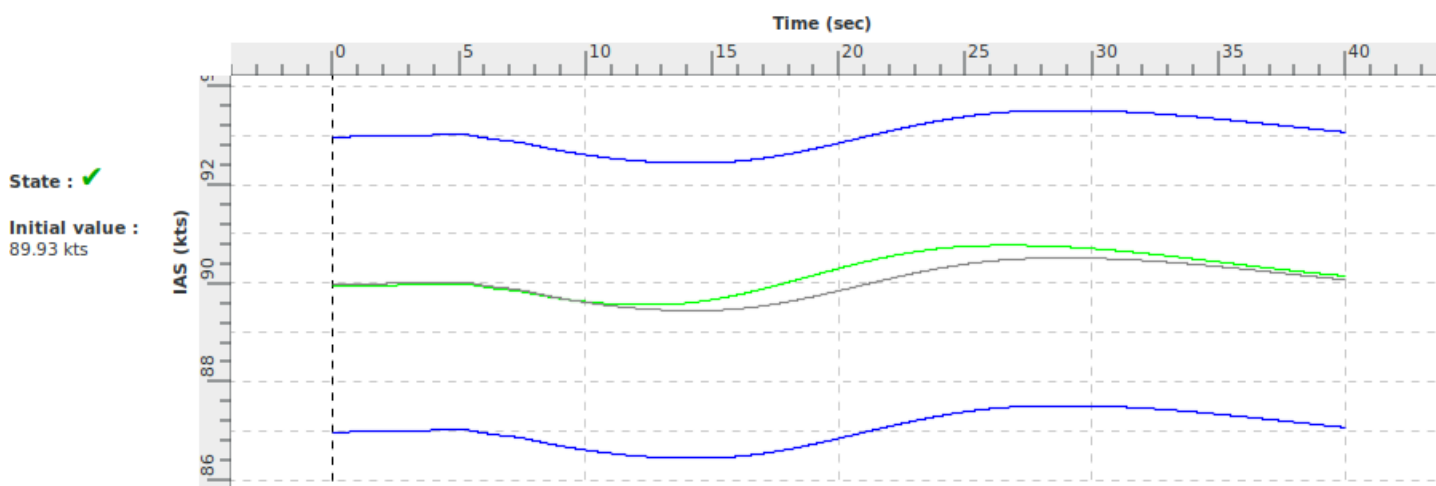
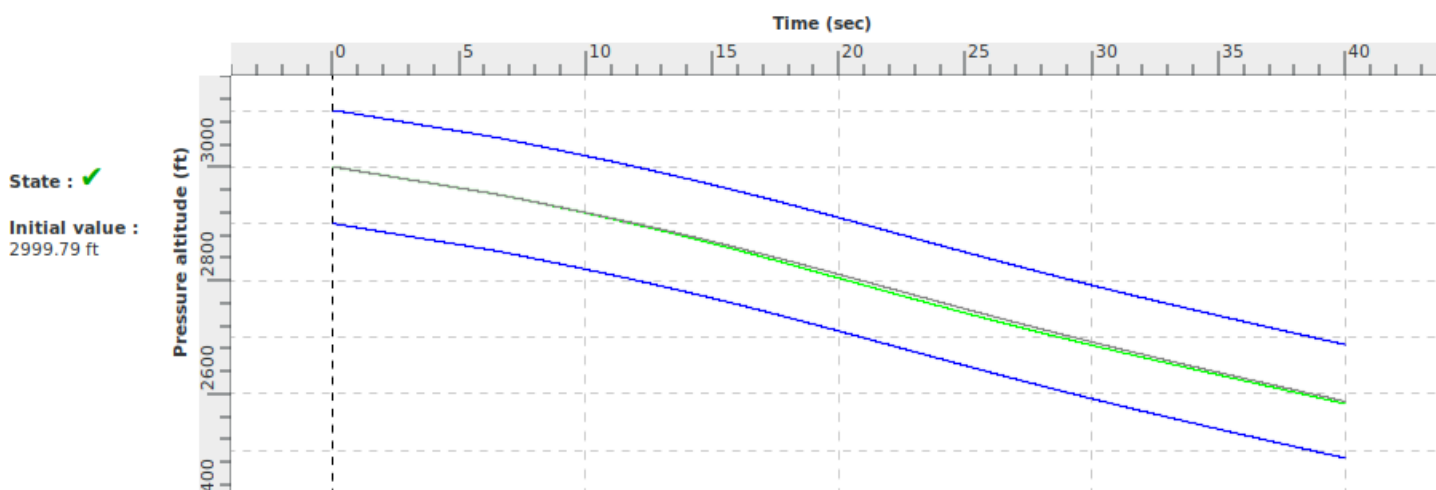
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
0.0	deconnectionPA_att	0.0	disable QTG Autopilot in attitude axis
0.0	deconnectionPA_roll	0.0	disable QTG Autopilot in roll axis
0.0	deconnectionPA_rudder	0.0	disable QTG Autopilot in yaw axis
5.0	Flaps	2.0	Move the flaps lever to the desired position
40.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Flaps change dynamics during approach (extension)		
<b>Id</b>	2 c ii 1 b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

Log of Revision		
Rev. Nbr	Date	Reason for revision

Notes

Title	Flaps change dynamics during approach (extension)		
Id	2 c ii 1 b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



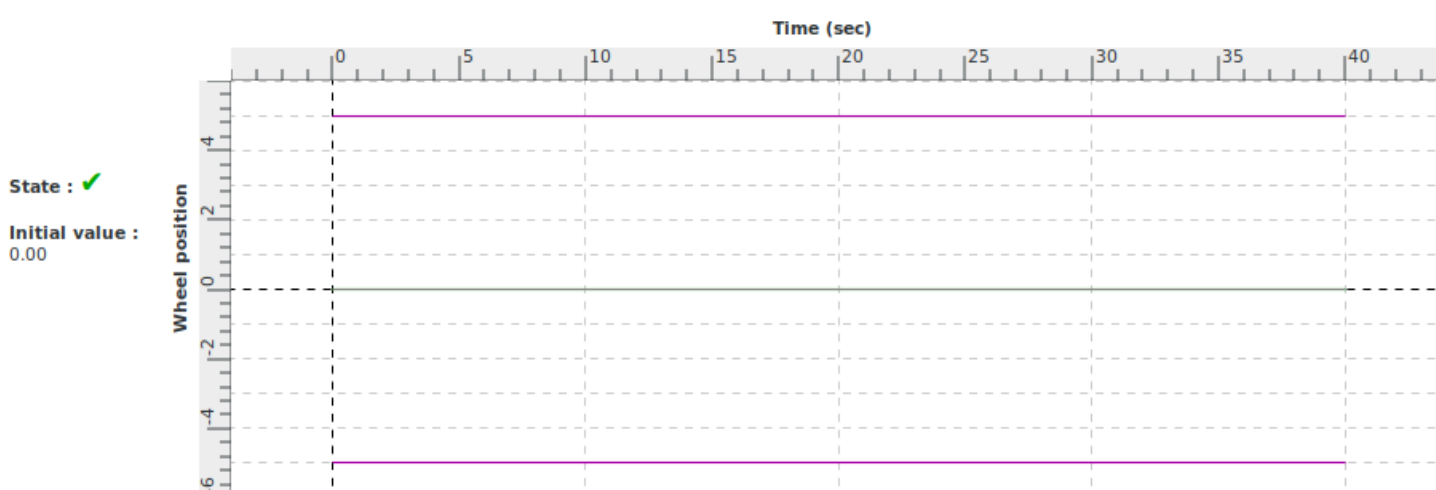
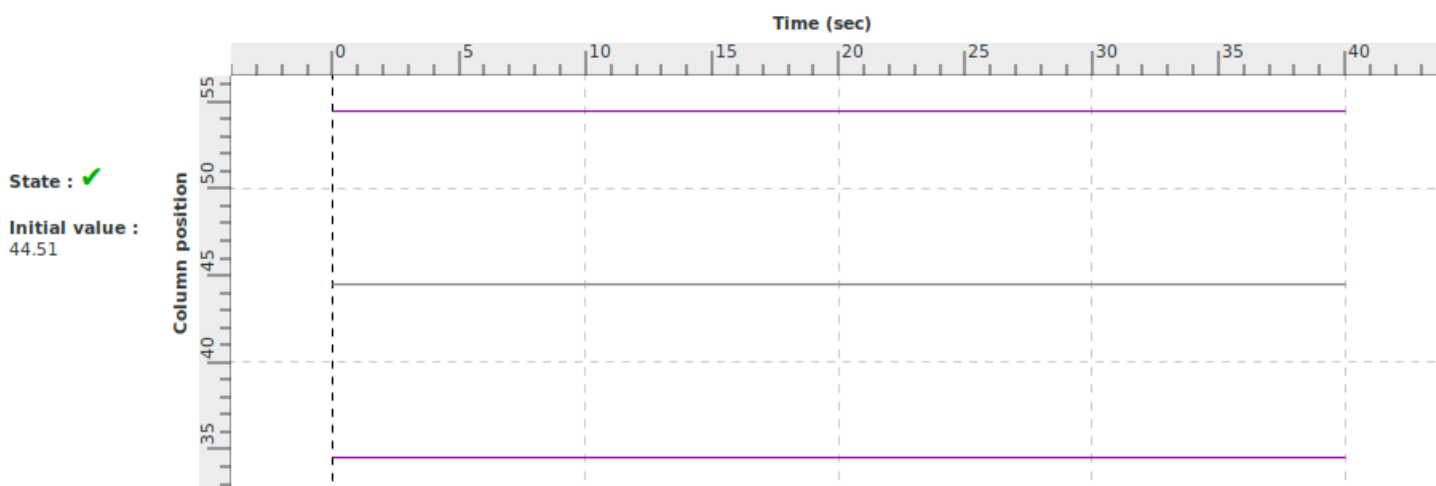
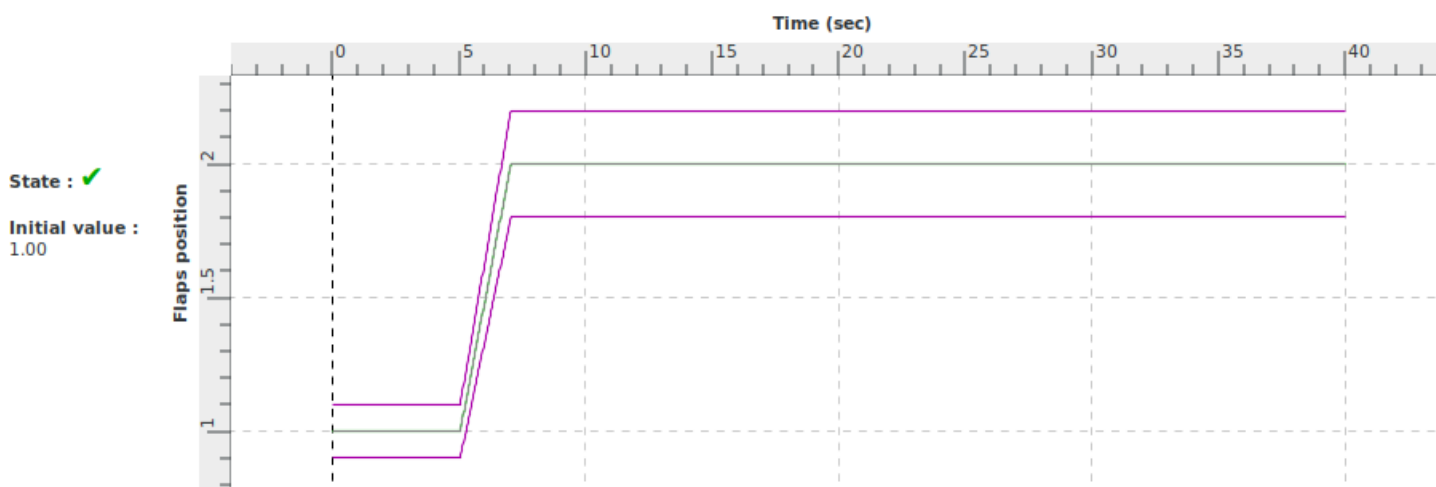
#### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Flaps change dynamics during approach (extension)		
Id	2 c ii 1 b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

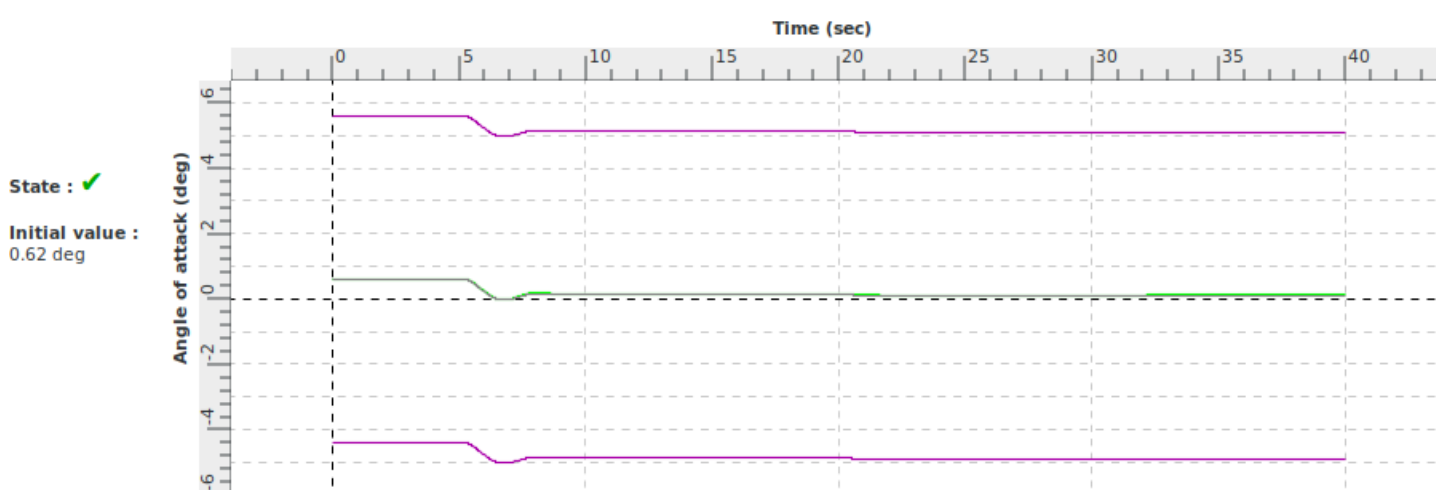
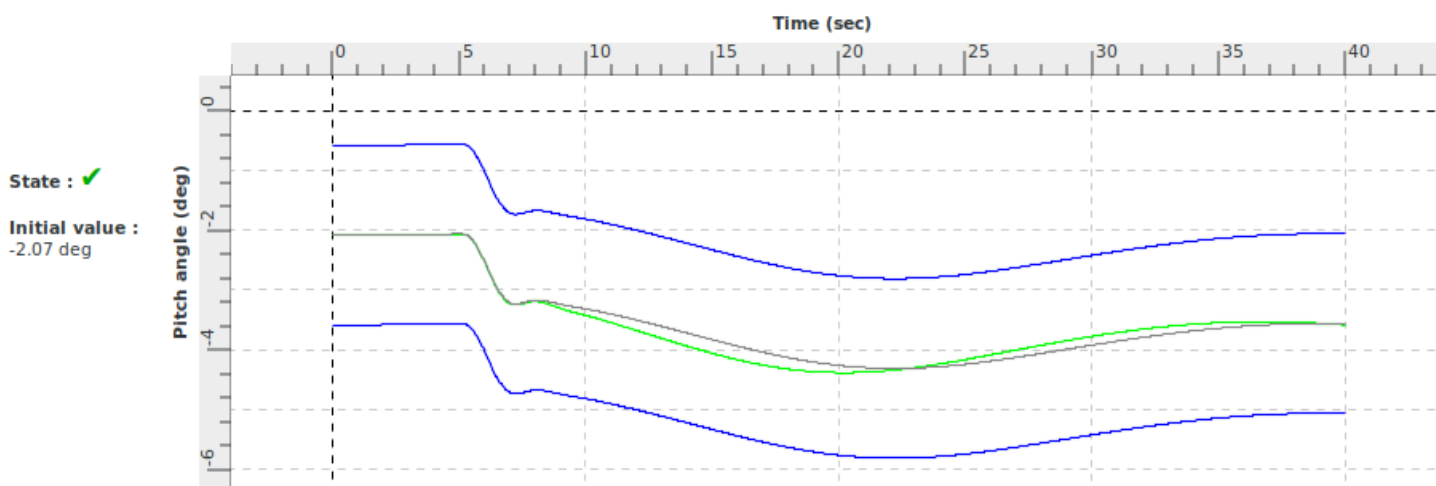
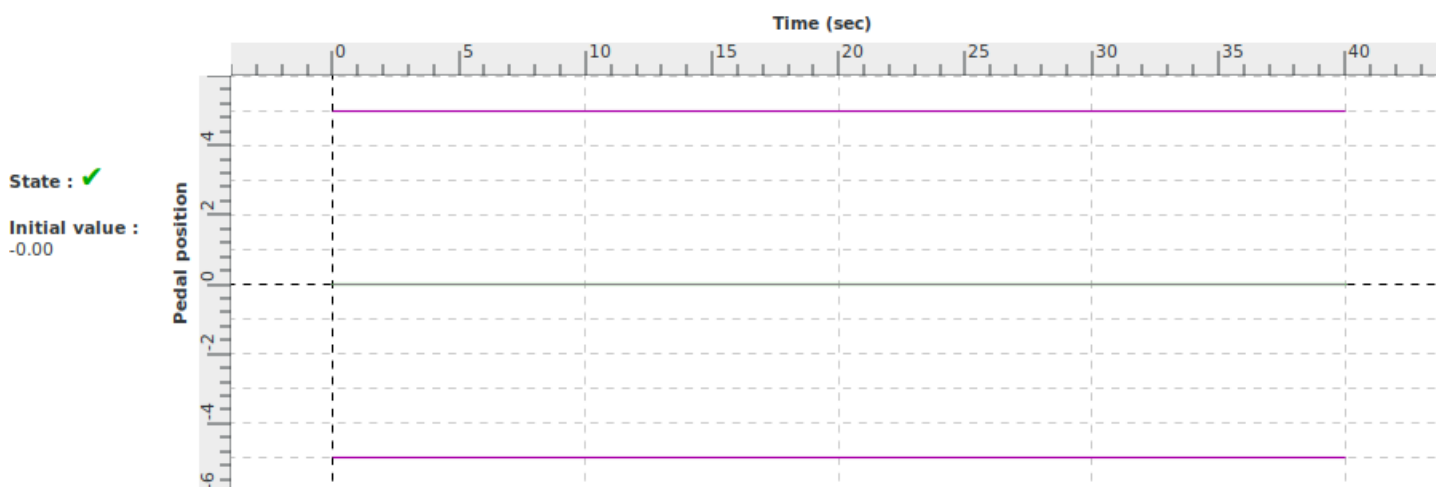
green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master



Title	Flaps change dynamics during approach (extension)		
Id	2 c ii 1 b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



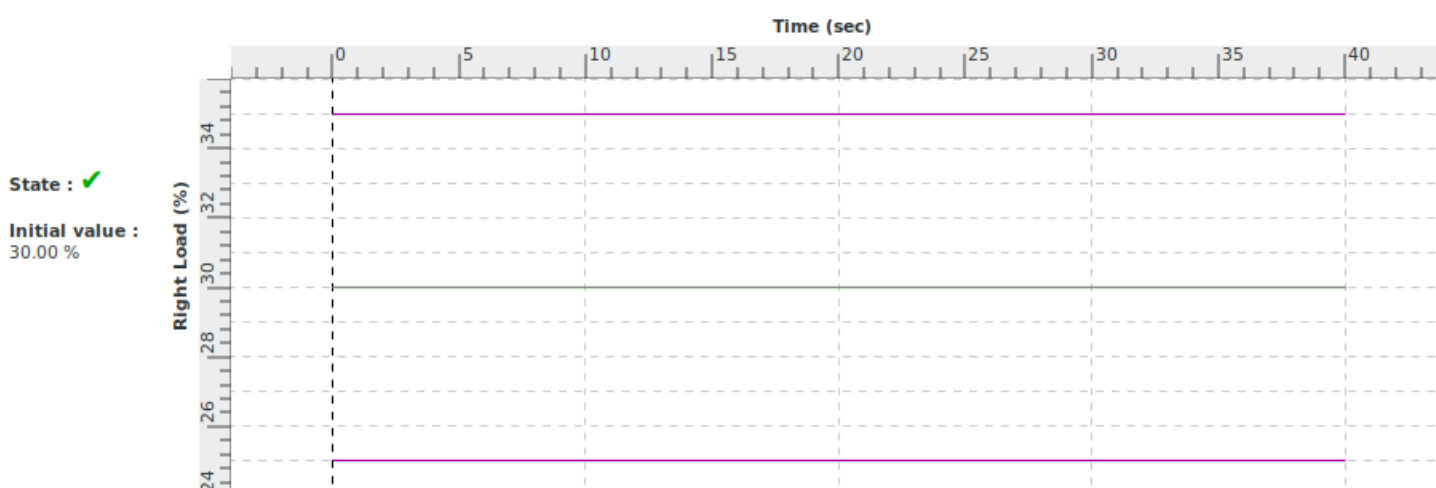
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Flaps change dynamics during approach (extension)		
Id	2 c ii 1 b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



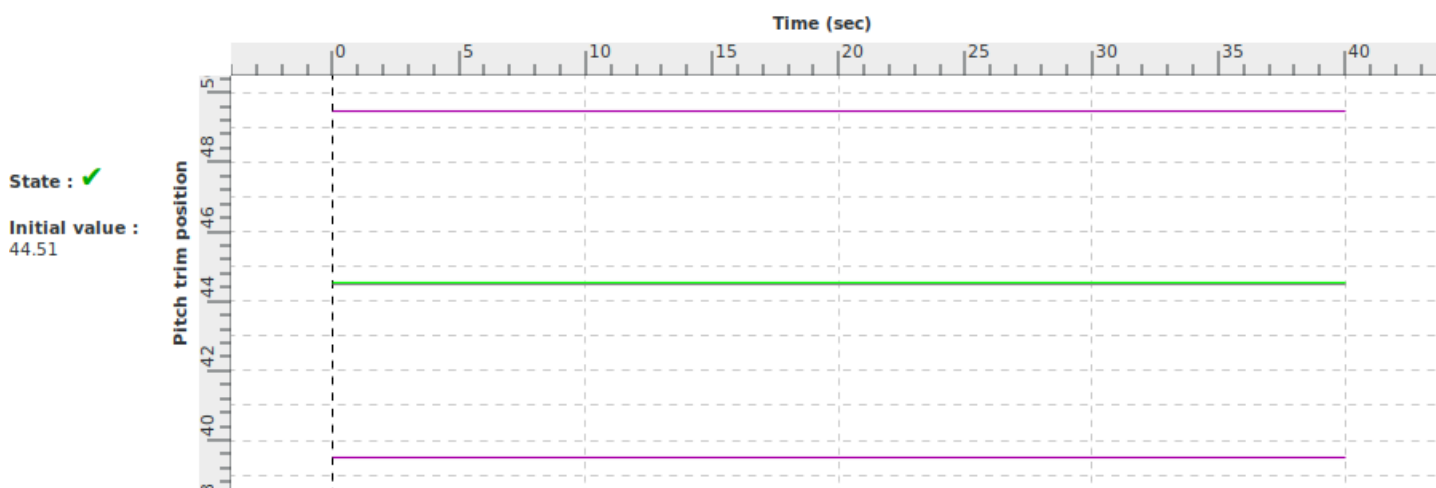
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Flaps change dynamics during approach (extension)		
Id	2 c ii 1 b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

# VALIDATION TEST

<b>Title</b>	Flaps change force during take-off (retraction)		
<b>Id</b>	2 c ii 2 a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	04/02/24	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the force change due to flap retraction during take-off conforms to the class of aeroplanes	Maximum Increments: -4 N of Control force
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.c.ii.2.a	+/- 2,2 daN (5Lbs) or +/- 10% Force

<b>Demonstration procedure</b>	From steady take-off initial conditions, flaps are retracted.
<b>Manual test procedure</b>	Without trimming or power settings change, pilot maintains constant flight path angle. When the climb is stabilised, the pilot sets the flap from position 1 to 0, maintaining the same rate of climb using control column.
<b>Automatic test procedure</b>	2 c ii 2 a

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

Title	Flaps change force during take-off (retraction)		
Id	2 c ii 2 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Qualification Level	FNPT2	Operator	AFTA
Result Date	04/02/24	Master Date	01/03/19
Result Load	2012.01	Master Load	1902

Autopilot mode	AUTO_VZ
Automatic IAS (airspeed) and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and IAS. Roll Trim is computed to maintain 0° bank angle.	

Initial parameters	TAKE_OFF
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 3000 Vertical speed (ft/min) : 1000 (free) IAS (kt) : 85 Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : 13 Pedal Position (%) : 0 Column Position (%) : 41 Wheel Position (%) : 0	Flaps lever position : 1 Gear lever position : 0 Left Load (%) : 100 Right Load (%) : 100 Left RPM : 2090 Right RPM : 2090

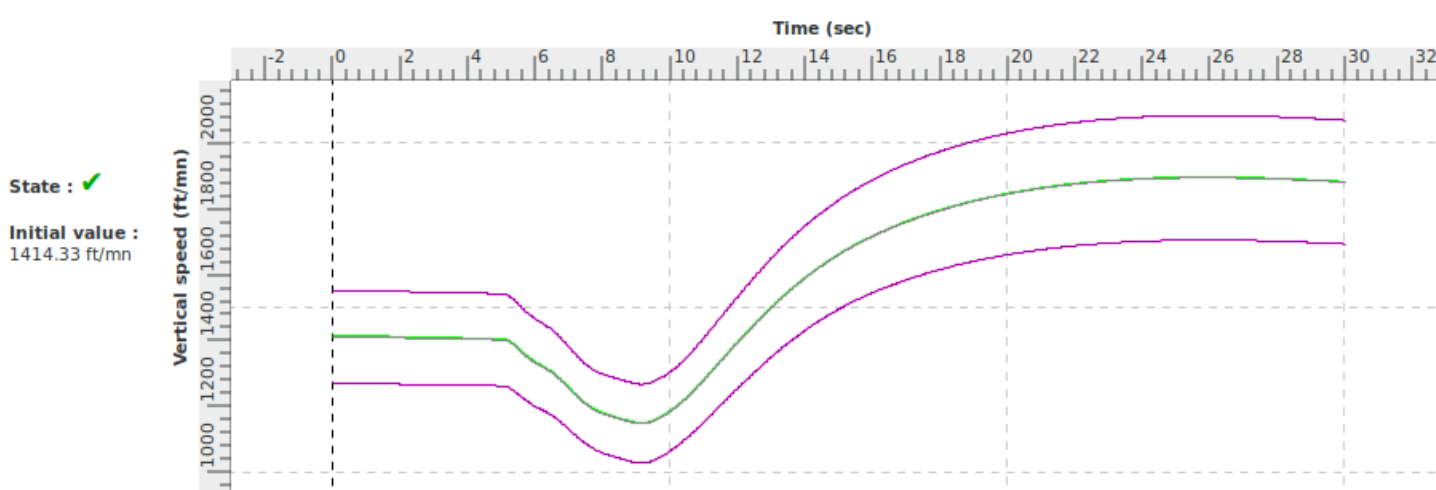
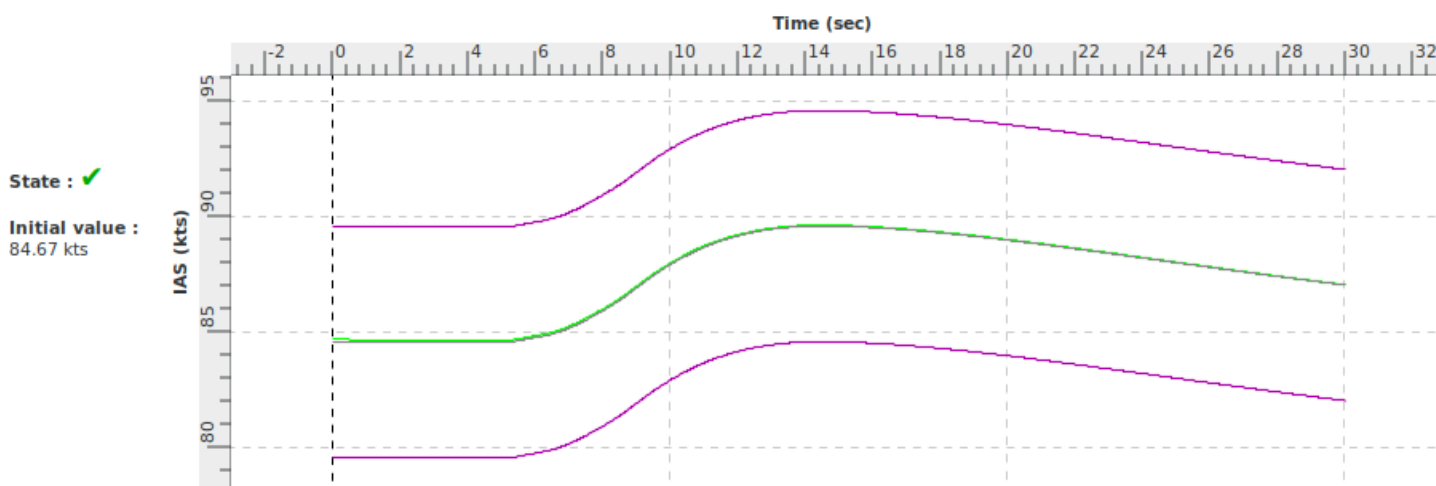
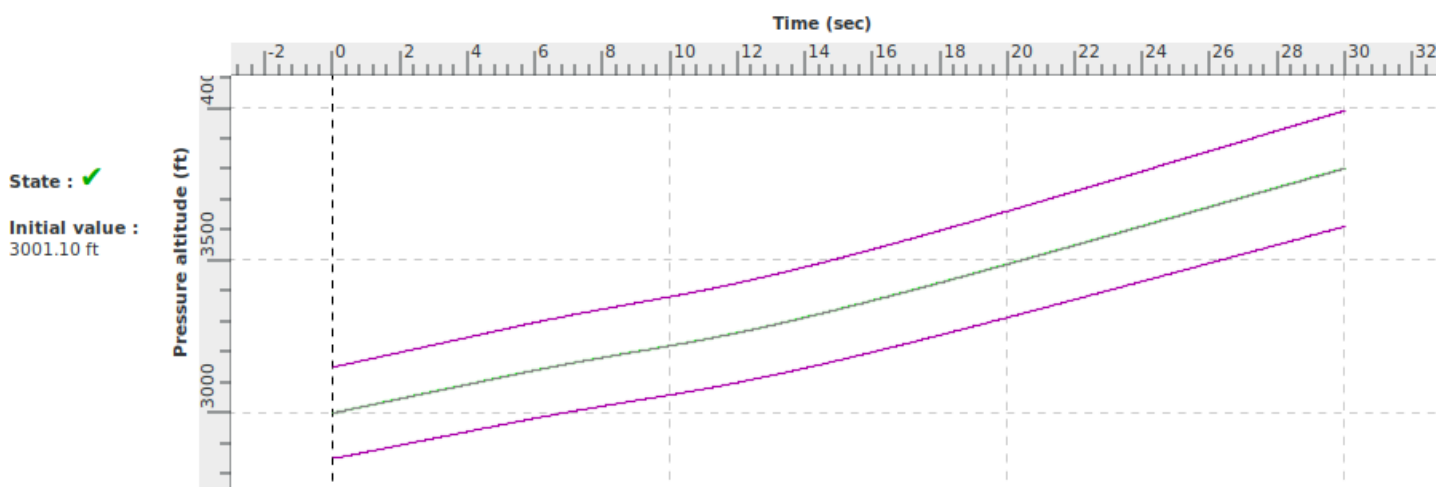
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
5.0	Flaps	0.0	Move the flaps lever to the desired position
30.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Flaps change force during take-off (retraction)		
<b>Id</b>	2 c ii 2 a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	04/02/24	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

Log of Revision		
Rev. Nbr	Date	Reason for revision

Notes

Title	Flaps change force during take-off (retraction)		
Id	2 c ii 2 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	04/02/24	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



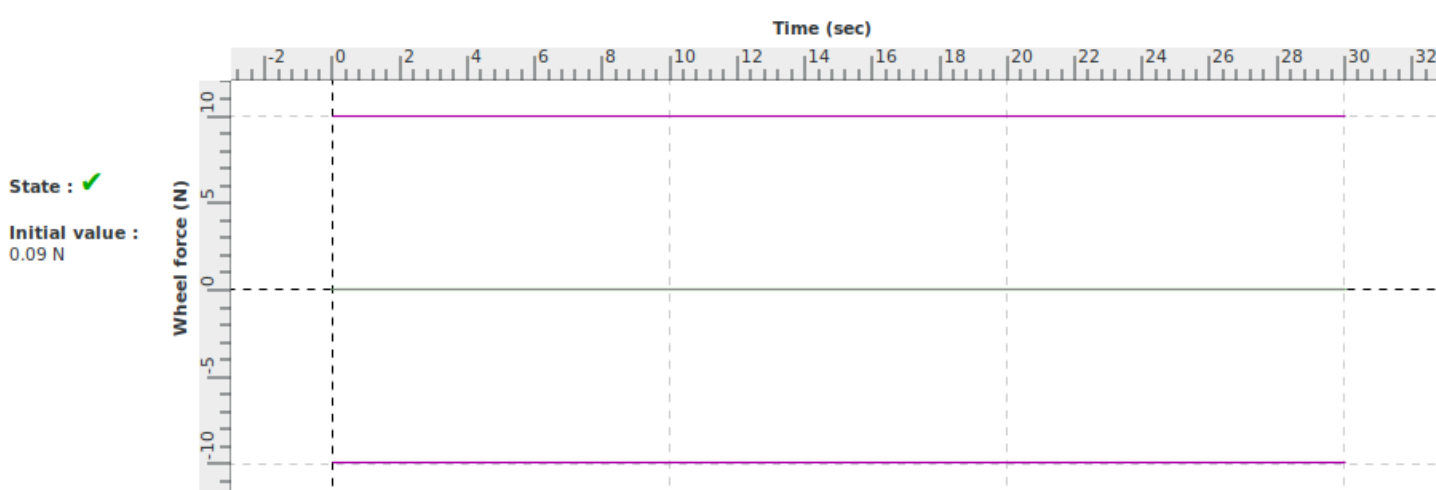
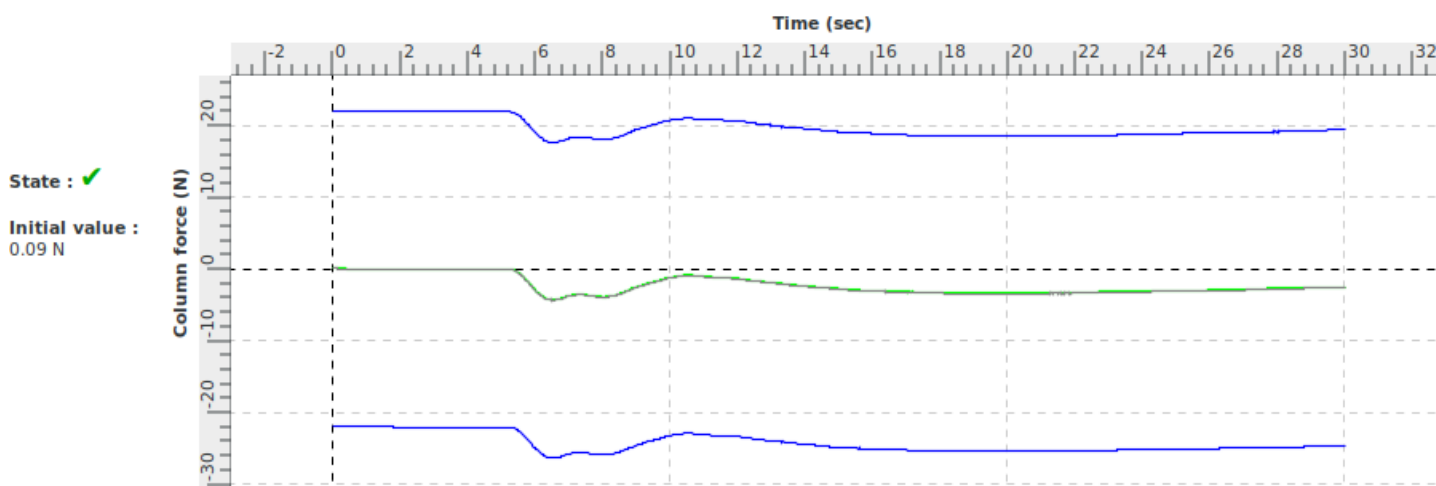
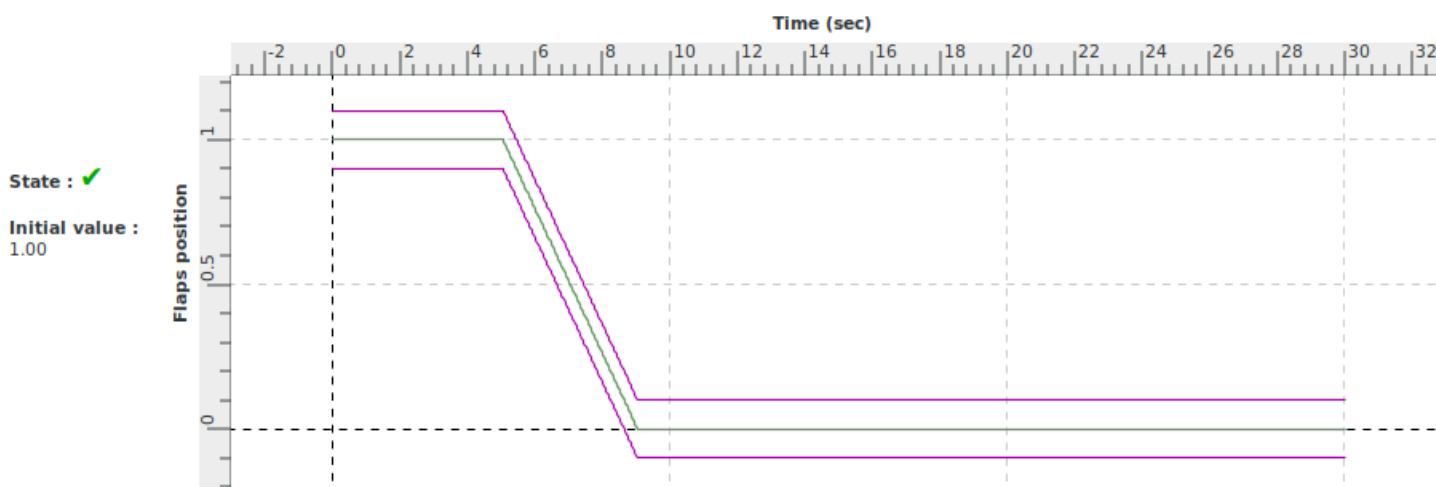
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Flaps change force during take-off (retraction)		
Id	2 c ii 2 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	04/02/24	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

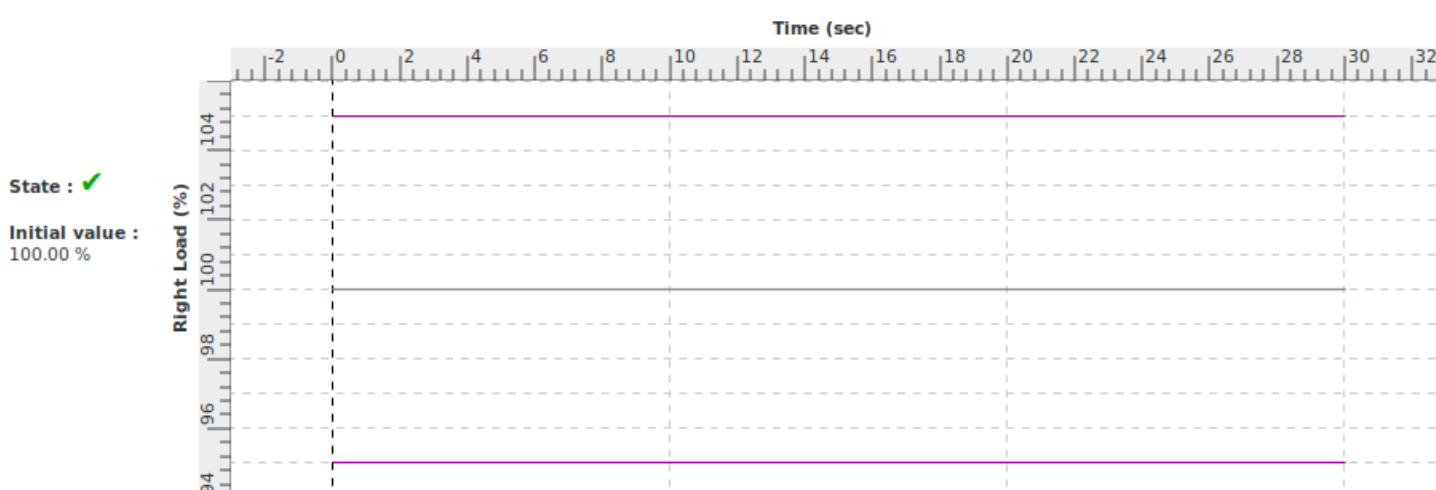
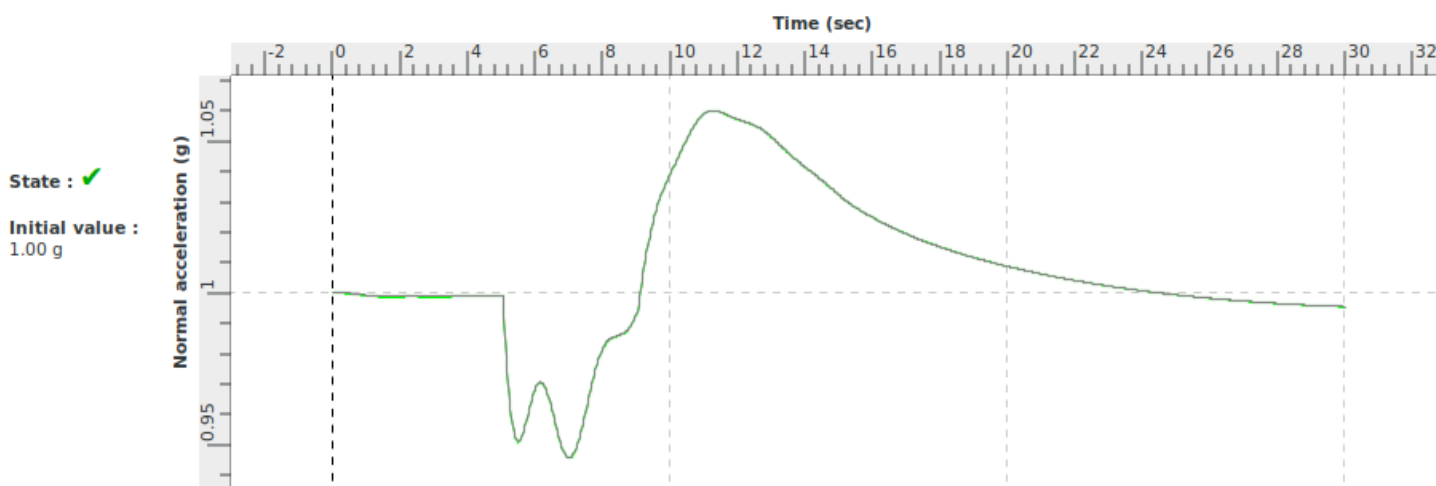
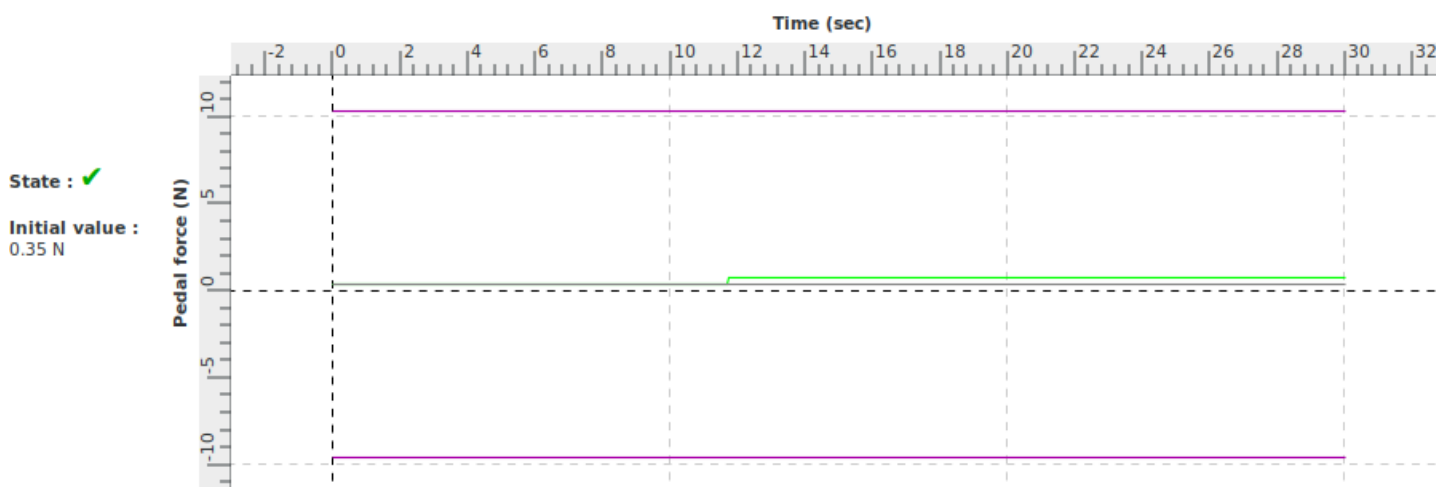
green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master



Title	Flaps change force during take-off (retraction)		
Id	2 c ii 2 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	04/02/24	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



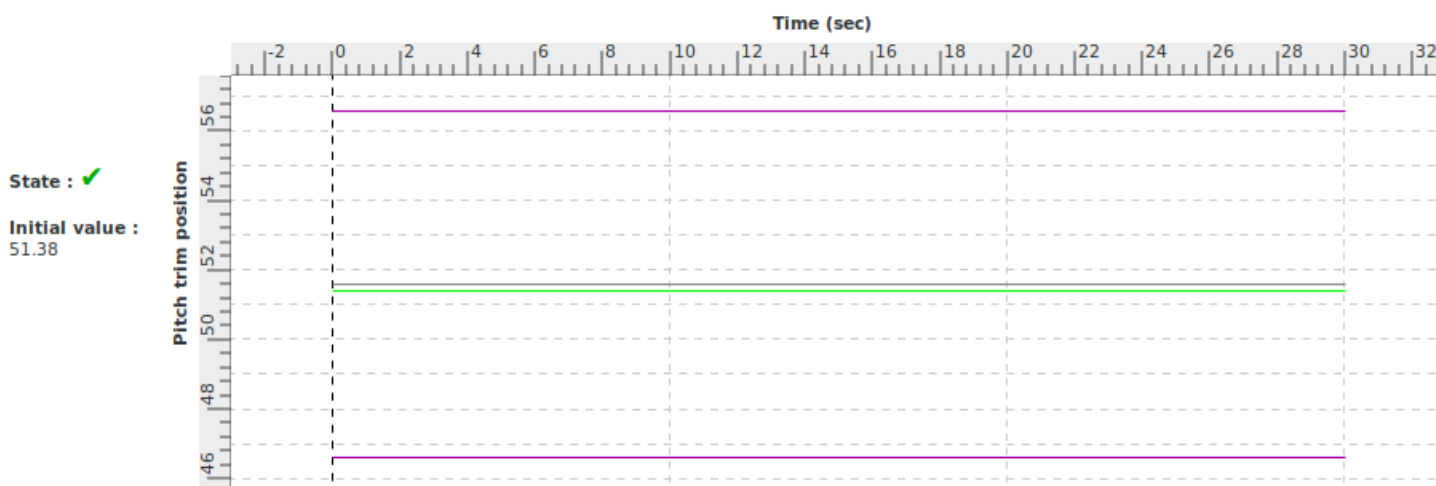
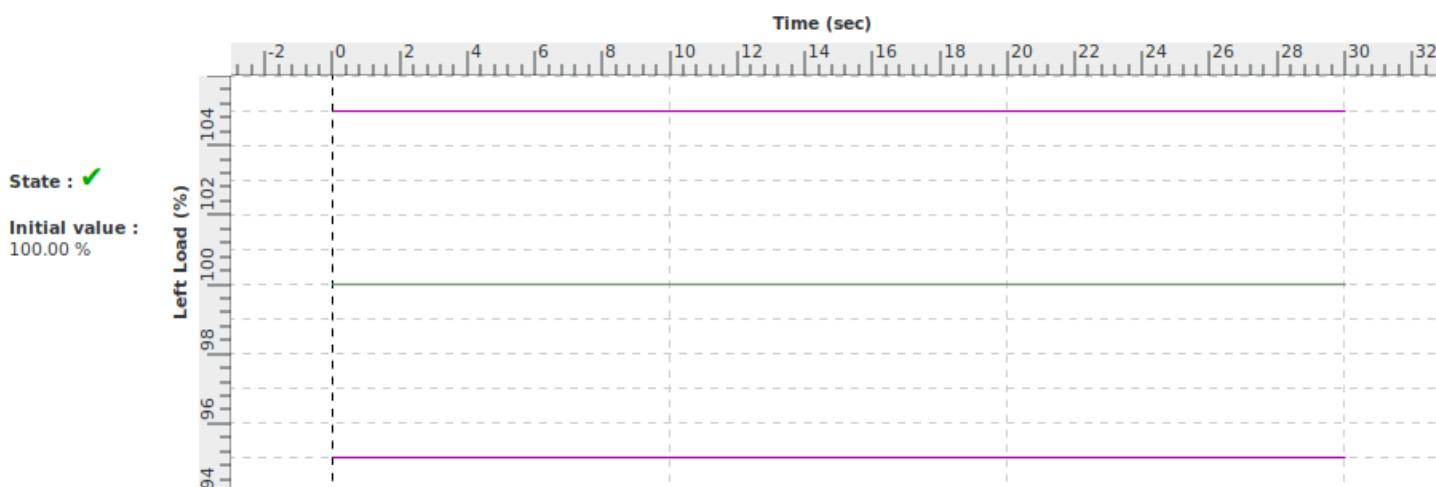
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master

Title	Flaps change force during take-off (retraction)		
Id	2 c ii 2 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	04/02/24	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



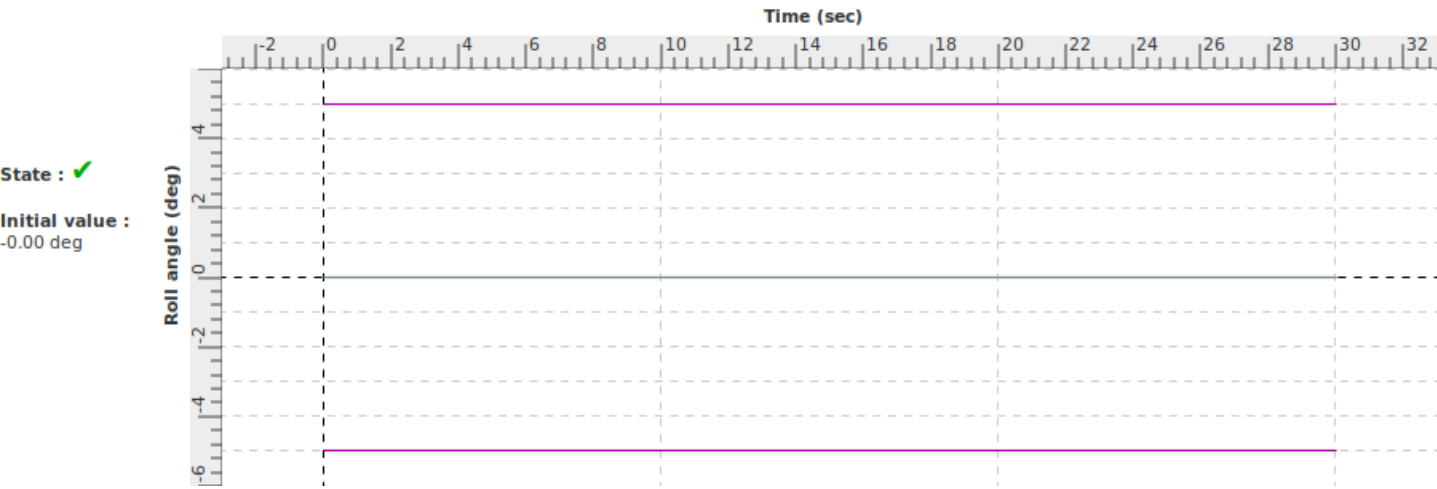
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master

Title	Flaps change force during take-off (retraction)		
Id	2 c ii 2 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	04/02/24	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



**Legend :**

green : results within tolerances    red : results out of tolerances  
blue : tolerances    violet : tolerances Alsim    grey : master

# VALIDATION TEST

<b>Title</b>	Flaps change force during approach (extension)		
<b>Id</b>	2 c ii 2 b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the the force change due to flap extension during approach conforms to the class of aeroplanes	Maximum Increments : 1 N of Control force
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.c.ii.2.b	+/- 2,2 daN (5Lbs) or +/- 10% Force

<b>Demonstration procedure</b>	From steady approach initial conditions, flaps are extended.
<b>Manual test procedure</b>	Without trimming or power settings change, pilot maintains constant flight path angle. When the approach is stabilised, the pilot sets the flaps from position 1 to position 2, maintaining the same rate of descent using control column.
<b>Automatic test procedure</b>	2 c ii 2 b

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

<b>Title</b>	Flaps change force during approach (extension)		
<b>Id</b>	2 c ii 2 b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Autopilot mode</b>	AUTO_VZ
<p>Automatic IAS (airspeed) and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and IAS. Roll Trim is computed to maintain 0° bank angle.</p>	

<b>Initial parameters</b>	DESCENT_FLAPS_APP
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 3000 Vertical speed (ft/min) : -450 (free) IAS (kt) : 90 Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : -2 Pedal Position (%) : 0 Column Position (%) : 44 Wheel Position (%) : 0	Flaps lever position : 1 Gear lever position : 1 Left Load (%) : 30 Right Load (%) : 30 Left RPM : 1930 Right RPM : 1930

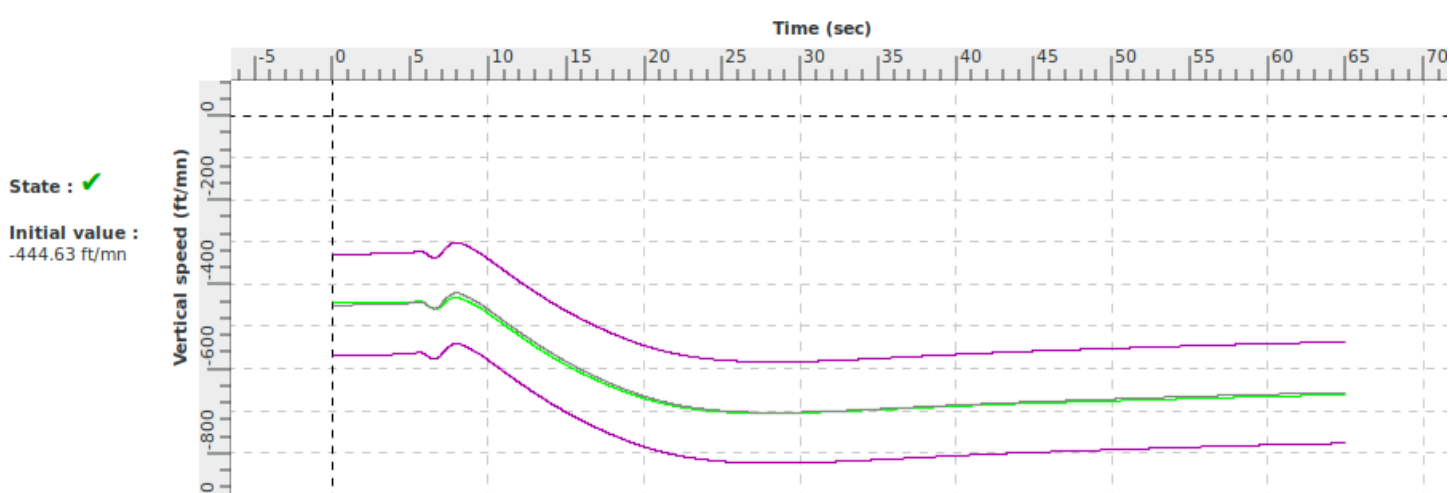
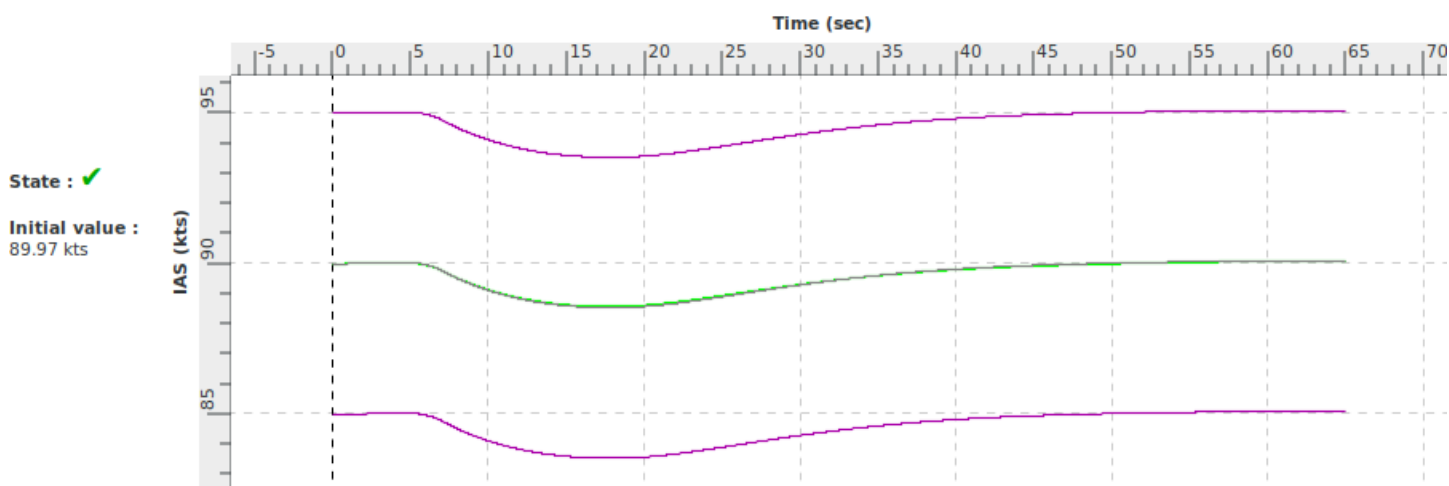
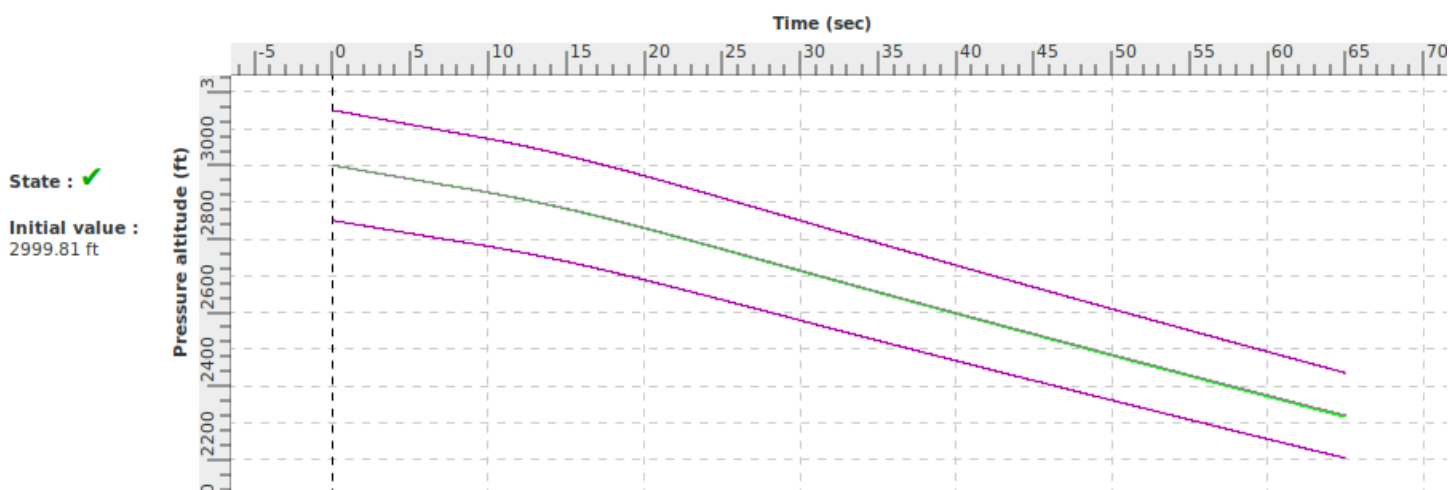
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
5.0	Flaps	2.0	Move the flaps lever to the desired position
65.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Flaps change force during approach (extension)		
<b>Id</b>	2 c ii 2 b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

Log of Revision		
Rev. Nbr	Date	Reason for revision

Notes

Title	Flaps change force during approach (extension)		
Id	2 c ii 2 b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	14/06/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



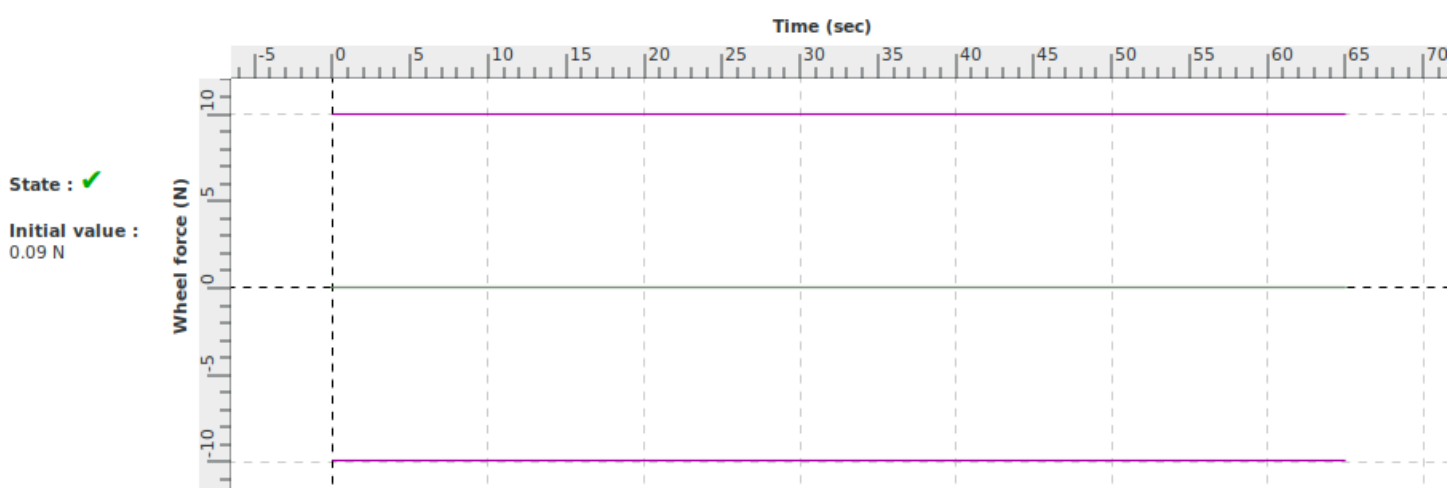
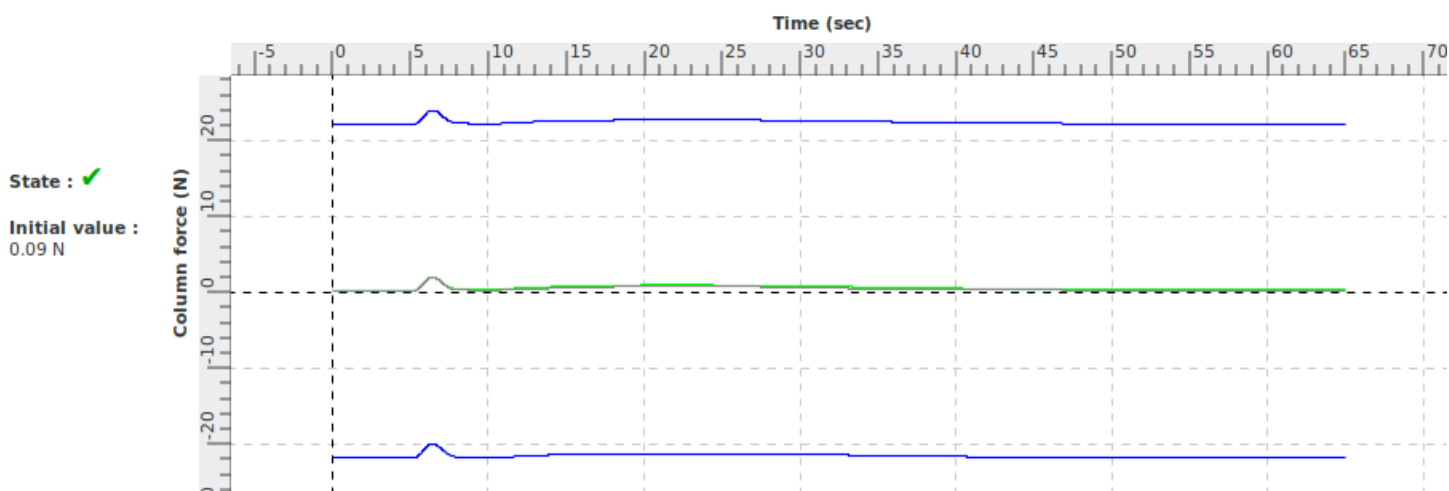
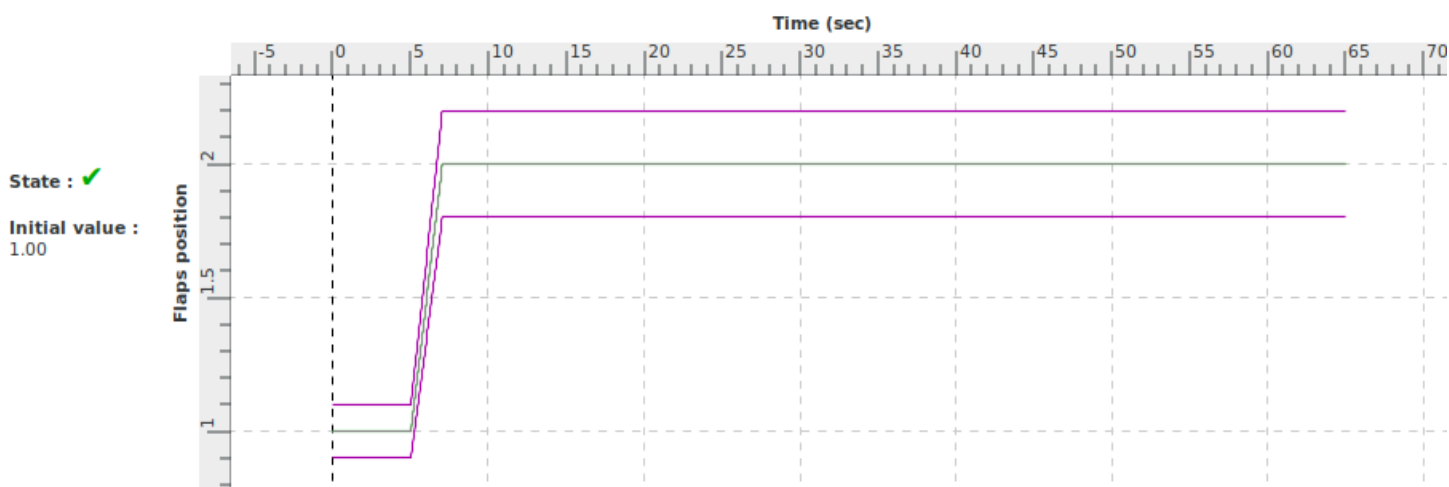
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Flaps change force during approach (extension)		
Id	2 c ii 2 b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	14/06/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

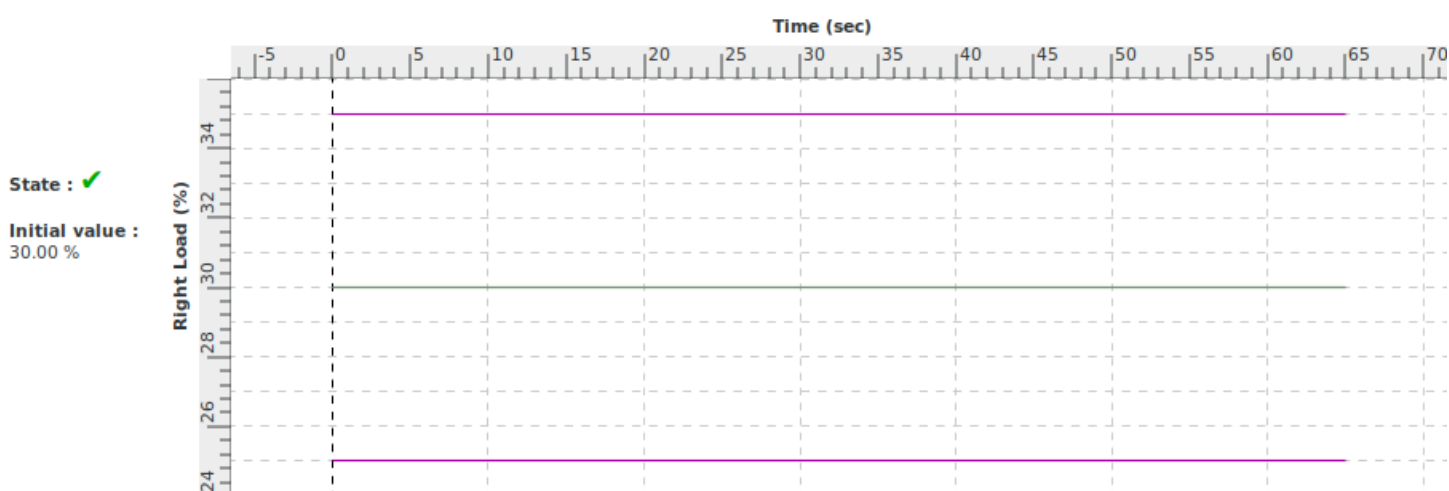
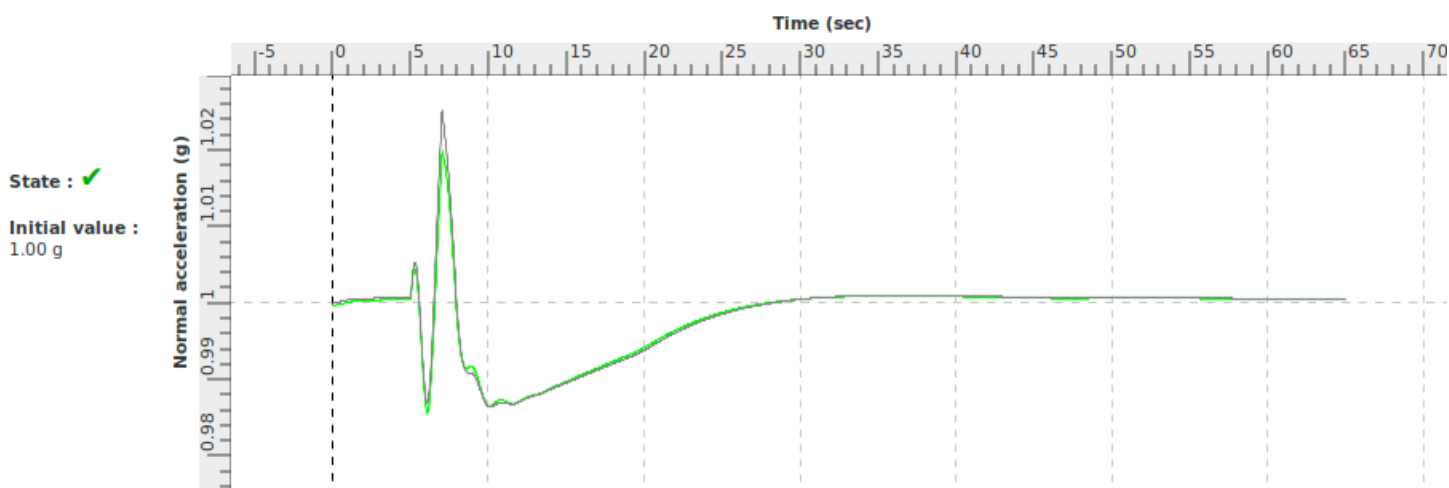
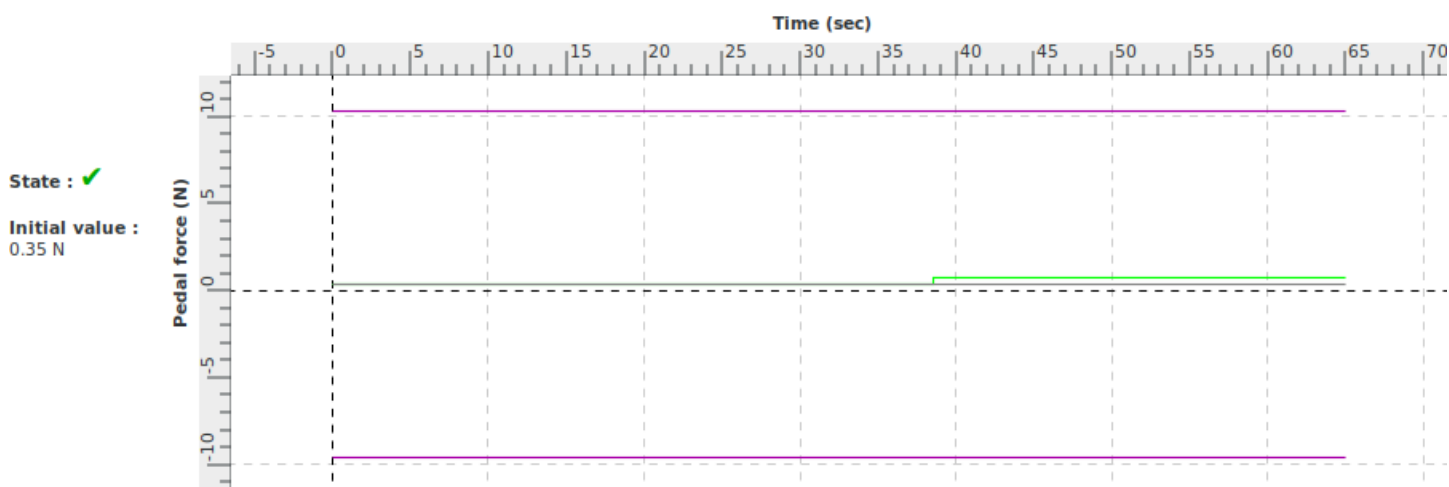
green : results within tolerances  
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red : results out of tolerances  
violet : tolerances Alsिम

grey : master



Title	Flaps change force during approach (extension)		
Id	2 c ii 2 b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	14/06/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



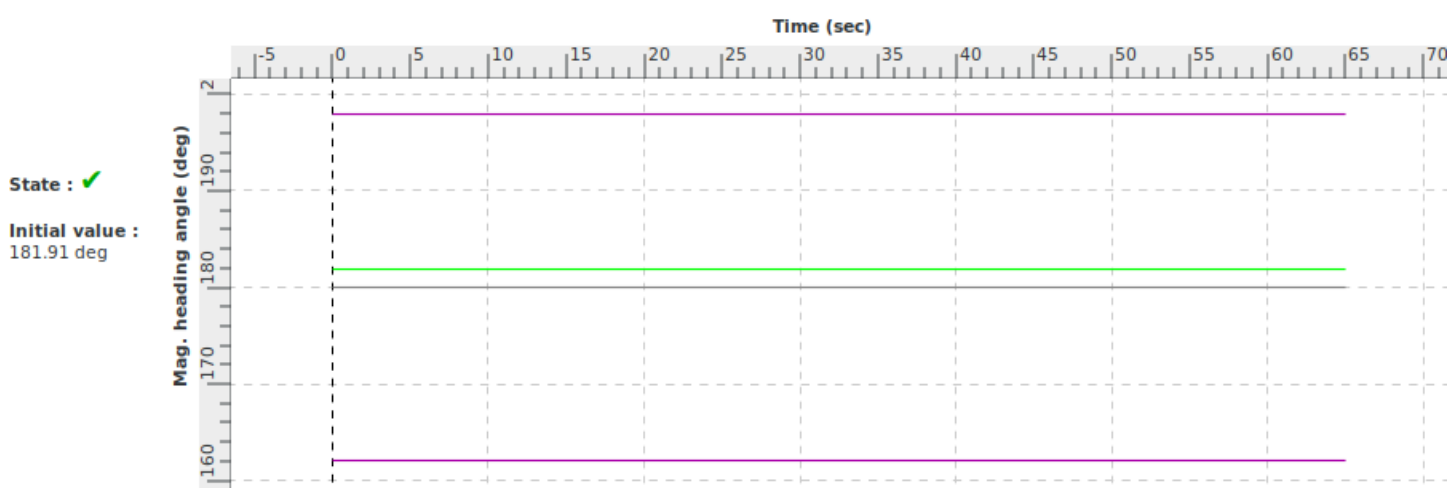
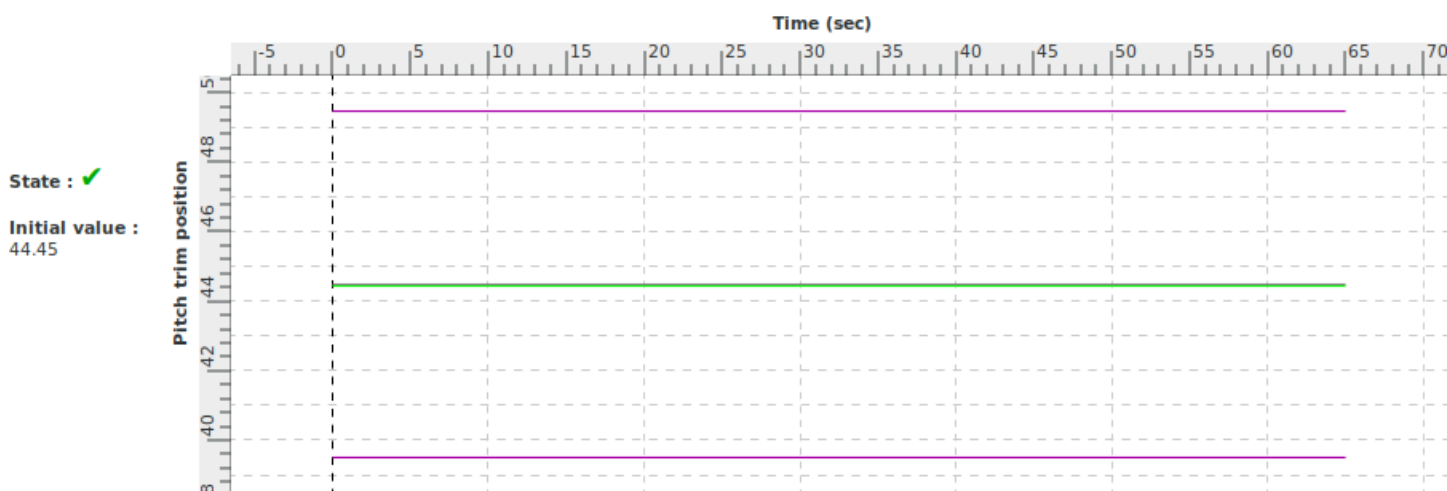
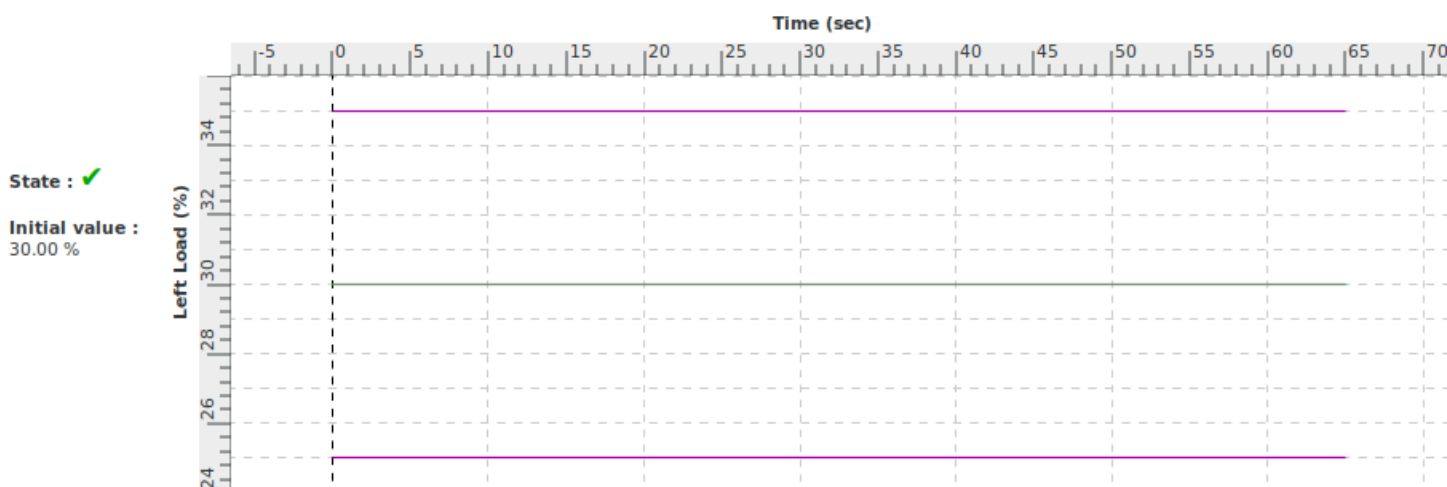
### Legend :

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violet : tolerances Alsim

grey : master

Title	Flaps change force during approach (extension)		
Id	2 c ii 2 b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	14/06/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



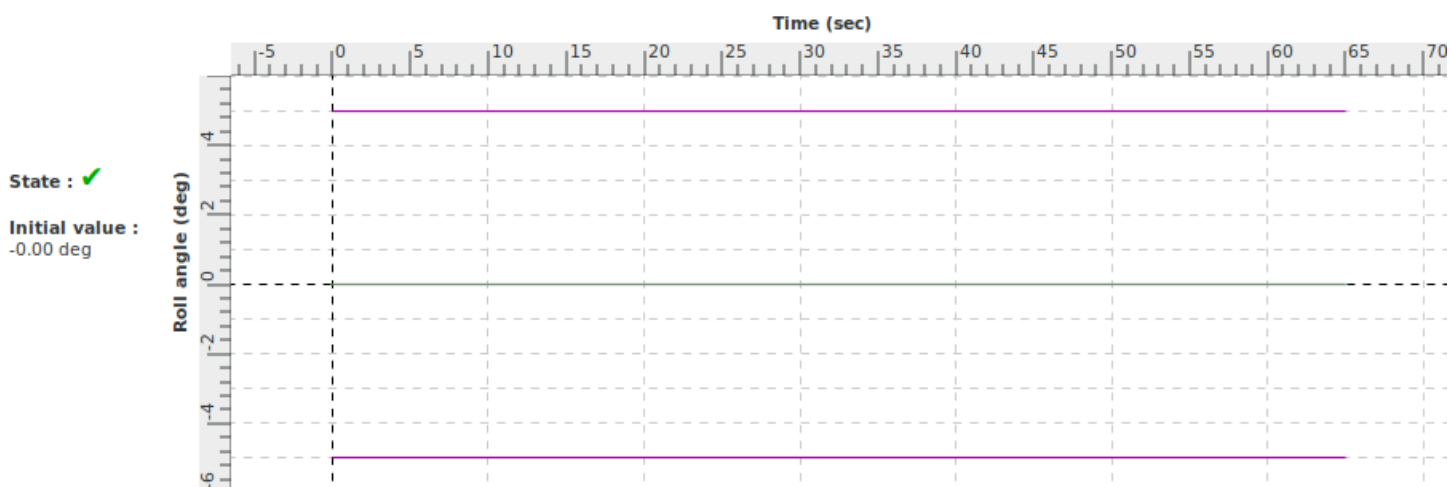
### Legend :

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blue : tolerances

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violet : tolerances Alsim

grey : master

Title	Flaps change force during approach (extension)		
Id	2 c ii 2 b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	14/06/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

# VALIDATION TEST

<b>Title</b>	Gear change dynamics during take-off (retraction)		
<b>Id</b>	2 c iv 1 a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the dynamics response to a landing gear retraction during take-off conforms to the class of aeroplanes	<p>Increments (from configuration change to 20s after):</p> <p>Airspeed: -1 Kts</p> <p>Pitch Angle: +0.9 deg</p> <p>Altitude: +480 ft</p>
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.c.iv.1.a	<p>Airspeed +/- 3 kt</p> <p>Altitude +/- 100 ft</p> <p>Pitch +/- 2° or +/- 20%</p>

<b>Demonstration procedure</b>	From steady take-off initial conditions, gear is retracted.
<b>Manual test procedure</b>	The aircraft is trimmed at take-off flight condition. Then, the pilot releases the controls and sets the gear down (1) to up (0), and allows the airplane to respond freely.
<b>Automatic test procedure</b>	2 c iv 1 a

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

Title	Gear change dynamics during take-off (retraction)		
Id	2 c iv 1 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Qualification Level	FNPT2	Operator	AFTA
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902

Autopilot mode	AUTO_VZ
Automatic IAS (airspeed) and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and IAS. Roll Trim is computed to maintain 0° bank angle.	

Initial parameters	TAKE_OFF_GEARDWN
Gross weight (kg) : 1900	Flaps lever position : 1
Balance (%) : 50	Gear lever position : 1
Altitude (ft) : 2000	Left Load (%) : 100
Vertical speed (ft/min) : 1000 (free)	Right Load (%) : 100
IAS (kt) : 85	Left RPM : 2090
Heading (°) : 0 (free)	Right RPM : 2090
Bank (°) : 0	
Attitude (°) : 13	
Pedal Position (%) : 0	
Column Position (%) : 41	
Wheel Position (%) : 0	

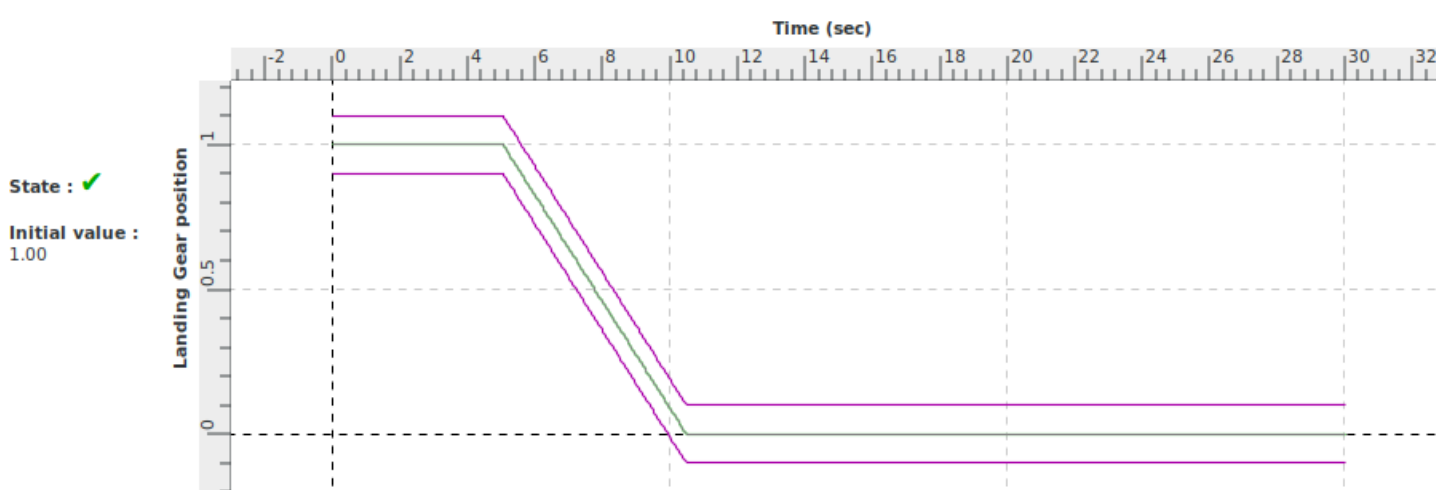
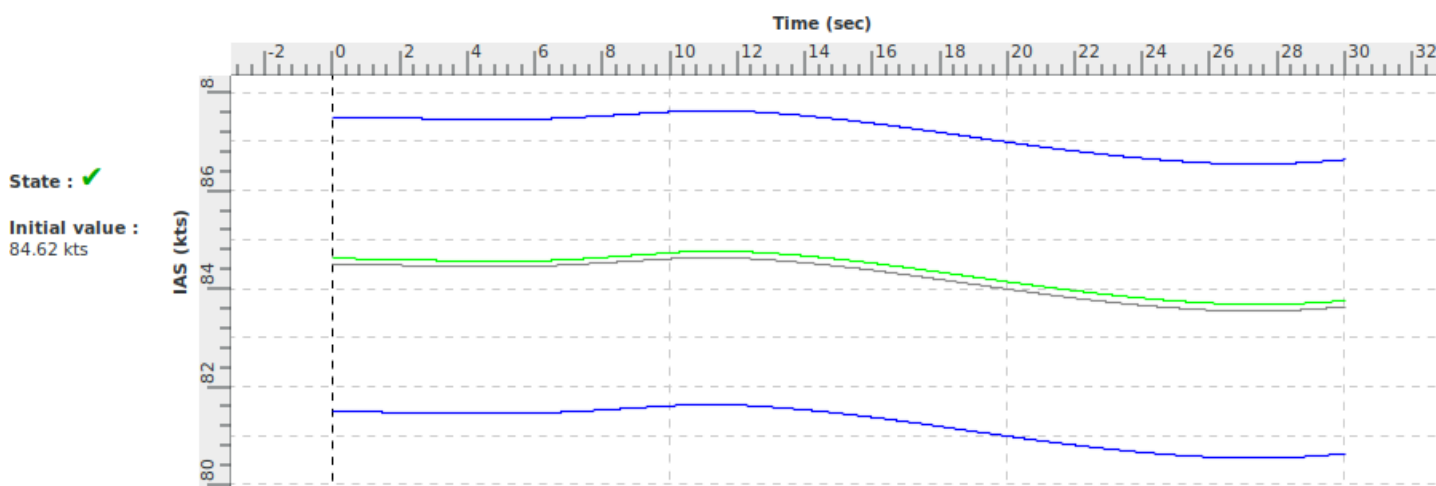
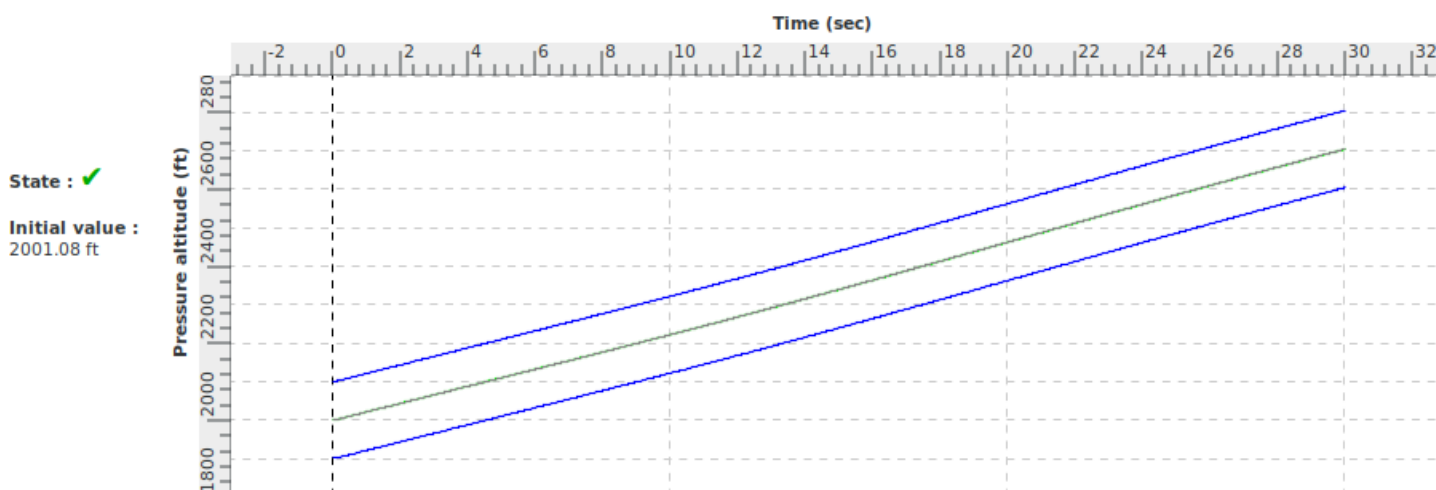
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
0.0	deconnectionPA_att	0.0	disable QTG Autopilot in attitude axis
0.0	deconnectionPA_roll	0.0	disable QTG Autopilot in roll axis
0.0	deconnectionPA_rudder	0.0	disable QTG Autopilot in yaw axis
5.0	Gear	0.0	Move the gear lever to the desired position
30.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Gear change dynamics during take-off (retraction)		
<b>Id</b>	2 c iv 1 a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

Log of Revision		
Rev. Nbr	Date	Reason for revision

Notes

Title	Gear change dynamics during take-off (retraction)		
Id	2 c iv 1 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



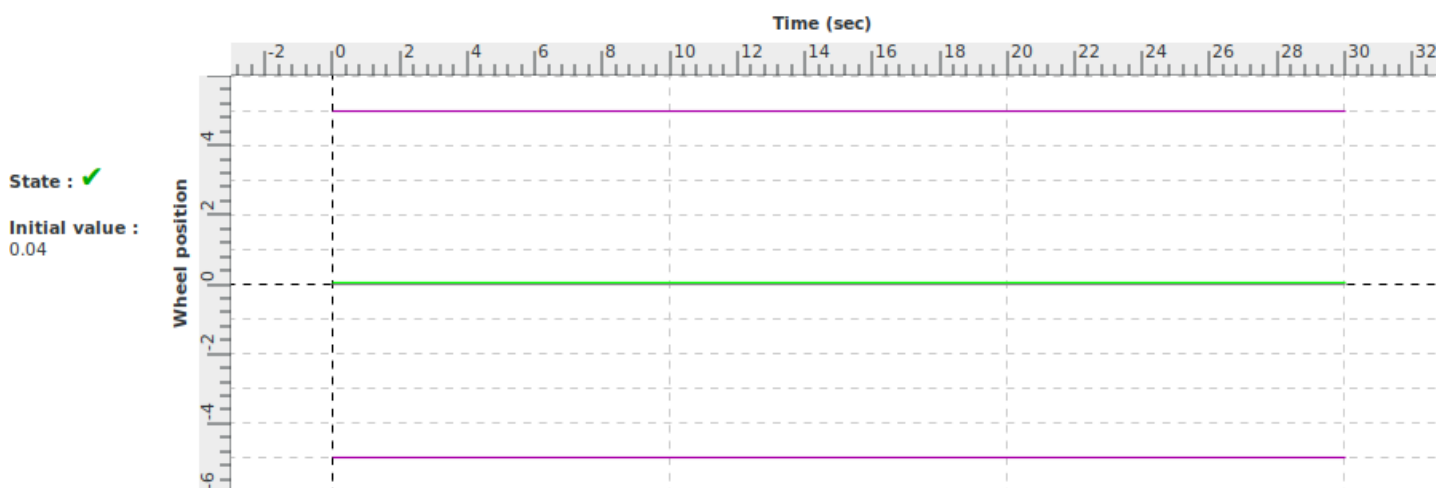
### Legend :

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blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Gear change dynamics during take-off (retraction)		
Id	2 c iv 1 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

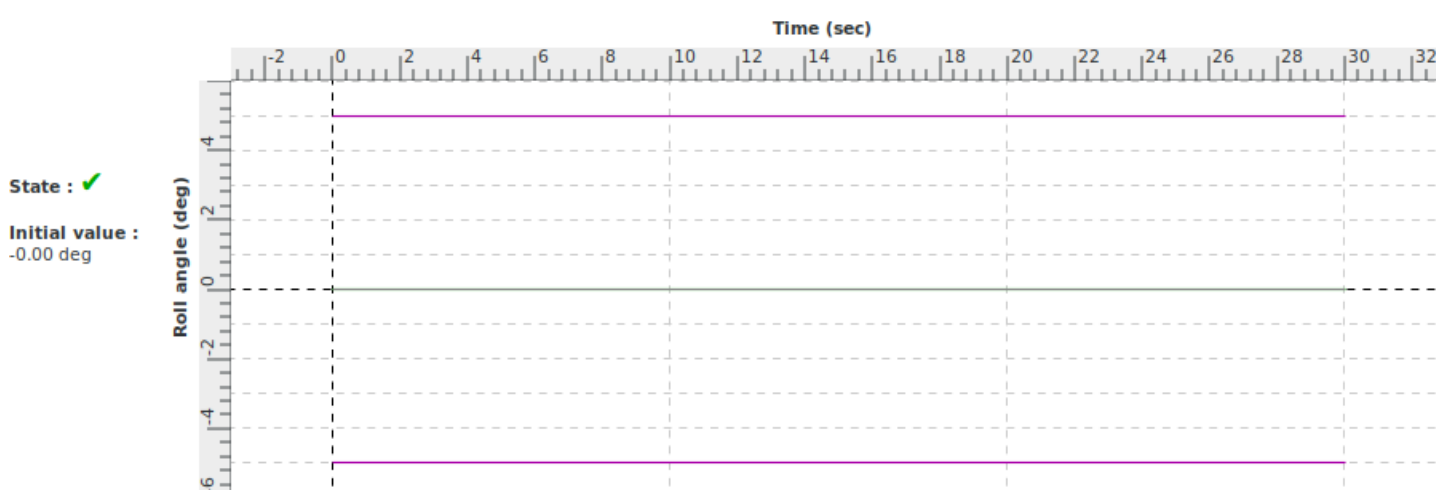
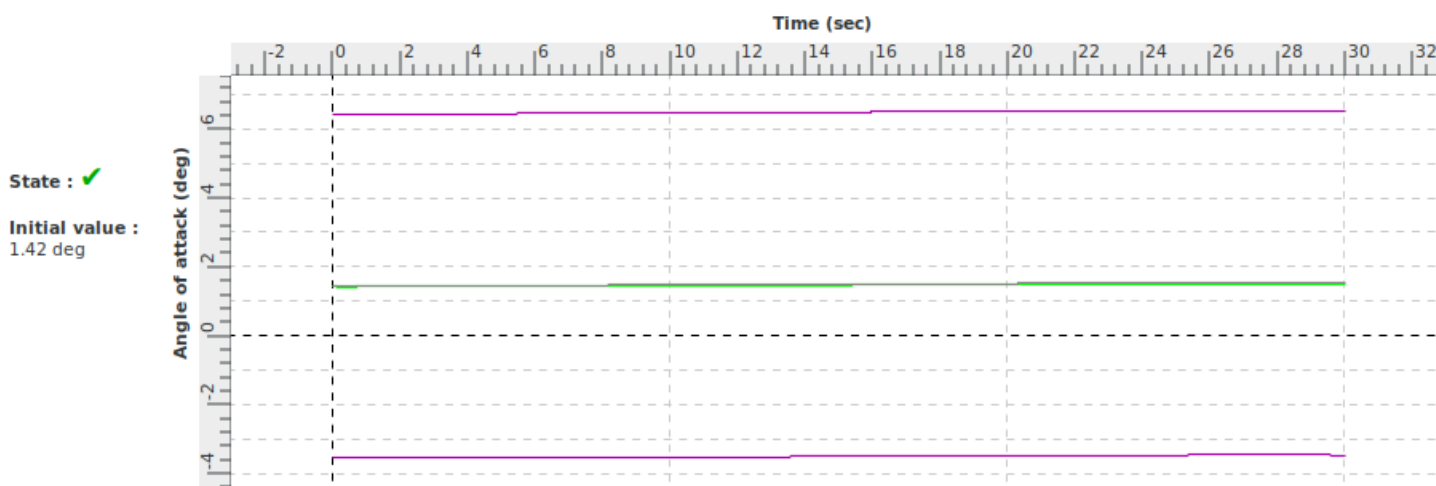
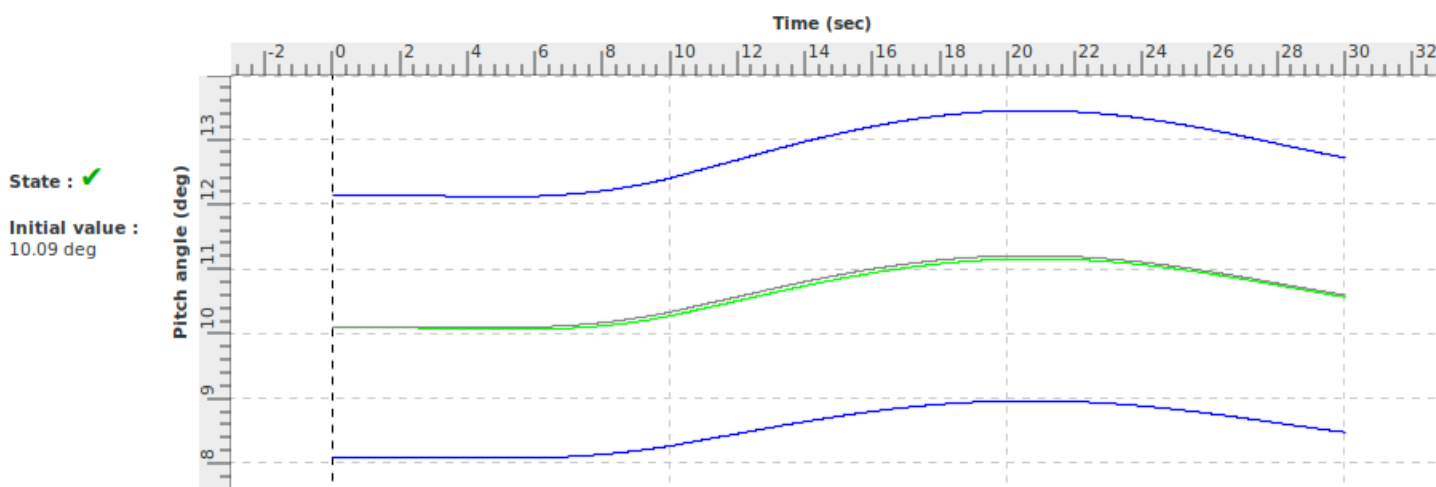
green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master



Title	Gear change dynamics during take-off (retraction)		
Id	2 c iv 1 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



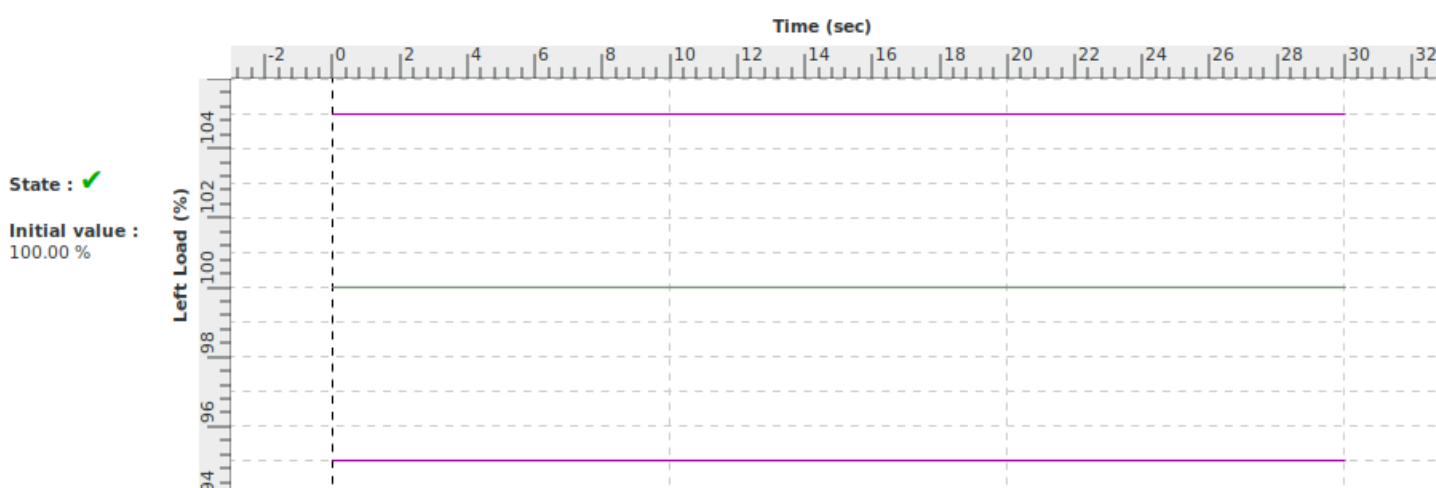
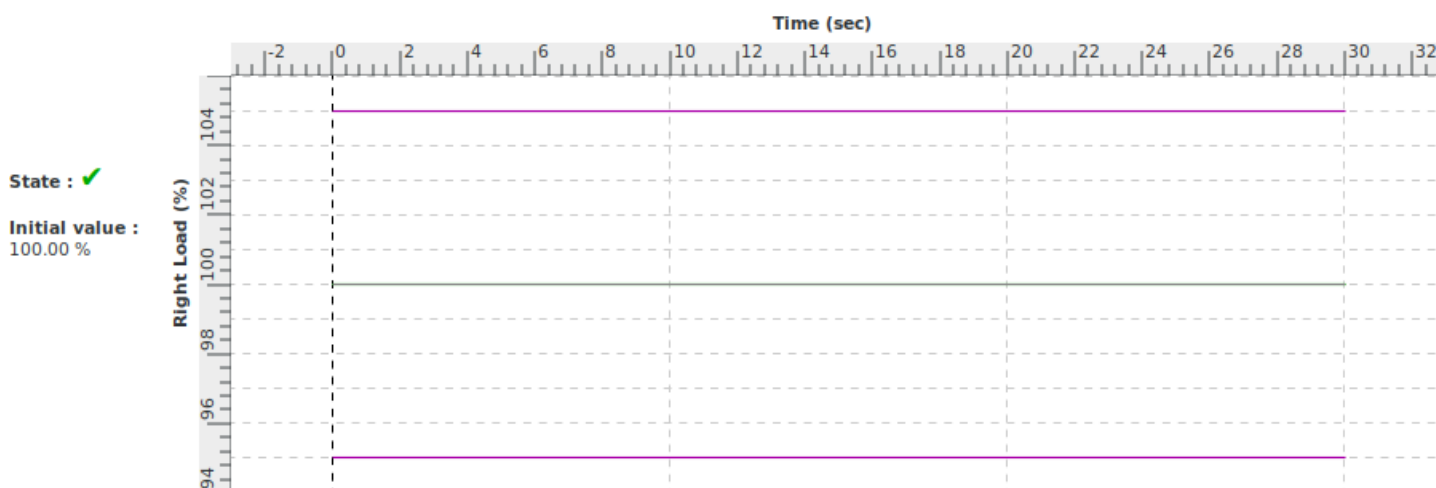
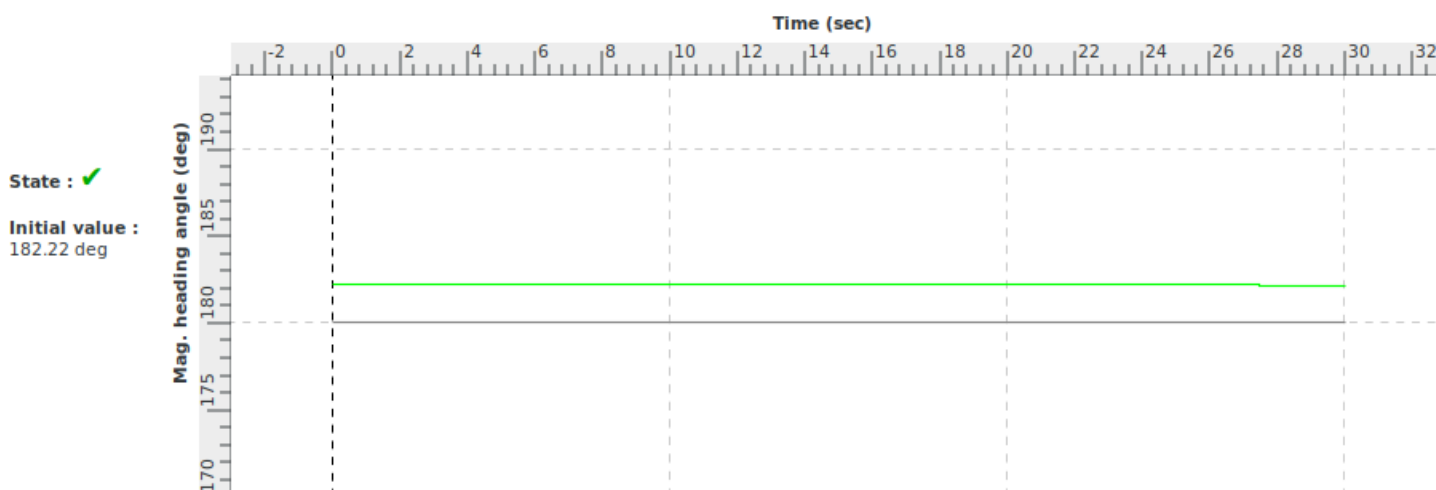
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Gear change dynamics during take-off (retraction)		
Id	2 c iv 1 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



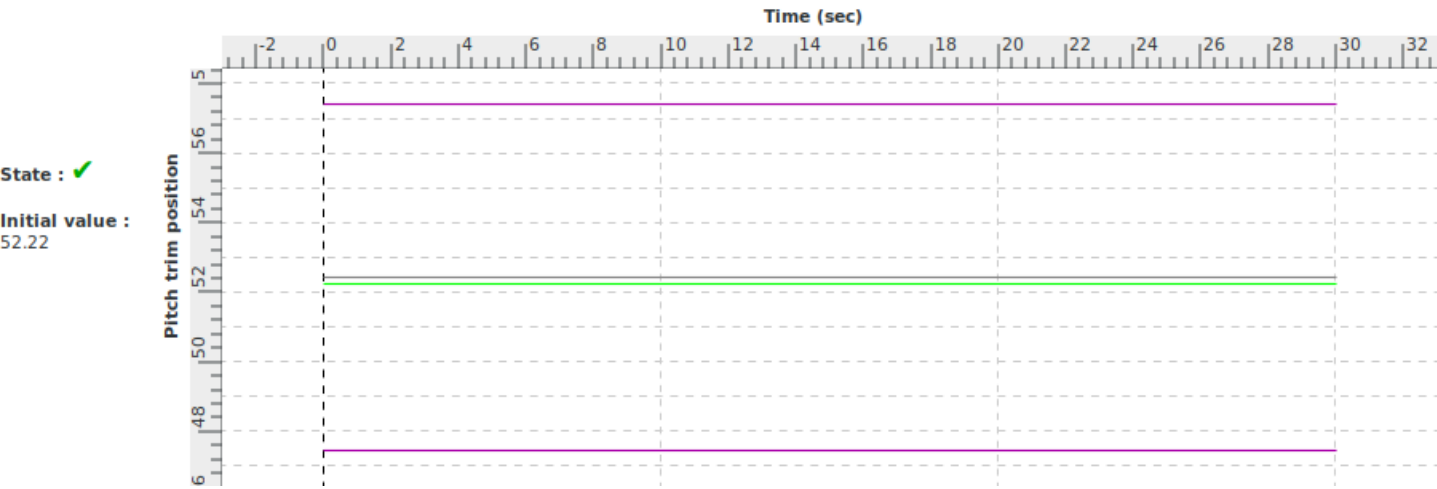
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Gear change dynamics during take-off (retraction)		
Id	2 c iv 1 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



Legend :

green : results within tolerances      red : results out of tolerances  
blue : tolerances      violet : tolerances Alsim      grey : master

# VALIDATION TEST

<b>Title</b>	Gear change dynamics during approach (extension)		
<b>Id</b>	2 c iv 1 b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the dynamics response to a landing gear extension during approach conforms to the class of aeroplanes	<p>Increments (from configuration change to 20s after):</p> <p>Airspeed: +2 Kts</p> <p>Pitch Angle: -0.3 deg</p> <p>Altitude: -60 ft</p>
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.c.iv.1.b	<p>Airspeed +/- 3 kt</p> <p>Altitude +/- 100 ft</p> <p>Pitch +/- 2° or +/- 20%</p>

<b>Demonstration procedure</b>	From steady approach initial conditions, gear is extended.
<b>Manual test procedure</b>	The aircraft is trimmed at approach flight condition. Then, the pilot releases the controls and sets the gear up (0) to down (1), and allows the airplane to respond freely.
<b>Automatic test procedure</b>	2 c iv 1 b

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

<b>Title</b>	Gear change dynamics during approach (extension)		
<b>Id</b>	2 c iv 1 b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Autopilot mode</b>	AUTO_VZ
<p>Automatic IAS (airspeed) and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and IAS. Roll Trim is computed to maintain 0° bank angle.</p>	

<b>Initial parameters</b>	HOLD_FLAPS_APP
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 3000 Vertical speed (ft/min) : 0 (free) IAS (kt) : 96 Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : 0 Pedal Position (%) : 0 Column Position (%) : 37 Wheel Position (%) : 0	Flaps lever position : 1 Gear lever position : 0 Left Load (%) : 55 Right Load (%) : 55 Left RPM : 2040 Right RPM : 2040

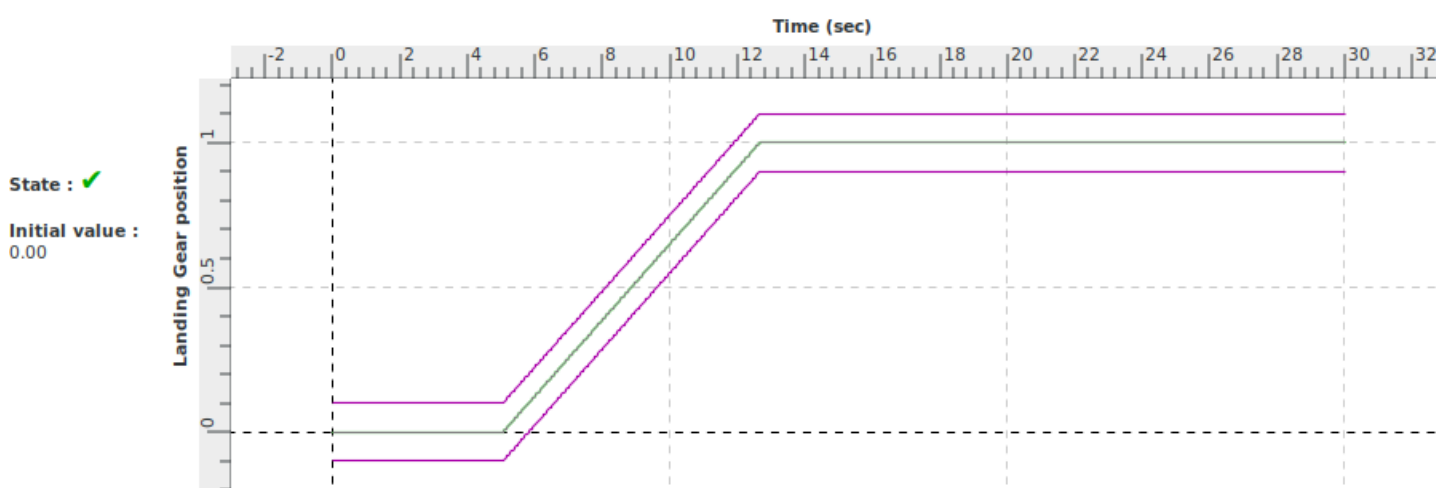
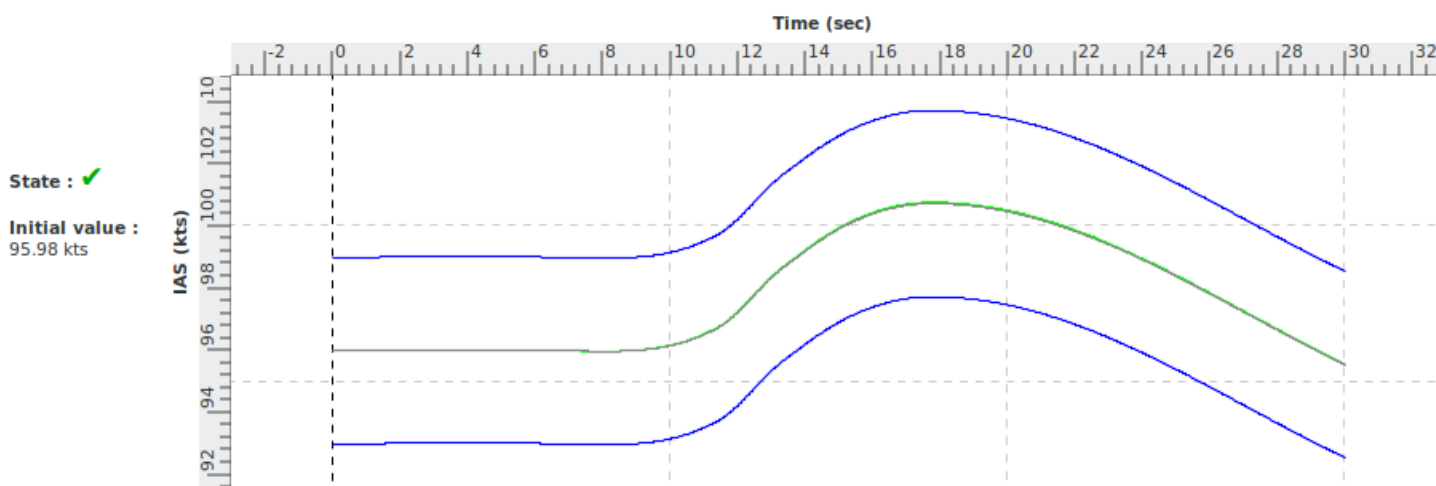
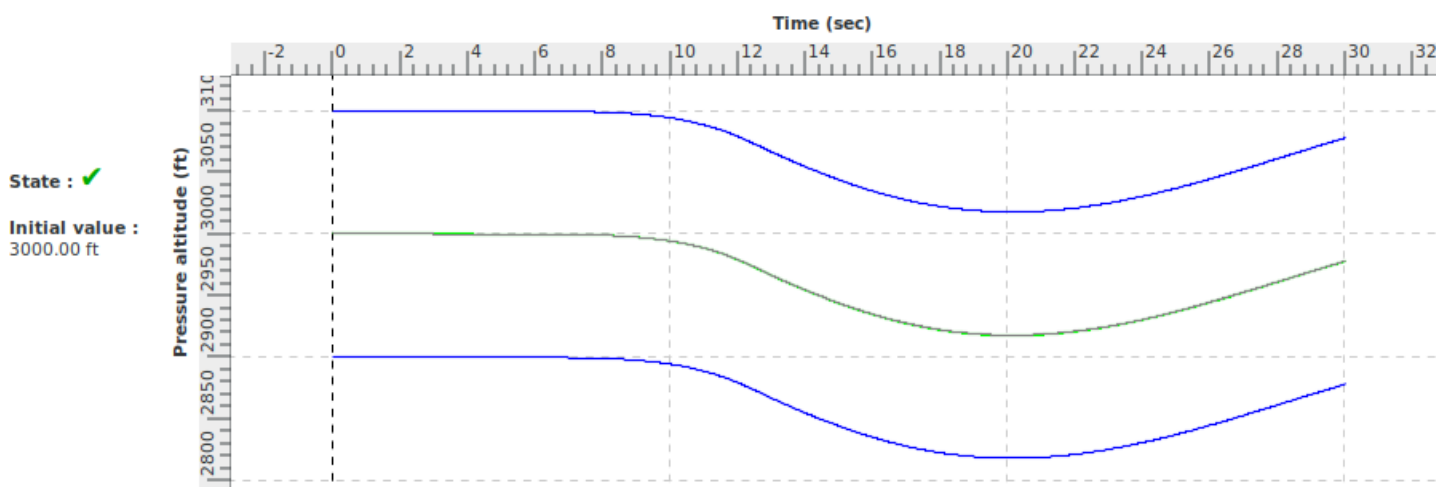
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
0.0	deconnectionPA_att	0.0	disable QTG Autopilot in attitude axis
0.0	deconnectionPA_roll	0.0	disable QTG Autopilot in roll axis
0.0	deconnectionPA_rudder	0.0	disable QTG Autopilot in yaw axis
5.0	Gear	1.0	Move the gear lever to the desired position
30.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Gear change dynamics during approach (extension)		
<b>Id</b>	2 c iv 1 b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

Log of Revision		
Rev. Nbr	Date	Reason for revision

Notes

Title	Gear change dynamics during approach (extension)		
Id	2 c iv 1 b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



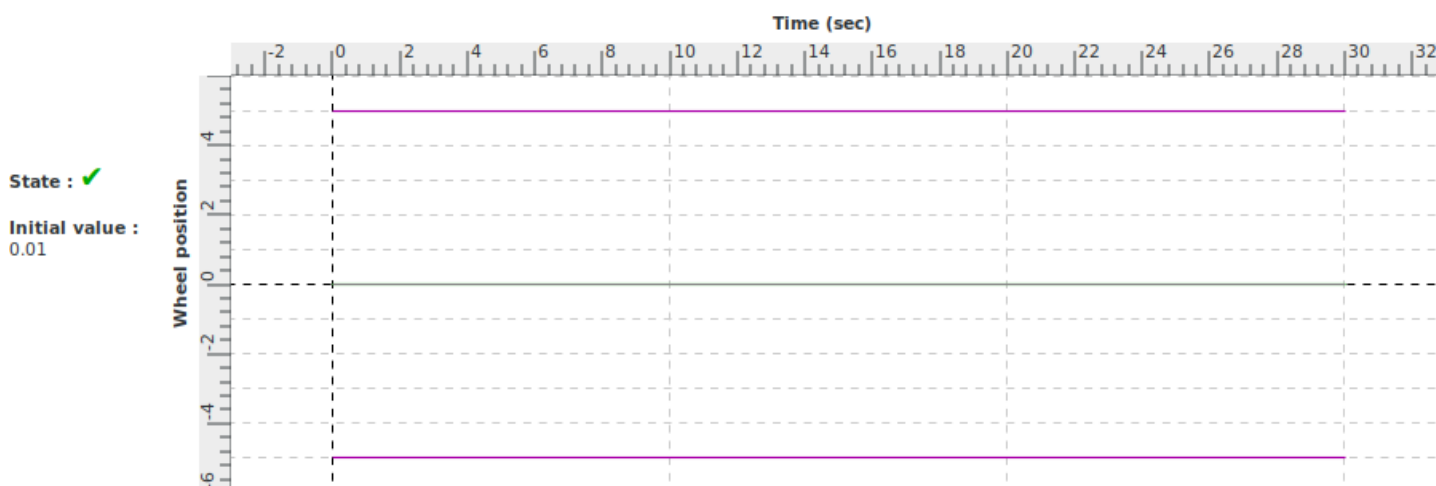
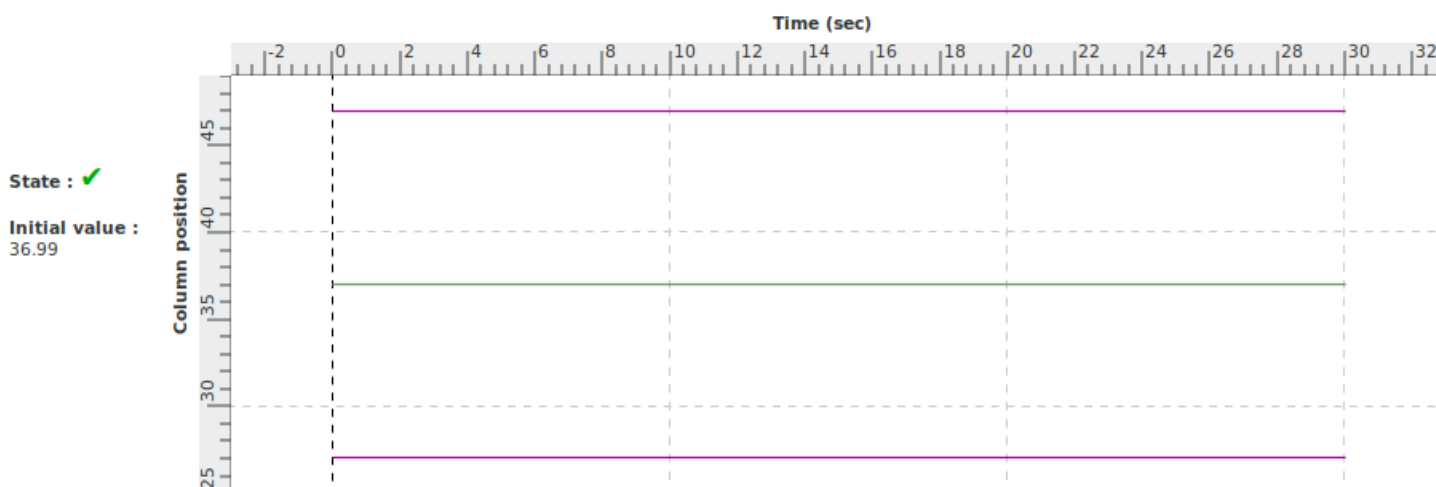
#### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Gear change dynamics during approach (extension)		
Id	2 c iv 1 b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

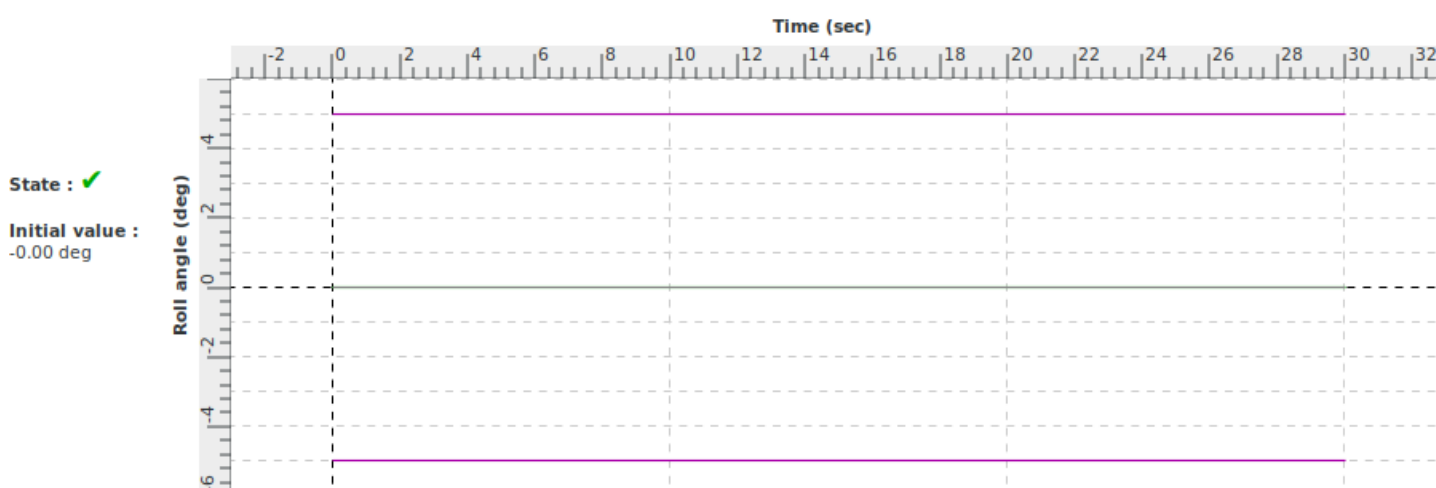
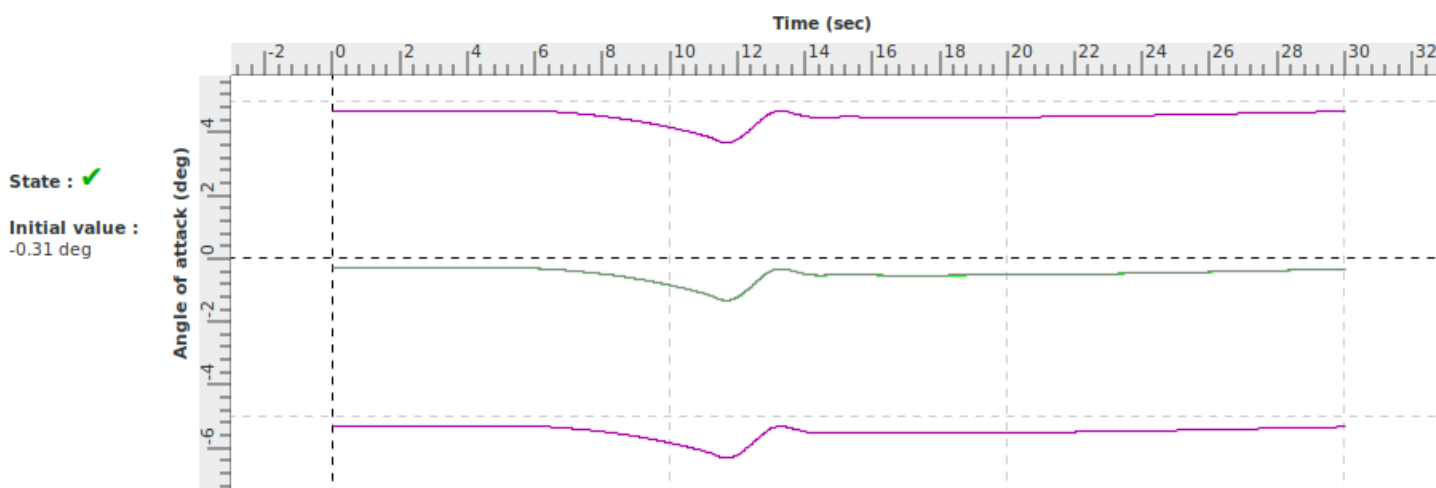
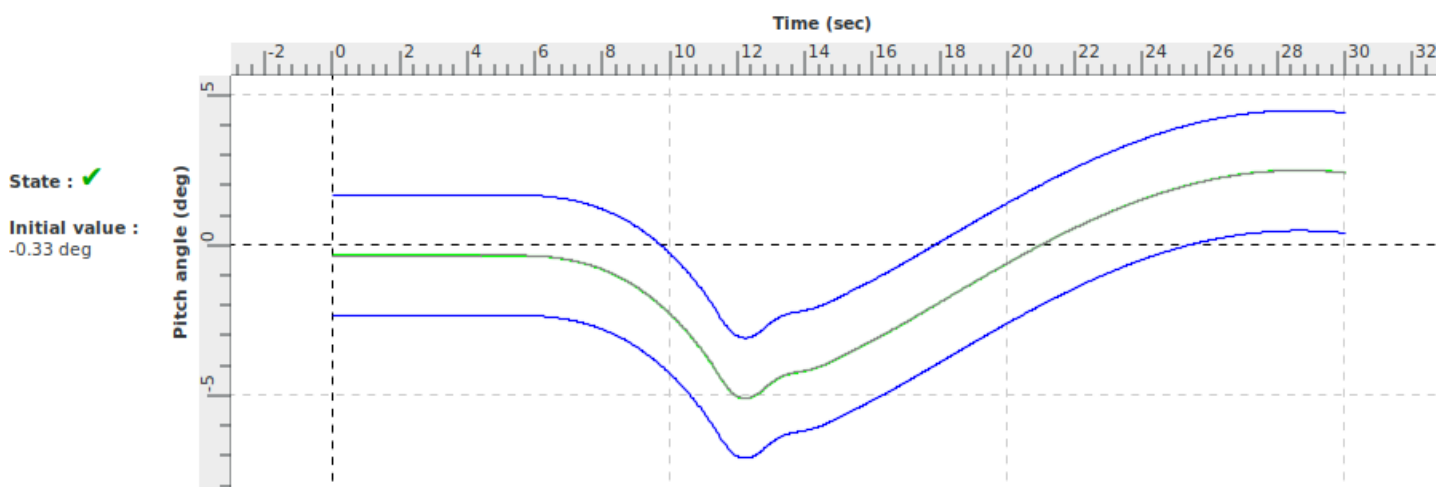
green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master



Title	Gear change dynamics during approach (extension)		
Id	2 c iv 1 b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



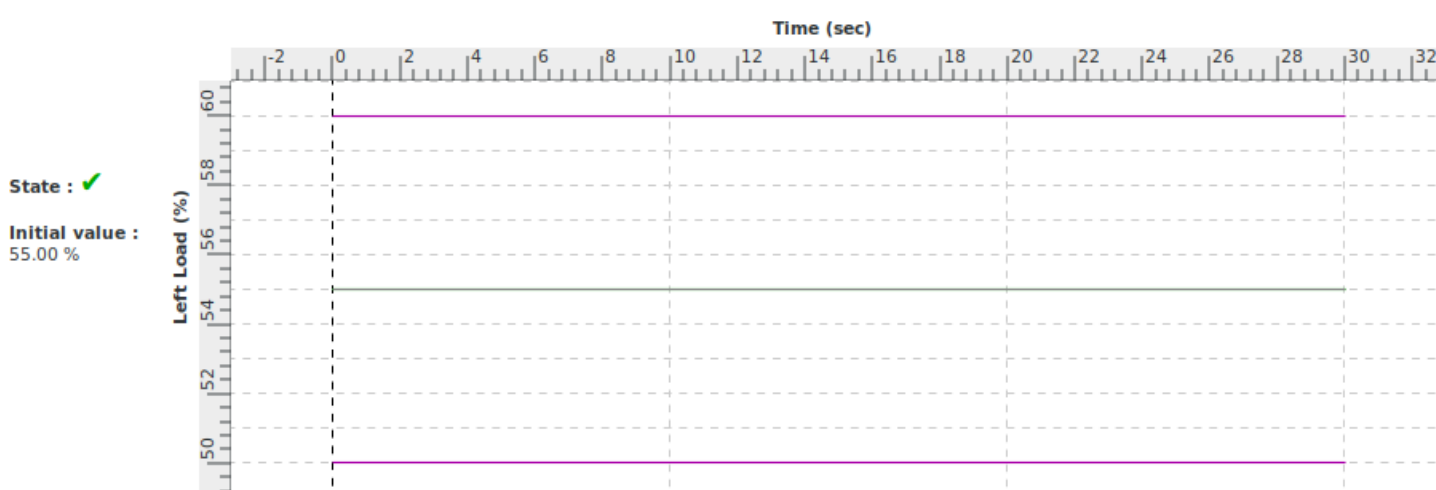
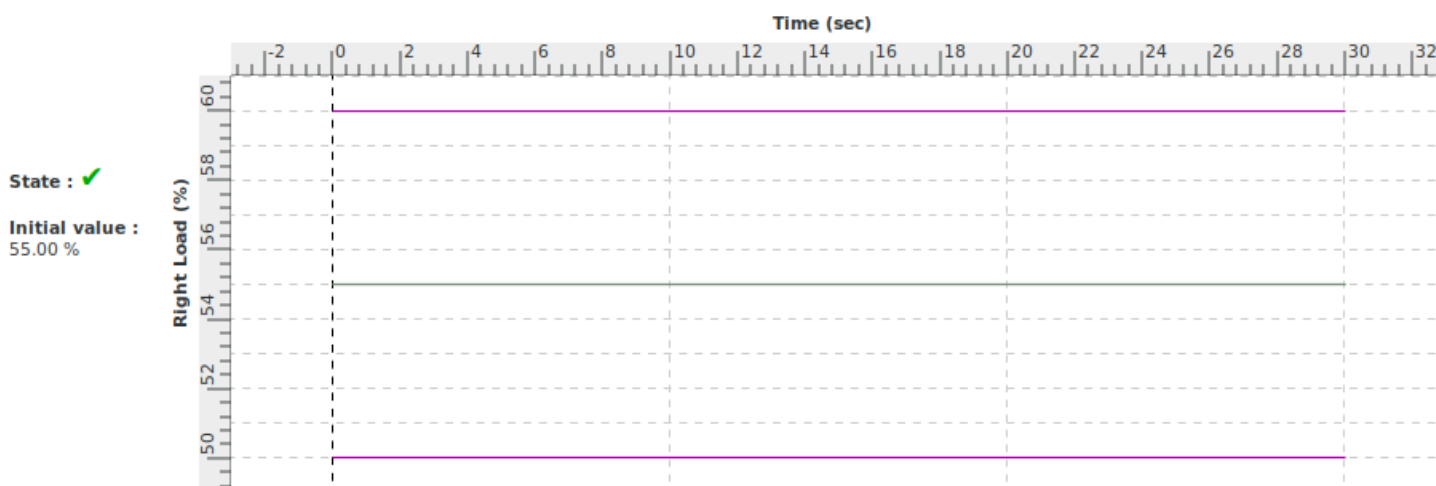
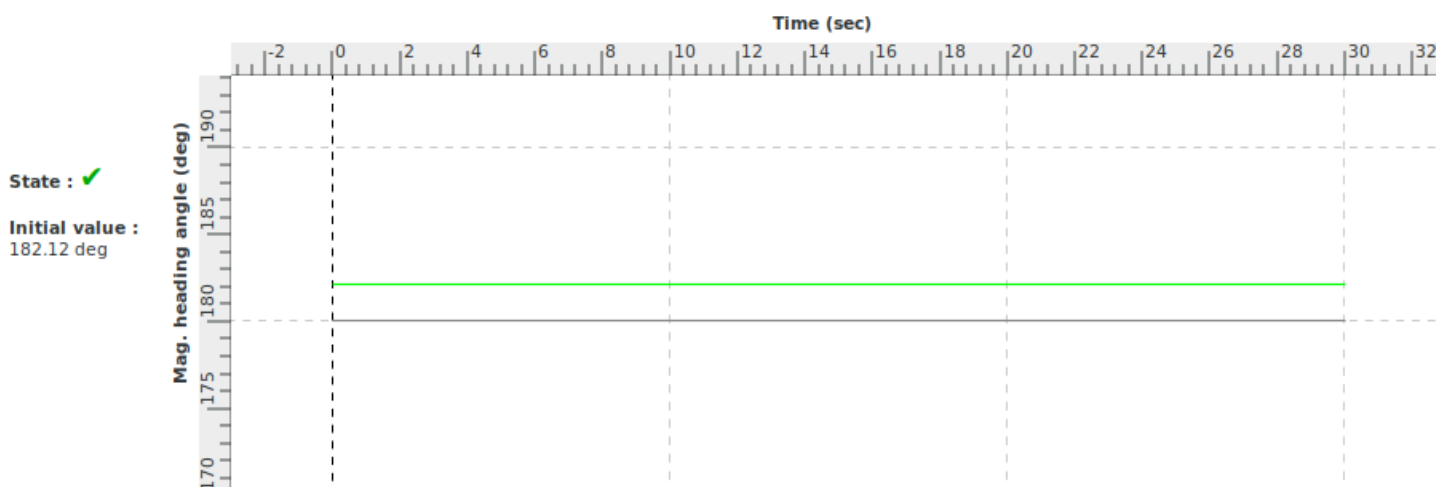
### Legend :

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blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Gear change dynamics during approach (extension)		
Id	2 c iv 1 b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



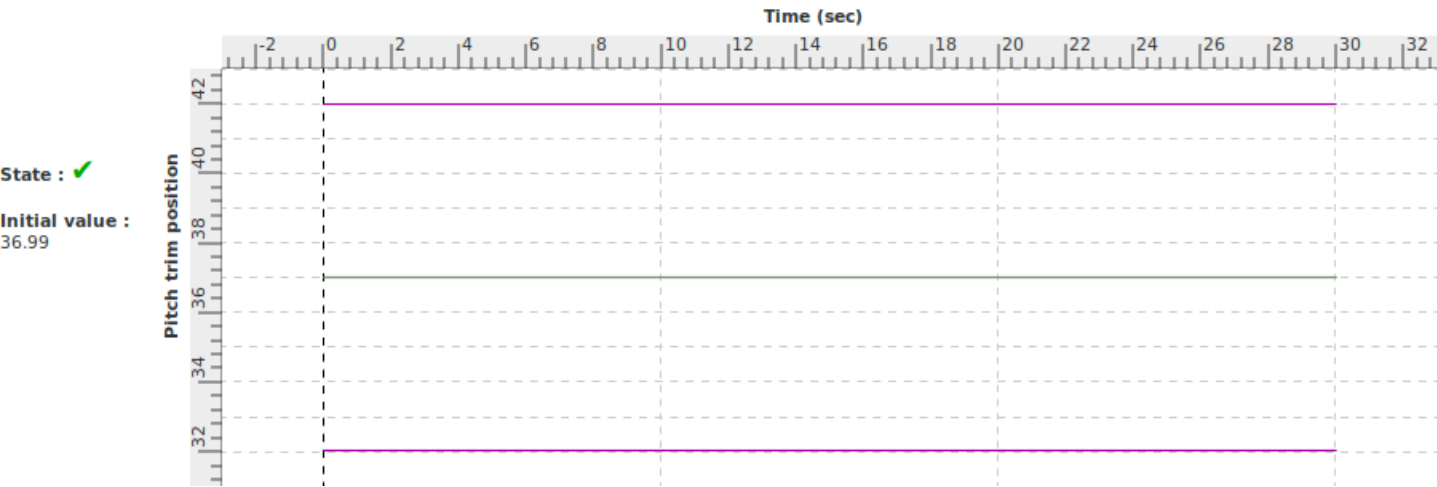
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Gear change dynamics during approach (extension)		
Id	2 c iv 1 b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



**Legend :**

green : results within tolerances      red : results out of tolerances  
blue : tolerances      violet : tolerances Alsim      grey : master

# VALIDATION TEST

<b>Title</b>	Gear change force during take-off (retraction)		
<b>Id</b>	2 c iv 2 a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	04/02/24	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the force response to a landing gear retraction during take-off conforms to the class of aeroplanes	Maximum Increments: -0.7 N of Control force
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.c.iv.2.a	+/- 2,2 daN (5Lbs) +/- or 20% Force

<b>Demonstration procedure</b>	From steady take-off initial conditions, gear is retracted.
<b>Manual test procedure</b>	The aircraft is trimmed at take-off flight condition. Then, the pilot sets the gear from down (1) to up (0), maintaining the same rate of climb using control column.
<b>Automatic test procedure</b>	2 c iv 2 a

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

Title	Gear change force during take-off (retraction)		
Id	2 c iv 2 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Qualification Level	FNPT2	Operator	AFTA
Result Date	04/02/24	Master Date	01/03/19
Result Load	2012.01	Master Load	1902

Autopilot mode	AUTO_VZ
Automatic IAS (airspeed) and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and IAS. Roll Trim is computed to maintain 0° bank angle.	

Initial parameters	TAKE_OFF_GEARDWN
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 2000 Vertical speed (ft/min) : 1000 (free) IAS (kt) : 85 Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : 13 Pedal Position (%) : 0 Column Position (%) : 41 Wheel Position (%) : 0	Flaps lever position : 1 Gear lever position : 1 Left Load (%) : 100 Right Load (%) : 100 Left RPM : 2090 Right RPM : 2090

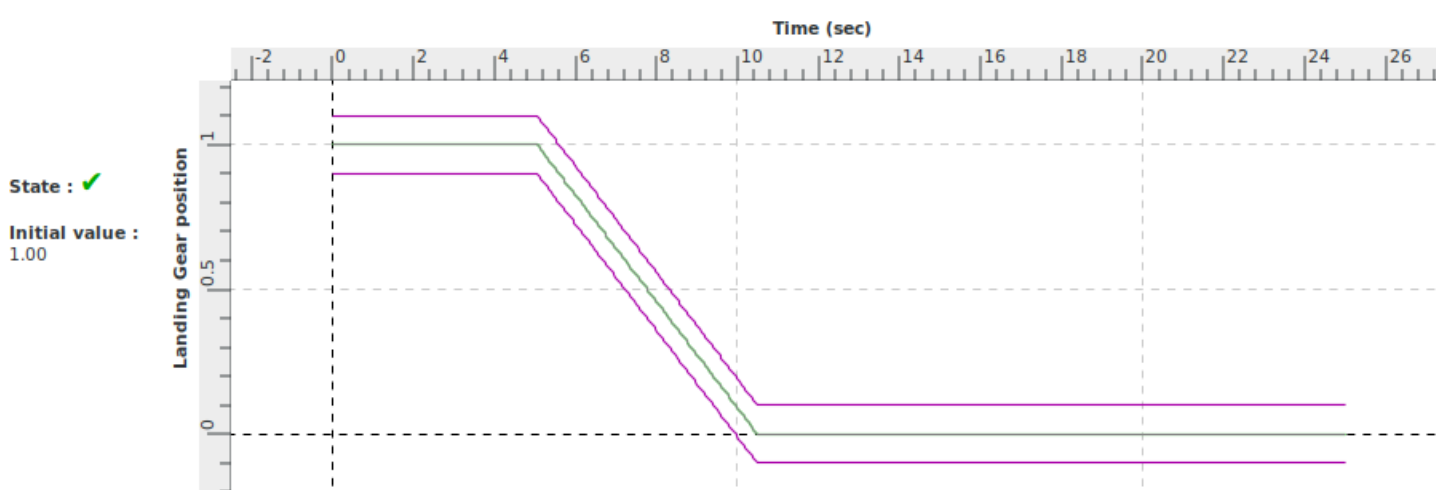
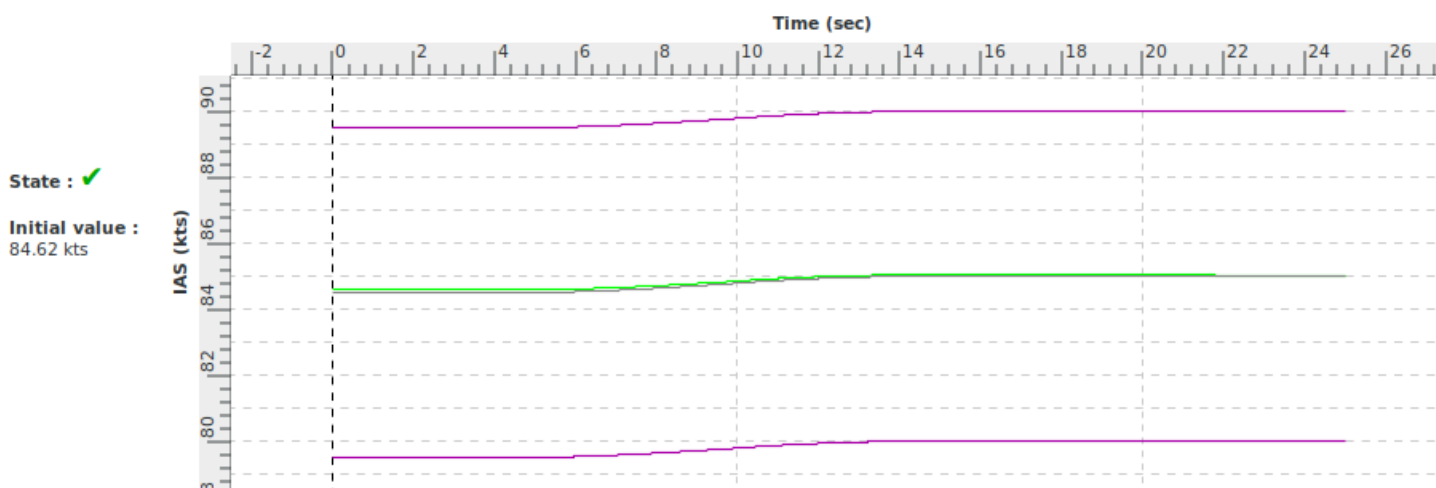
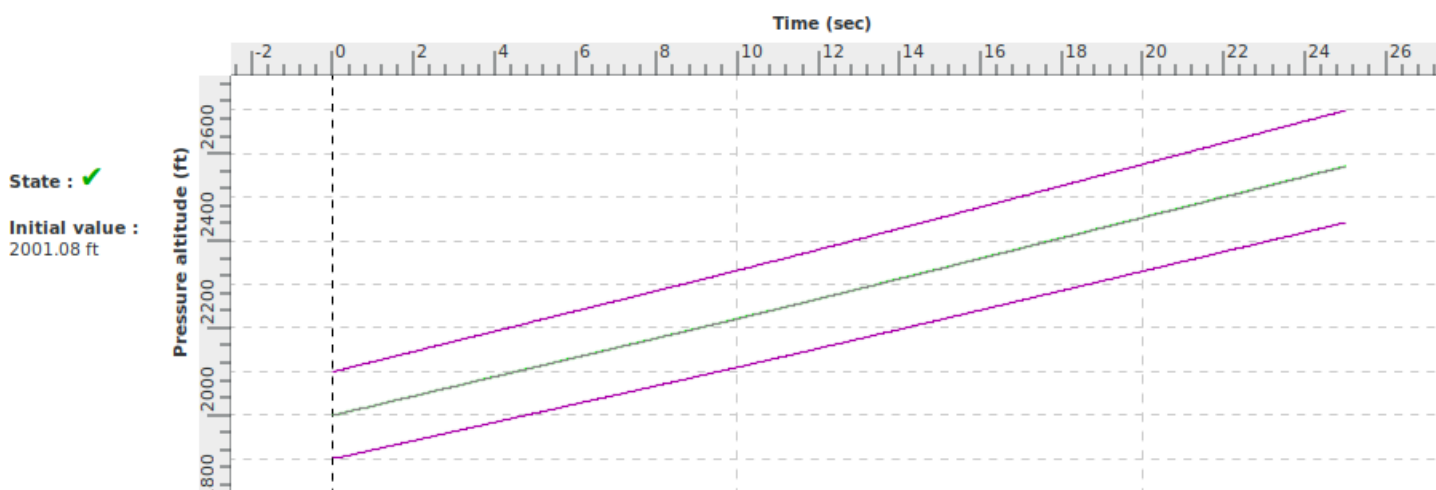
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
5.0	Gear	0.0	Move the gear lever to the desired position
25.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Gear change force during take-off (retraction)		
<b>Id</b>	2 c iv 2 a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	04/02/24	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

Log of Revision		
Rev. Nbr	Date	Reason for revision

Notes

Title	Gear change force during take-off (retraction)		
Id	2 c iv 2 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	04/02/24	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



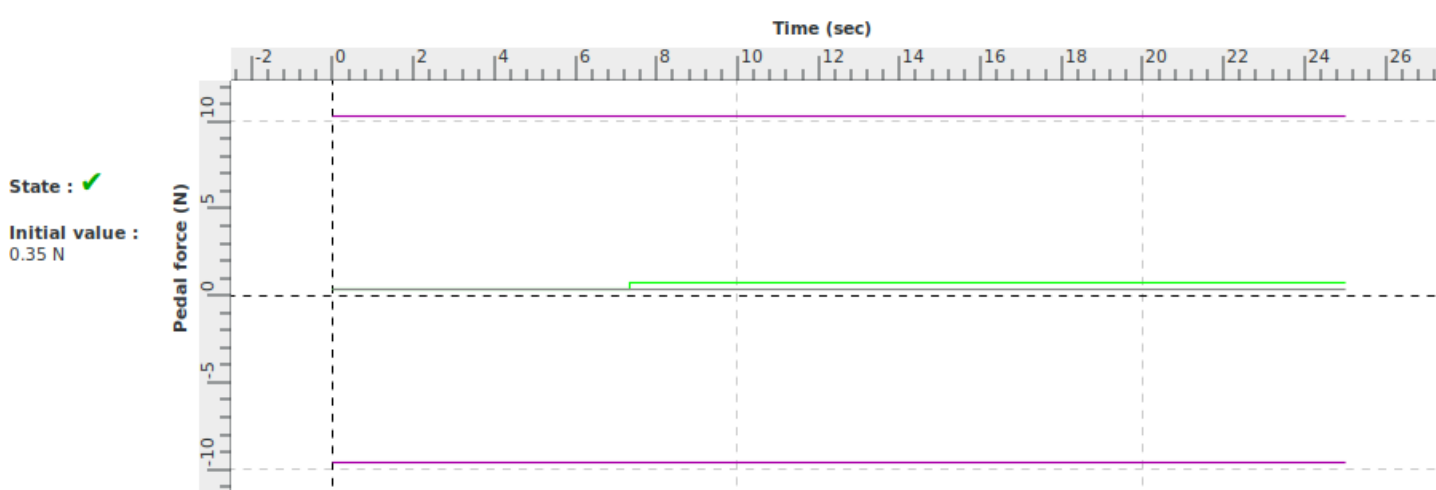
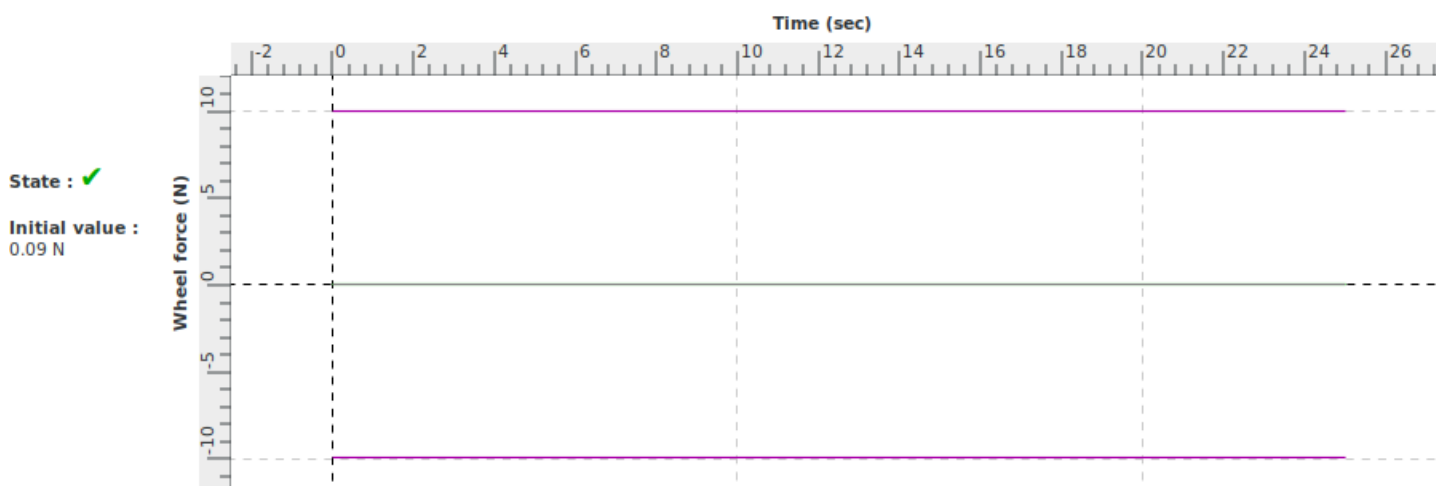
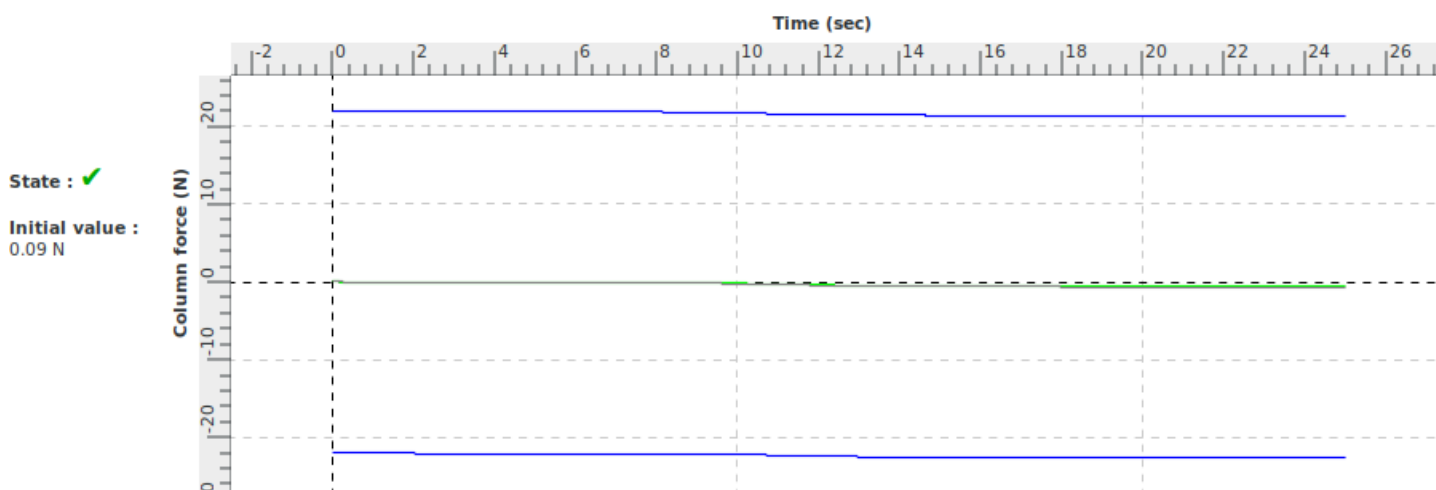
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Gear change force during take-off (retraction)		
Id	2 c iv 2 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	04/02/24	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

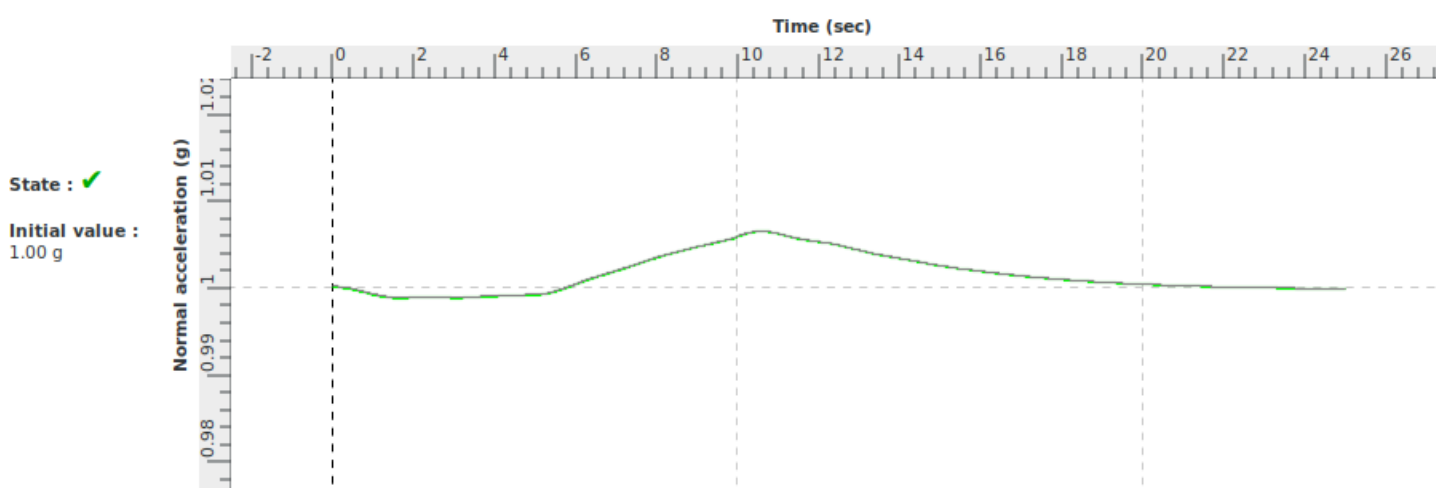
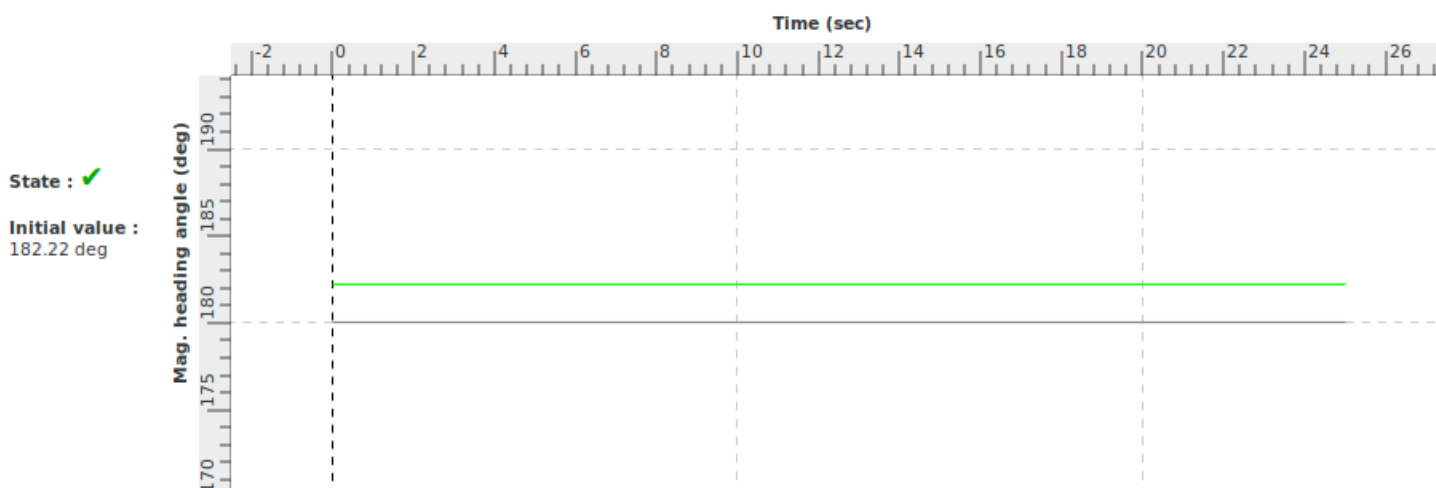
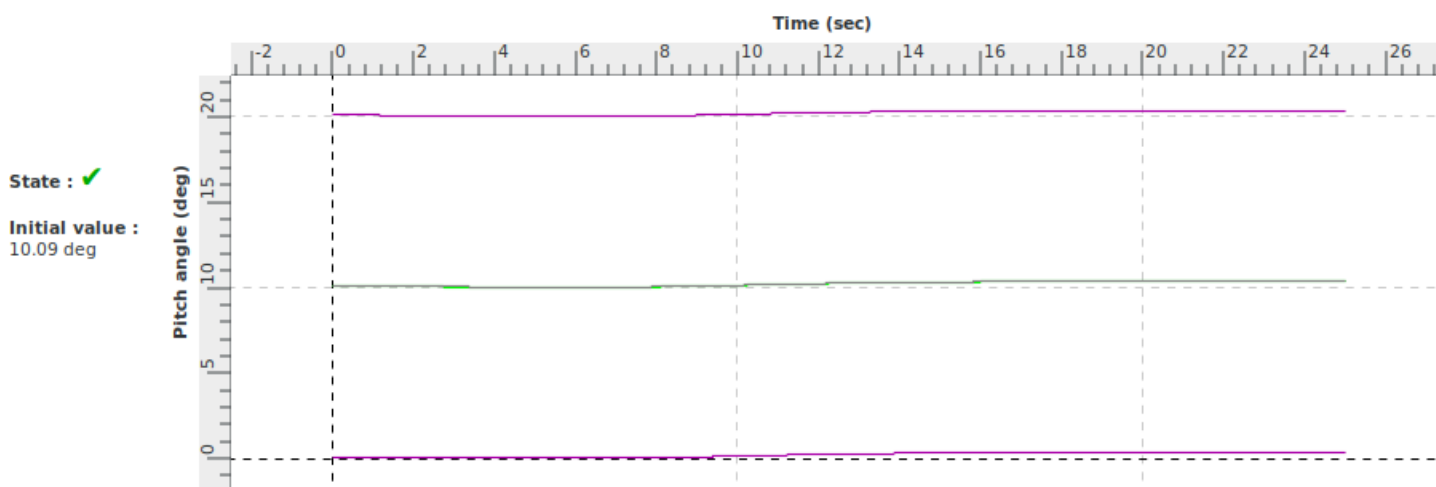
green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsimg

grey : master



Title	Gear change force during take-off (retraction)		
Id	2 c iv 2 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	04/02/24	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



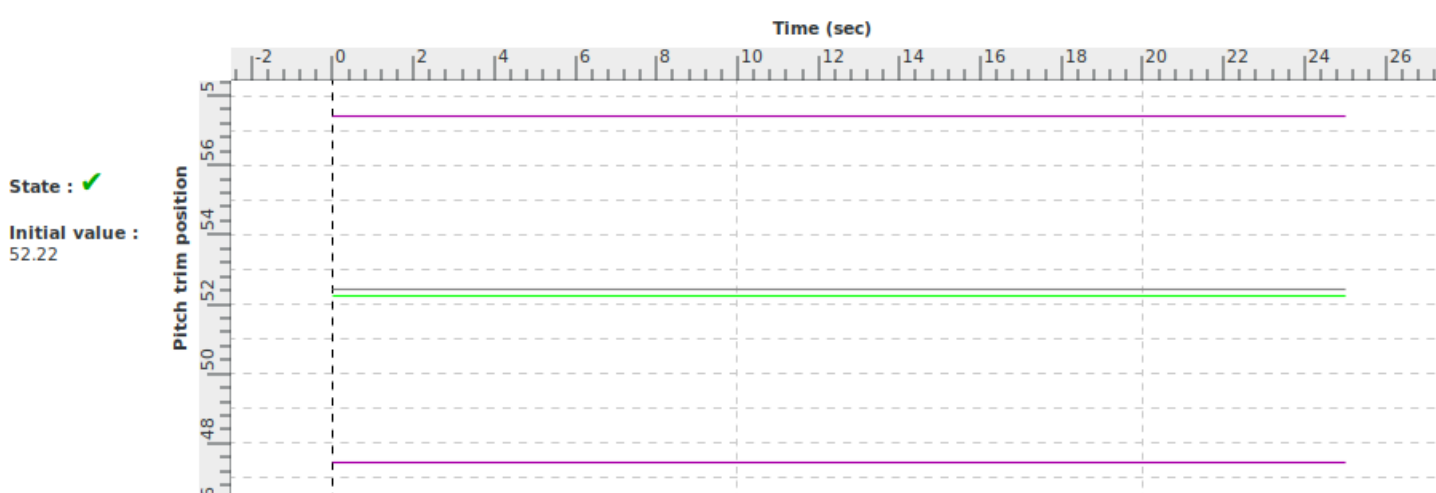
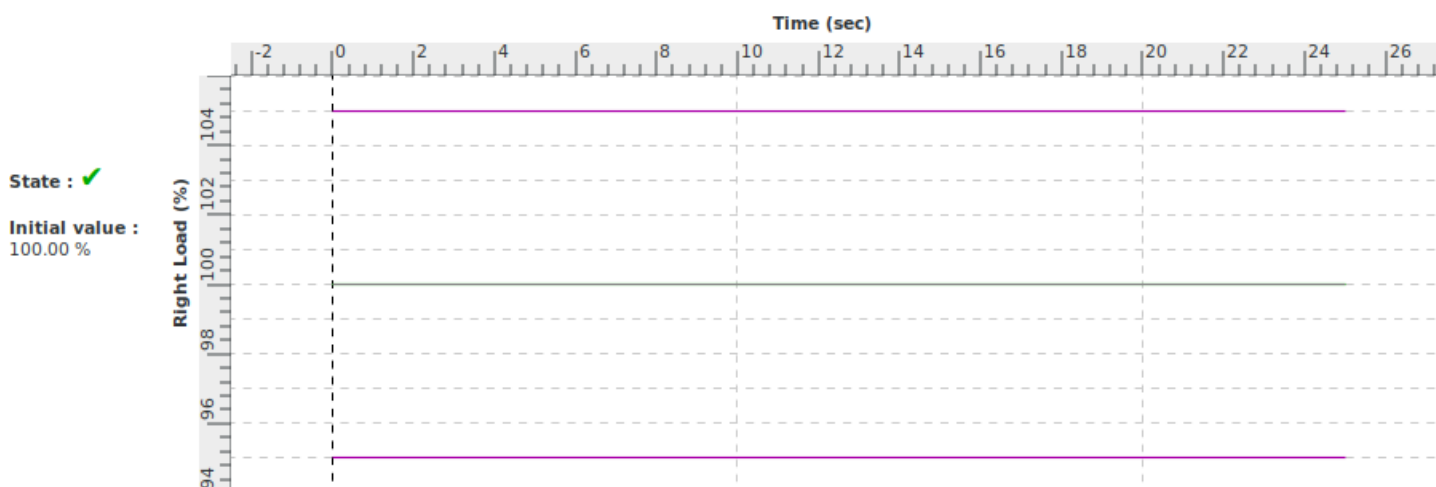
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Gear change force during take-off (retraction)		
Id	2 c iv 2 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	04/02/24	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsimg

grey : master

Title	Gear change force during take-off (retraction)		
Id	2 c iv 2 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	04/02/24	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

# VALIDATION TEST

<b>Title</b>	Gear change force during approach (extension)		
<b>Id</b>	2 c iv 2 b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the force response to a landing gear extension during approach conforms to the class of aeroplanes	Maximum Increments : 5 N of Control force
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.c.iv.2.b	+/- 2,2 daN (5Lbs) +/- or 20% Force

<b>Demonstration procedure</b>	From steady approach initial conditions, gear is extended.
<b>Manual test procedure</b>	The aircraft is trimmed at approach flight condition. Then, the pilot sets the gear from up (0) to down (1), maintaining the same rate of descent using control column.
<b>Automatic test procedure</b>	2 c iv 2 b

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

Title	Gear change force during approach (extension)		
Id	2 c iv 2 b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Qualification Level	FNPT2	Operator	AFTA
Result Date	14/06/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902

Autopilot mode	AUTO_VZ
Automatic IAS (airspeed) and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and IAS. Roll Trim is computed to maintain 0° bank angle.	

Initial parameters	HOLD_FLAPS_APP
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 3000 Vertical speed (ft/min) : 0 (free) IAS (kt) : 96 Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : 0 Pedal Position (%) : 0 Column Position (%) : 37 Wheel Position (%) : 0	Flaps lever position : 1 Gear lever position : 0 Left Load (%) : 55 Right Load (%) : 55 Left RPM : 2040 Right RPM : 2040

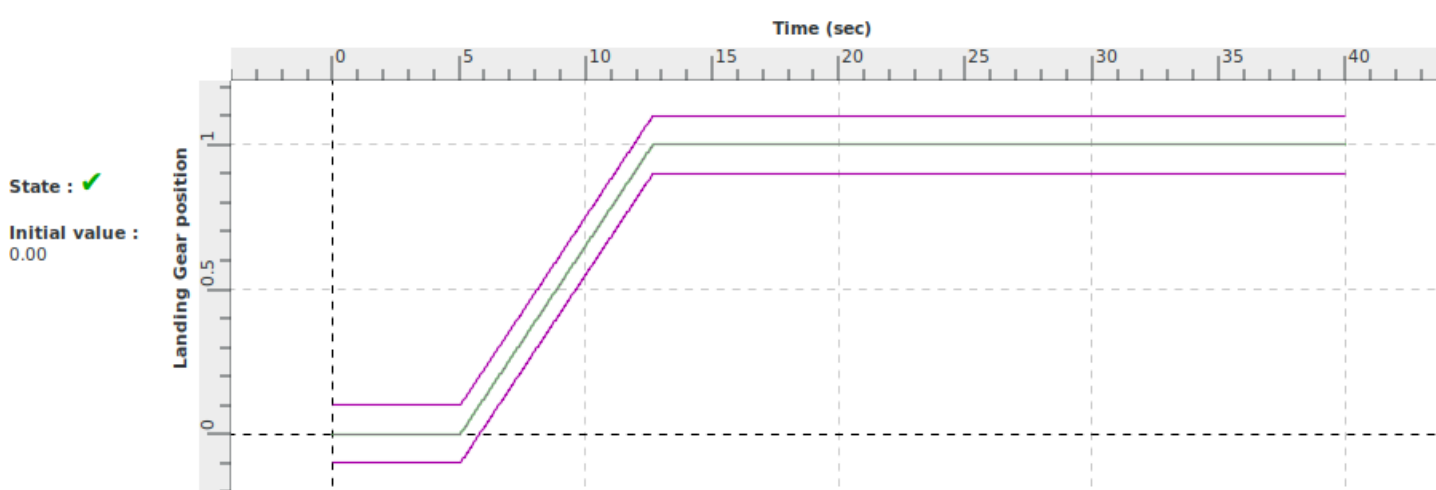
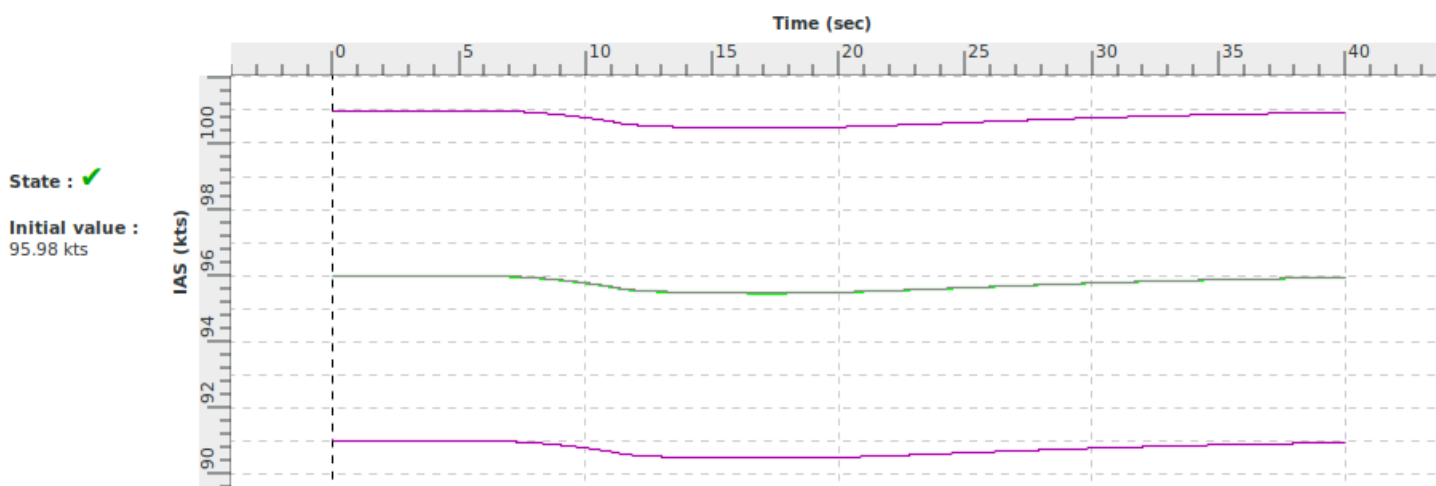
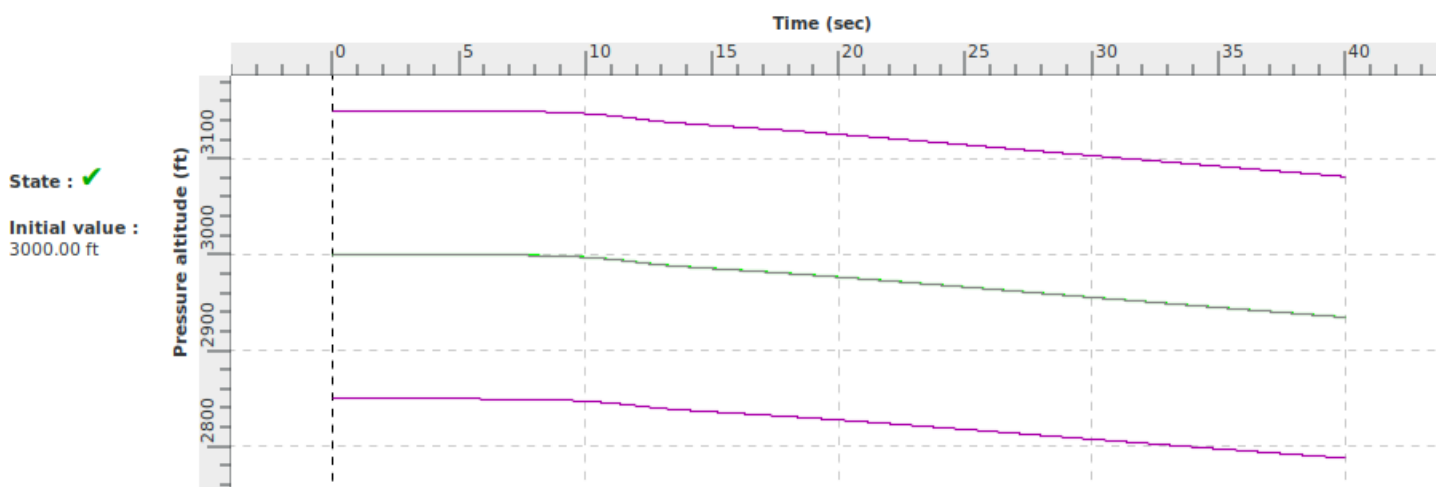
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
5.0	Gear	1.0	Move the gear lever to the desired position
40.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Gear change force during approach (extension)		
<b>Id</b>	2 c iv 2 b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

Log of Revision		
Rev. Nbr	Date	Reason for revision

Notes

Title	Gear change force during approach (extension)		
Id	2 c iv 2 b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	14/06/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



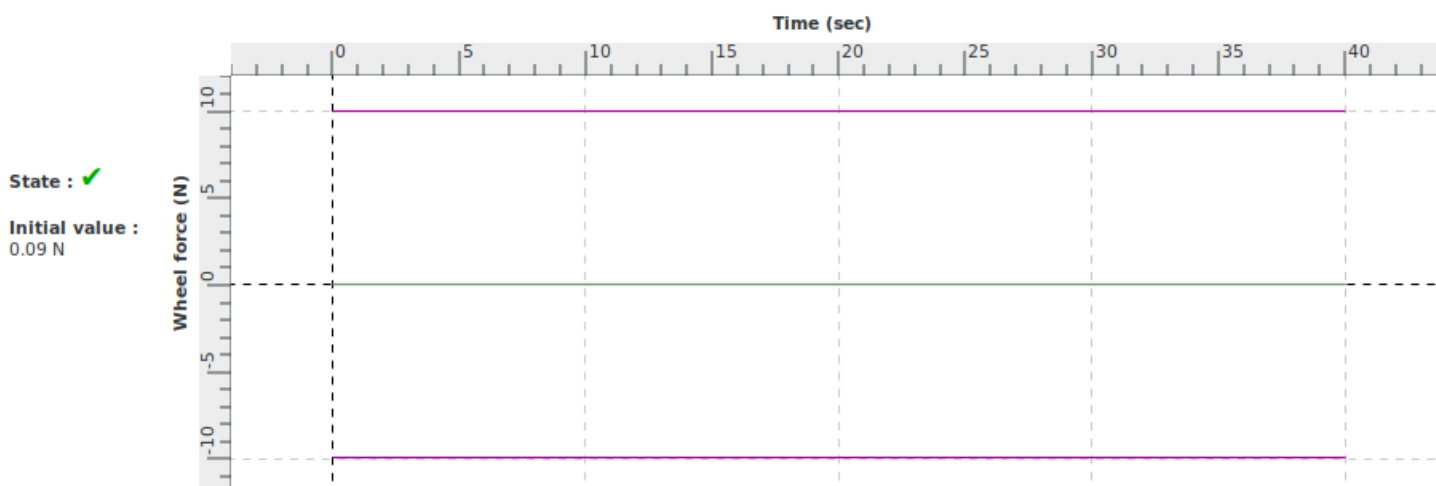
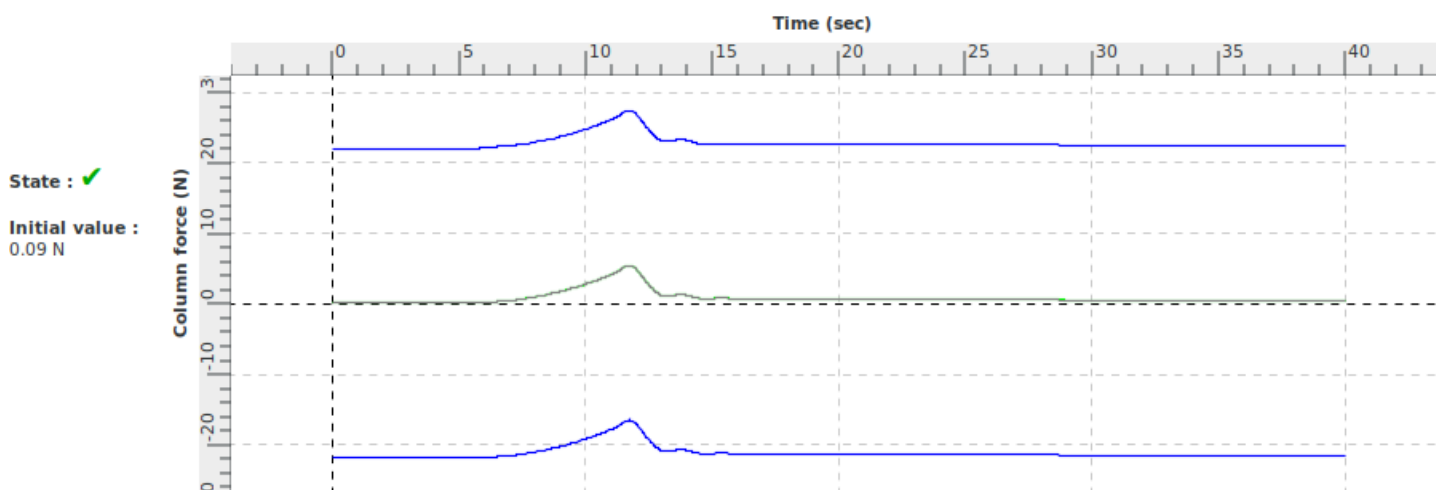
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Gear change force during approach (extension)		
Id	2 c iv 2 b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	14/06/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

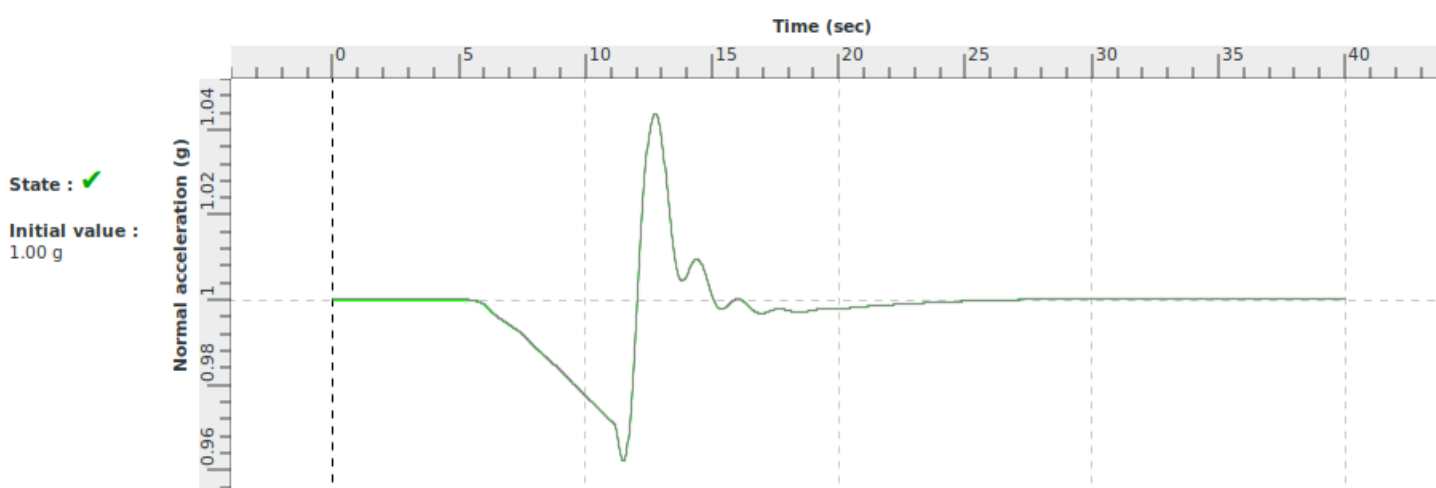
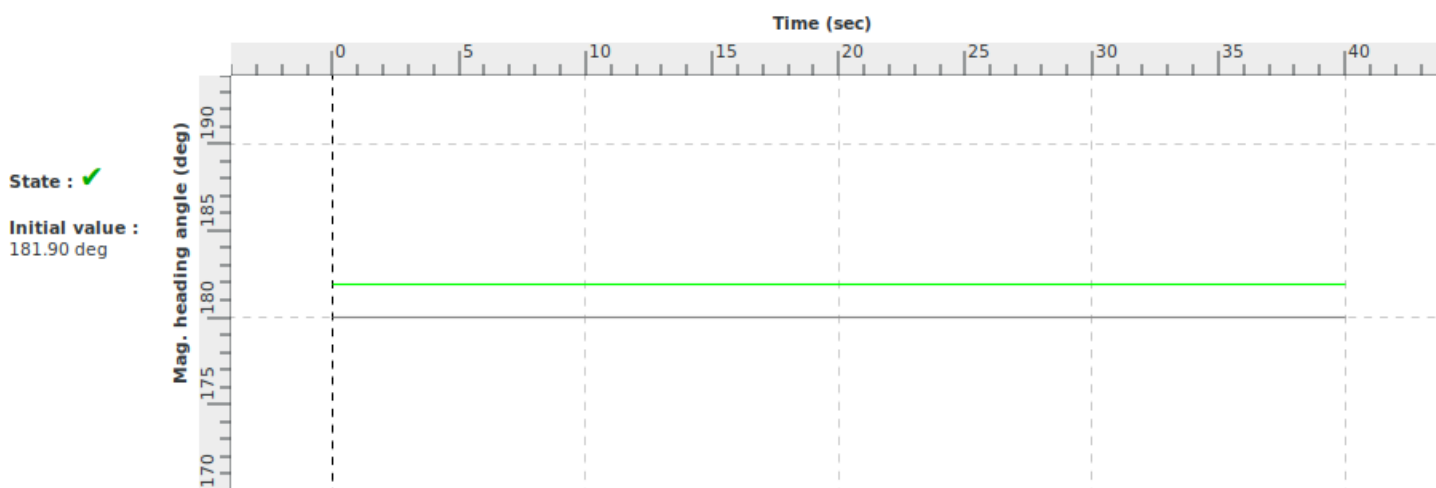
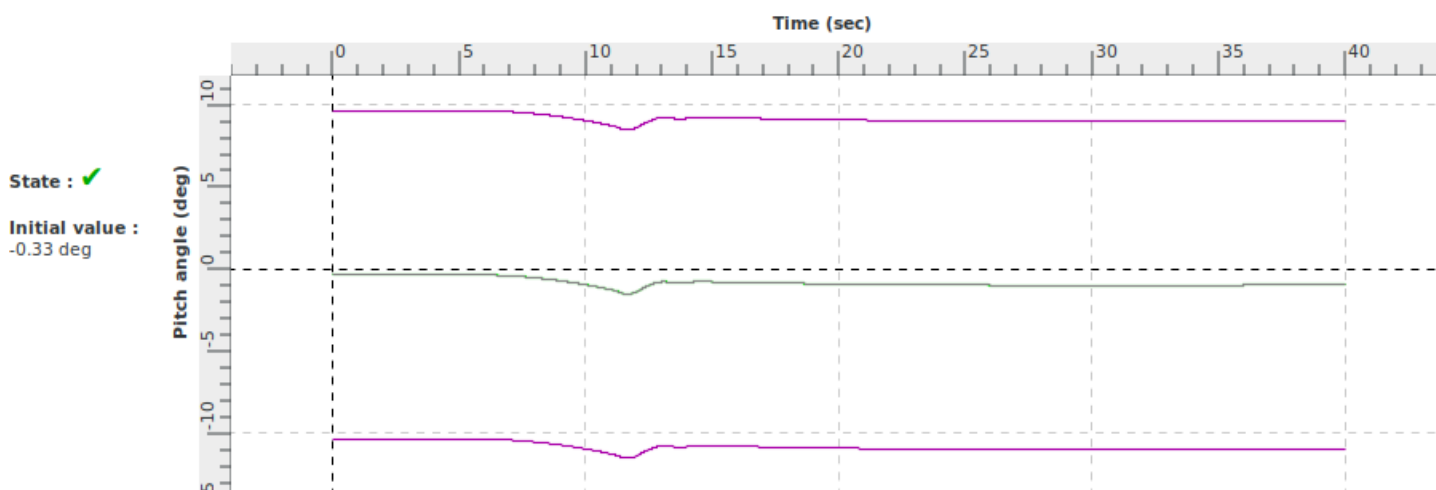
green : results within tolerances  
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violet : tolerances Alsim

grey : master



Title	Gear change force during approach (extension)		
Id	2 c iv 2 b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	14/06/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



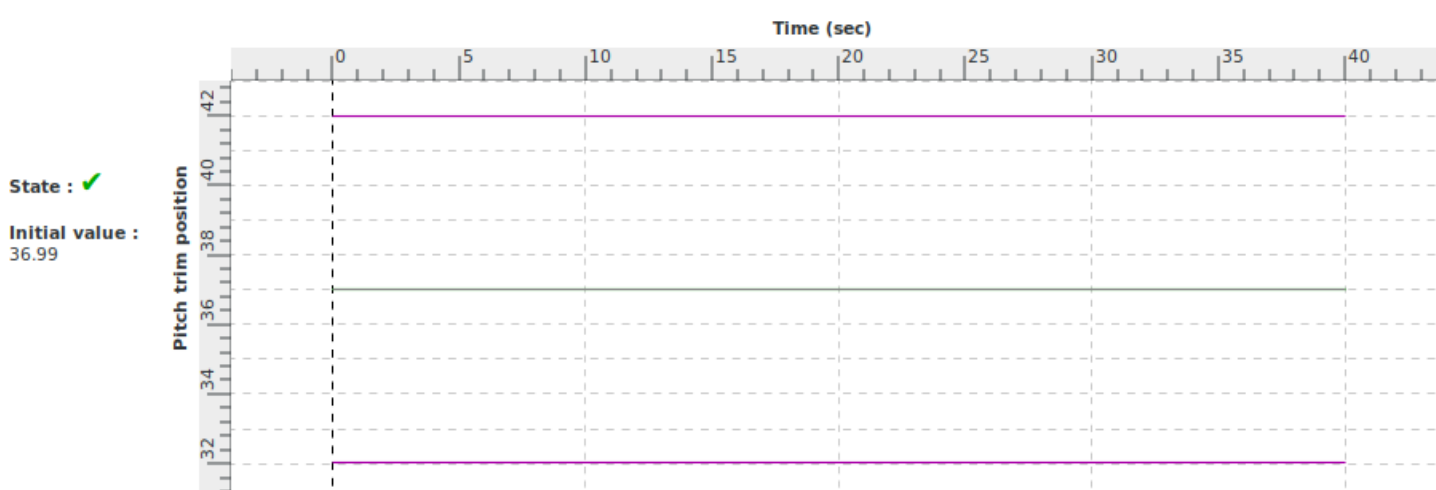
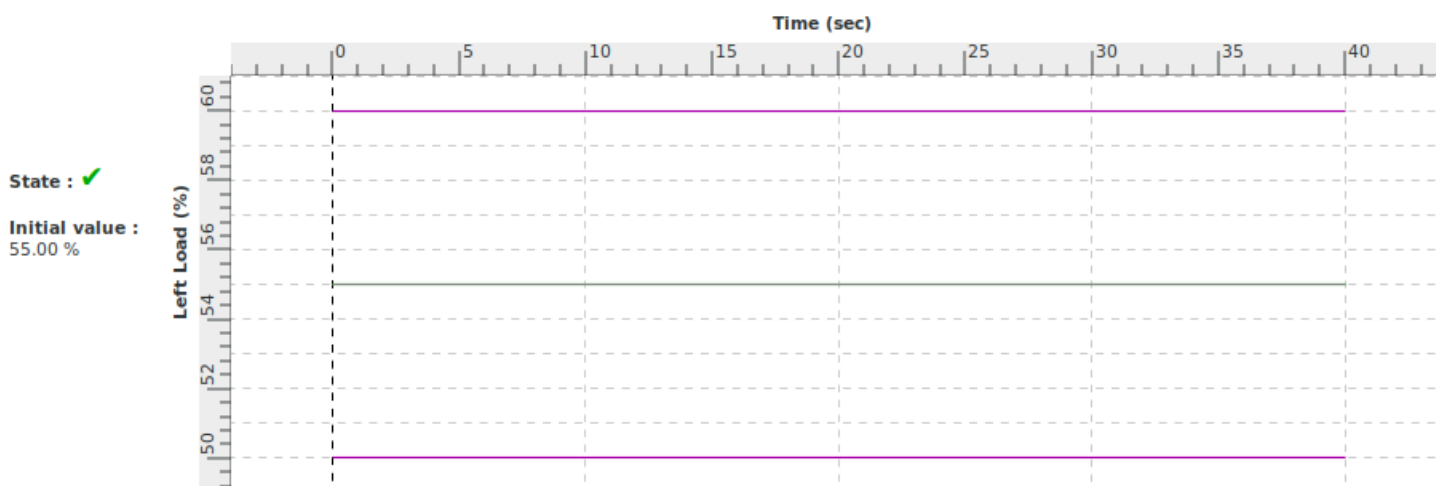
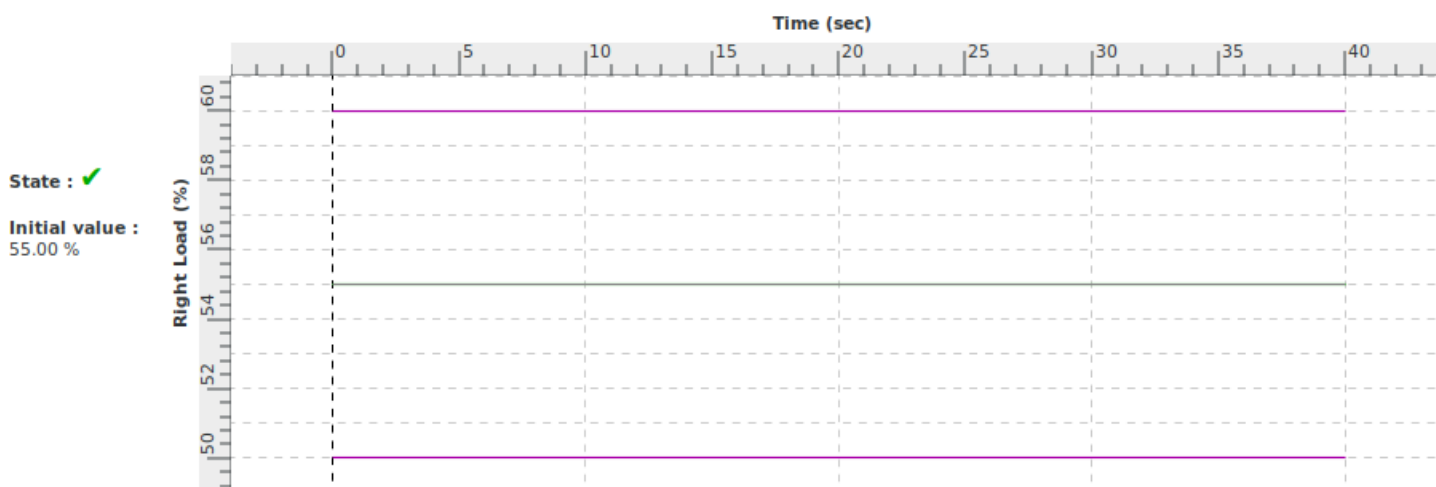
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Gear change force during approach (extension)		
Id	2 c iv 2 b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	14/06/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Gear change force during approach (extension)		
Id	2 c iv 2 b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	14/06/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

# VALIDATION TEST

<b>Title</b>	Longitudinal trim during cruise		
<b>Id</b>	2 c v a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the simulator inter-relationships of lift, drag, thrust and longitudinal trim during cruise conforms to the class of aeroplanes	Pitch control: +9.2 % Pitch angle: 0.4 deg Load: 70 %
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.c.v.a	+/- 2° Pitch Control (equivalent 16%) +/- 2° Pitch angle +/- 5% Power

<b>Demonstration procedure</b>	The aeroplane is established in steady cruise.  Tolerance: 30° is representative of the maximum elevator deflection observed on this class of aeroplane i.e 1° of elevator deflection corresponds to 6.7% of column deflection.
<b>Manual test procedure</b>	In ISA and cruise conditions, the pilot trims the airplane for straight and level steady flight, records the pitch control position, pitch angle, airspeed and power.
<b>Automatic test procedure</b>	2 c v a

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

<b>Title</b>	Longitudinal trim during cruise		
<b>Id</b>	2 c v a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Autopilot mode</b>	AUTO_SPEED
<p>Automatic Vertical Speed and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and VS. Roll Trim is computed to maintain 0° bank angle.</p>	

<b>Initial parameters</b>	CRUISE
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 6000 Vertical speed (ft/min) : 0 IAS (kt) : 139 (free) Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : 0 Pedal Position (%) : 0 Column Position (%) : 9 Wheel Position (%) : 0	Flaps lever position : 0 Gear lever position : 0 Left Load (%) : 70 Right Load (%) : 70 Left RPM : 2060 Right RPM : 2060

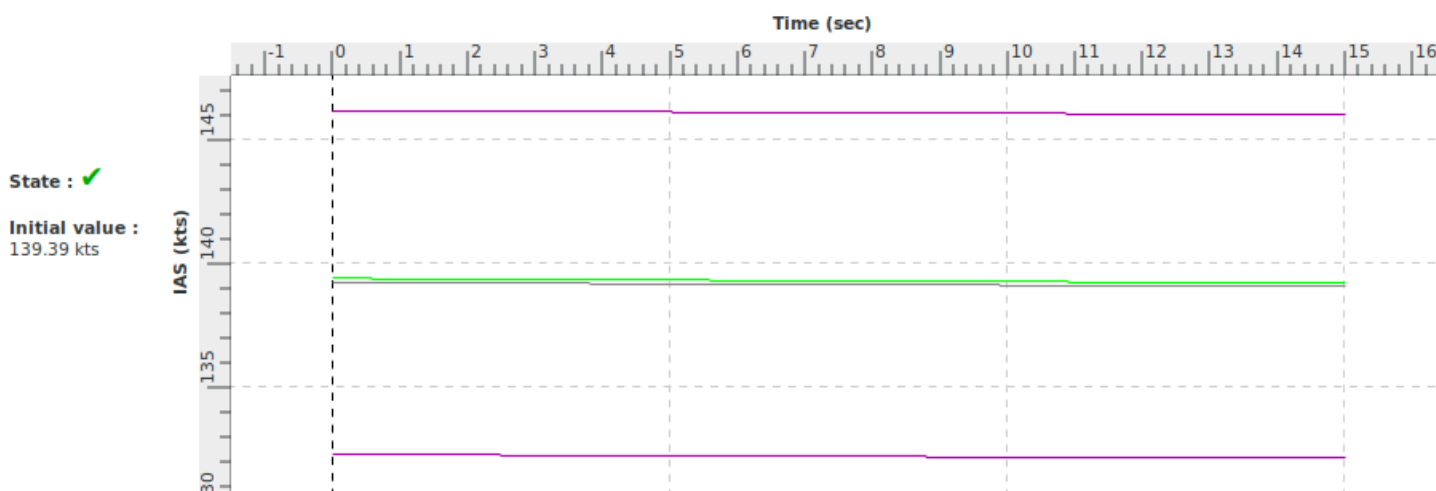
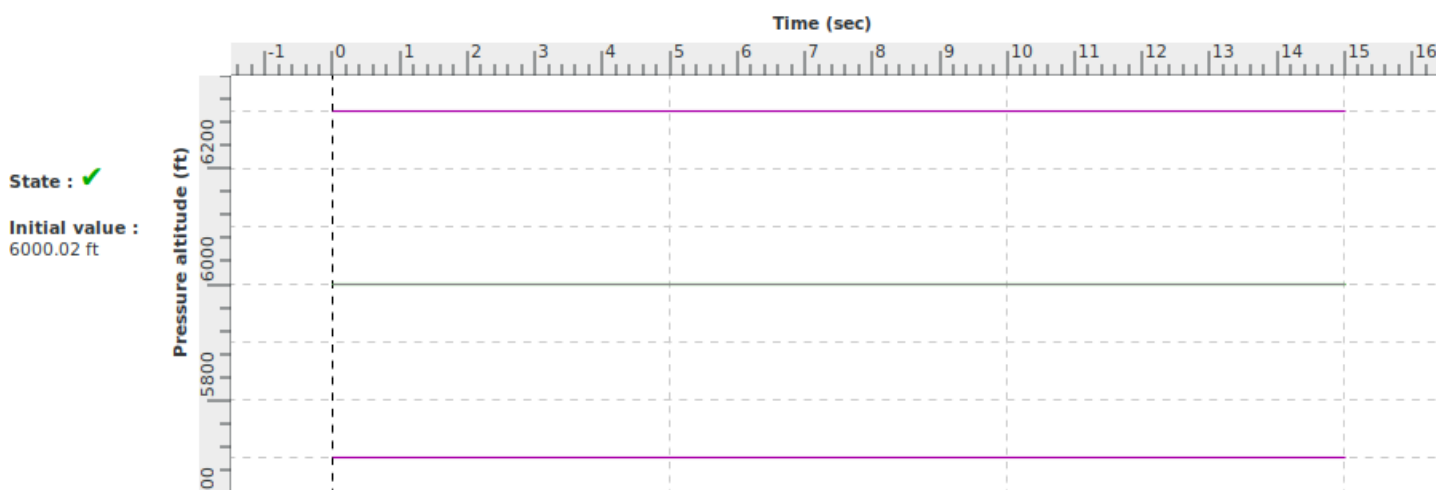
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
15.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Longitudinal trim during cruise		
<b>Id</b>	2 c v a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

Log of Revision		
Rev. Nbr	Date	Reason for revision

Notes

Title	Longitudinal trim during cruise		
Id	2 c v a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



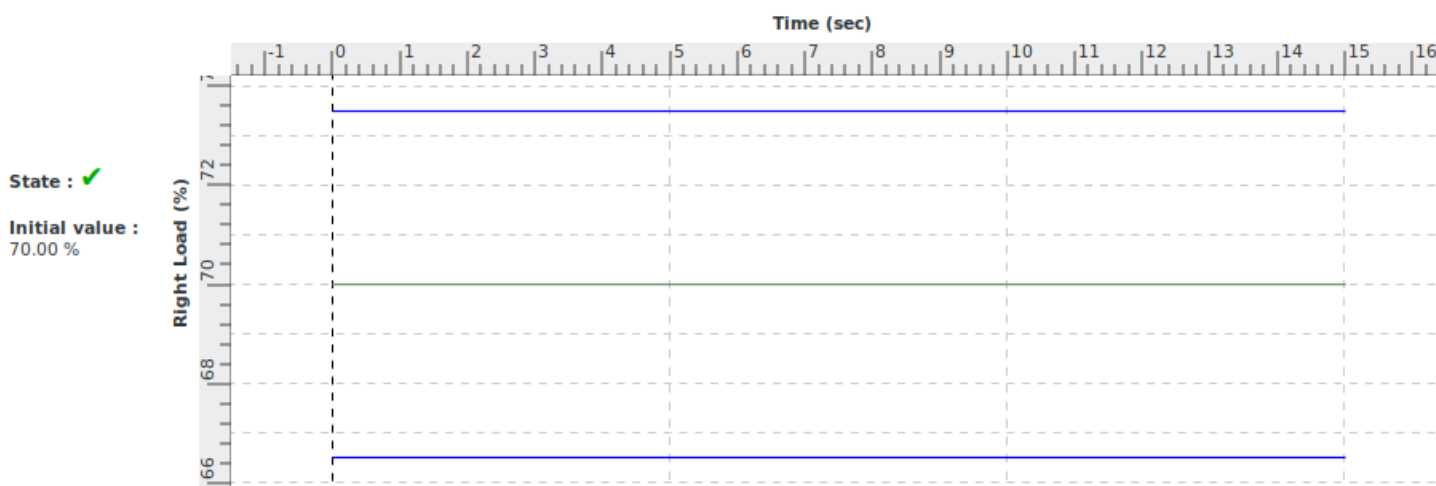
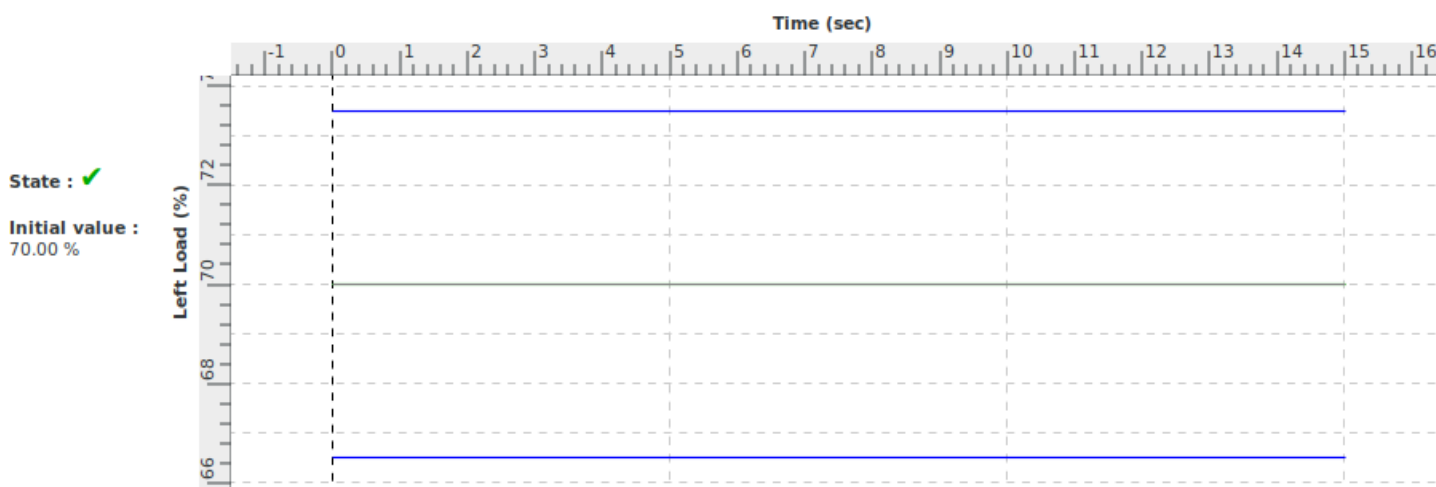
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsims

grey : master

Title	Longitudinal trim during cruise		
Id	2 c v a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

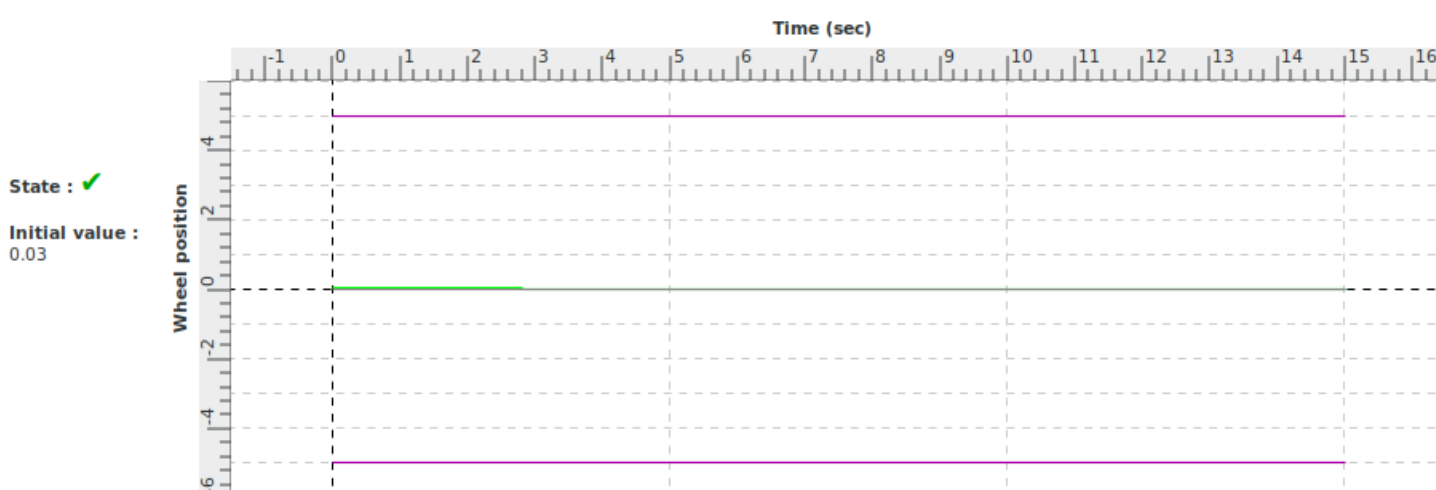
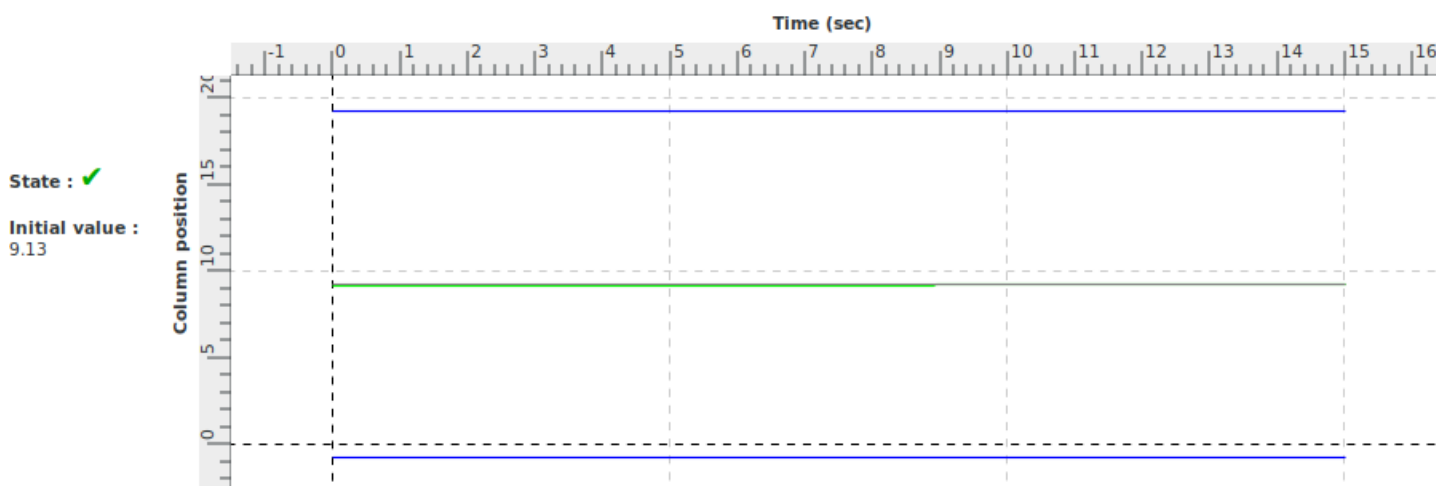
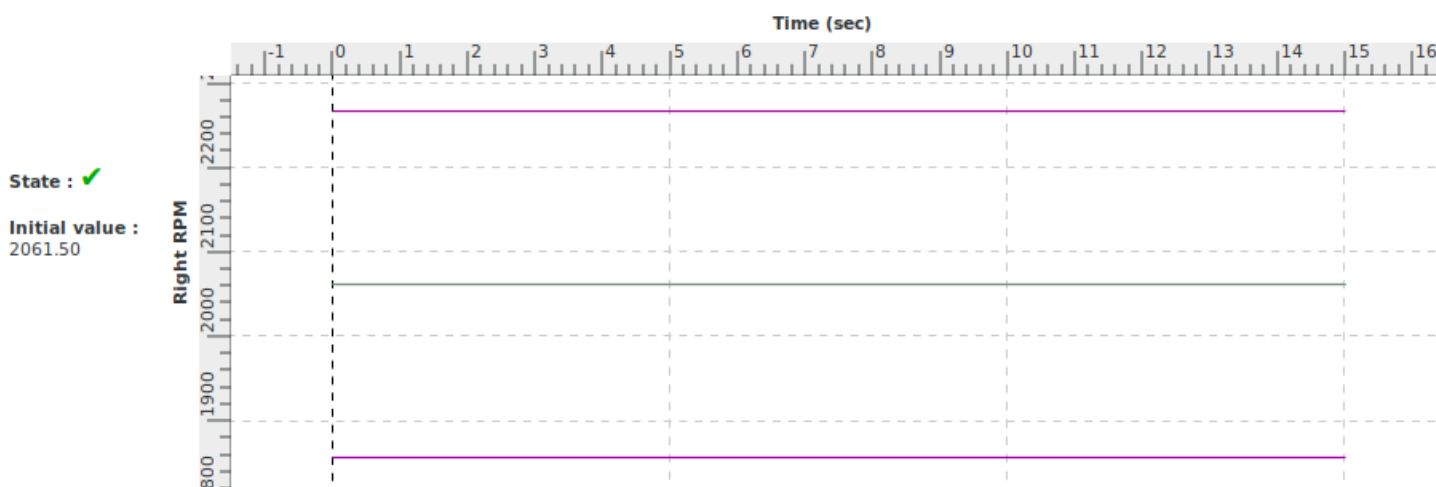
green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master



Title	Longitudinal trim during cruise		
Id	2 c v a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



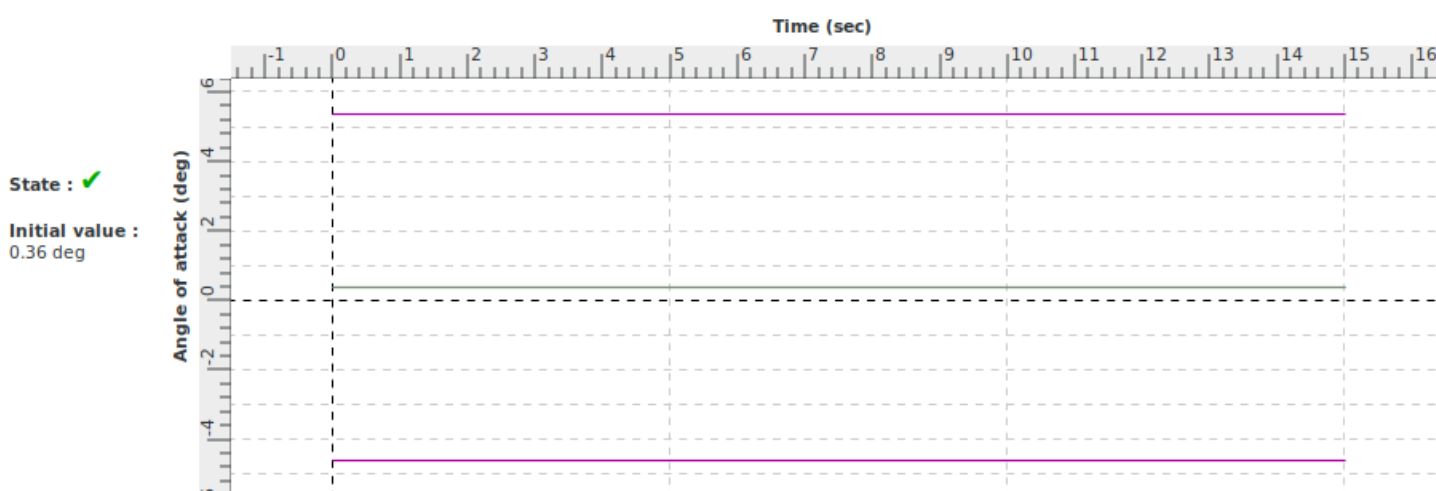
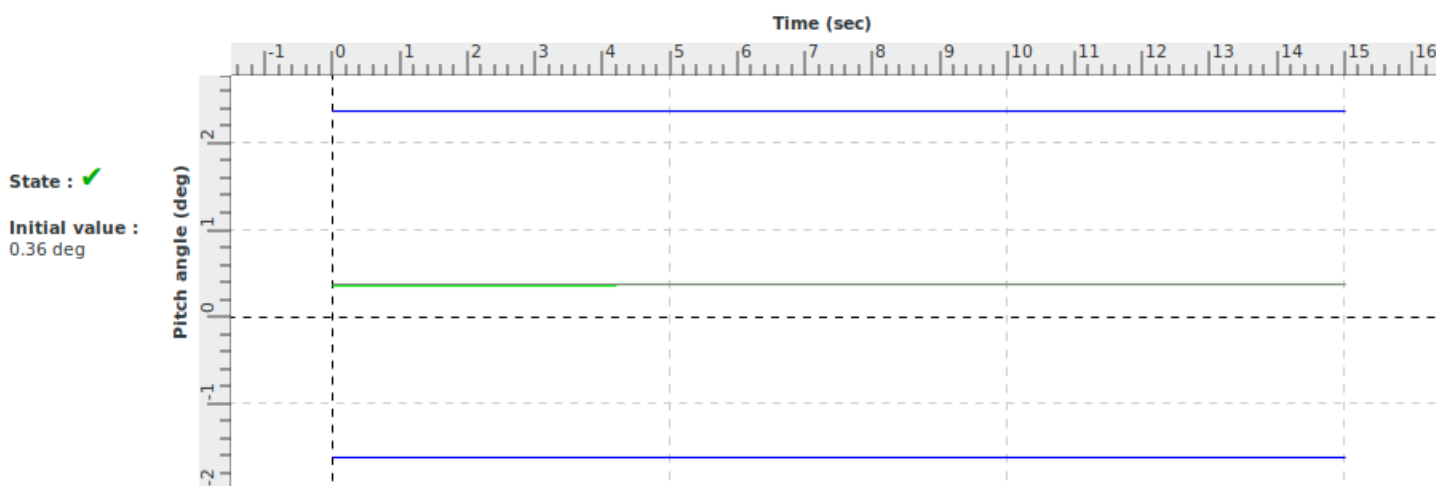
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Longitudinal trim during cruise		
Id	2 c v a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



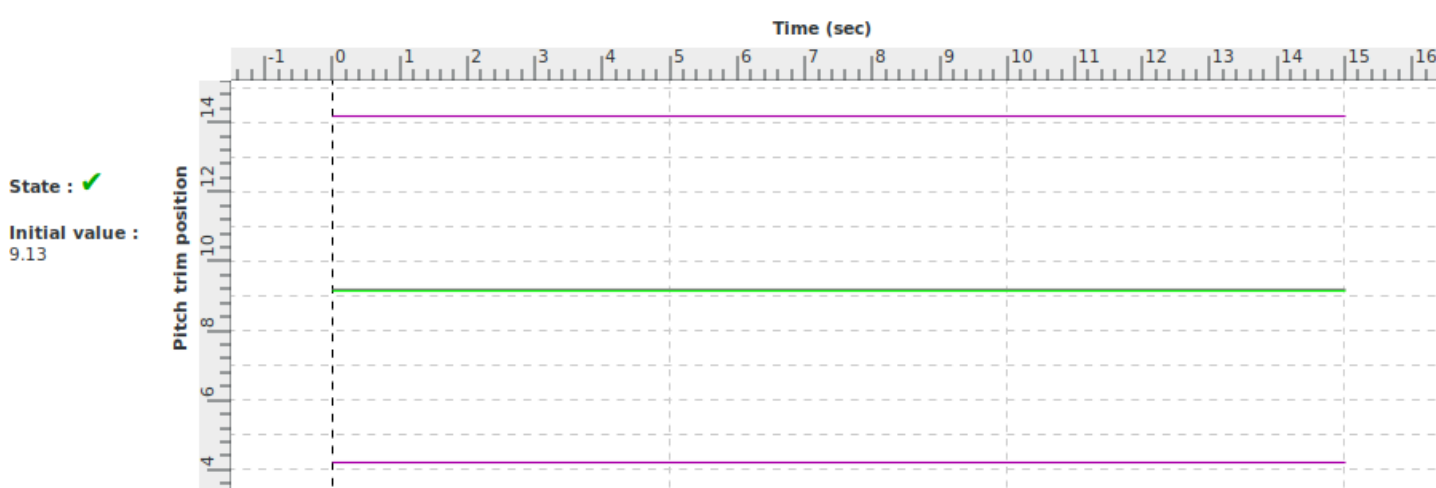
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Longitudinal trim during cruise		
Id	2 c v a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master

# VALIDATION TEST

<b>Title</b>	Longitudinal trim during approach		
<b>Id</b>	2 c v b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the simulator inter-relationships of lift, drag, thrust and longitudinal trim during approach conforms to the class of aeroplanes	Pitch control: +44 % Pitch angle: -2 deg Load: 30 %
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.c.v.b	+/- 2° Pitch control (equivalent 16%) +/- 2° Pitch angle +/- 5% Power

<b>Demonstration procedure</b>	The aeroplane is established in steady approach.  Tolerance: 30° is representative of the maximum elevator deflection observed on this class of aeroplane i.e 1° of elevator deflection corresponds to 6.7% of column deflection.
<b>Manual test procedure</b>	In ISA and approach conditions, the pilot trims the airplane for the approach, records the pitch control position, pitch angle, airspeed and power.
<b>Automatic test procedure</b>	2 c v b

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

Title	Longitudinal trim during approach		
<b>Id</b>	2 c v b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Autopilot mode</b>	AUTO_SPEED
<p>Automatic Vertical Speed and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and VS. Roll Trim is computed to maintain 0° bank angle.</p>	

<b>Initial parameters</b>	DESCENT_FLAPS_APP
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 3000 Vertical speed (ft/min) : -450 IAS (kt) : 90 (free) Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : -2 Pedal Position (%) : 0 Column Position (%) : 44 Wheel Position (%) : 0	Flaps lever position : 1 Gear lever position : 1 Left Load (%) : 30 Right Load (%) : 30 Left RPM : 1930 Right RPM : 1930

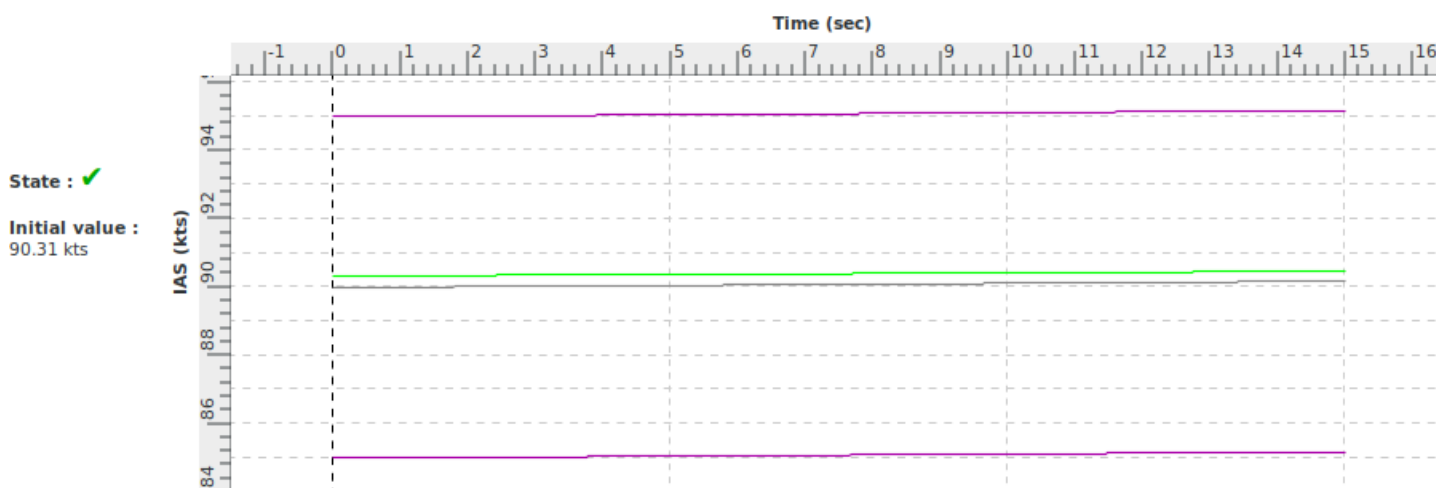
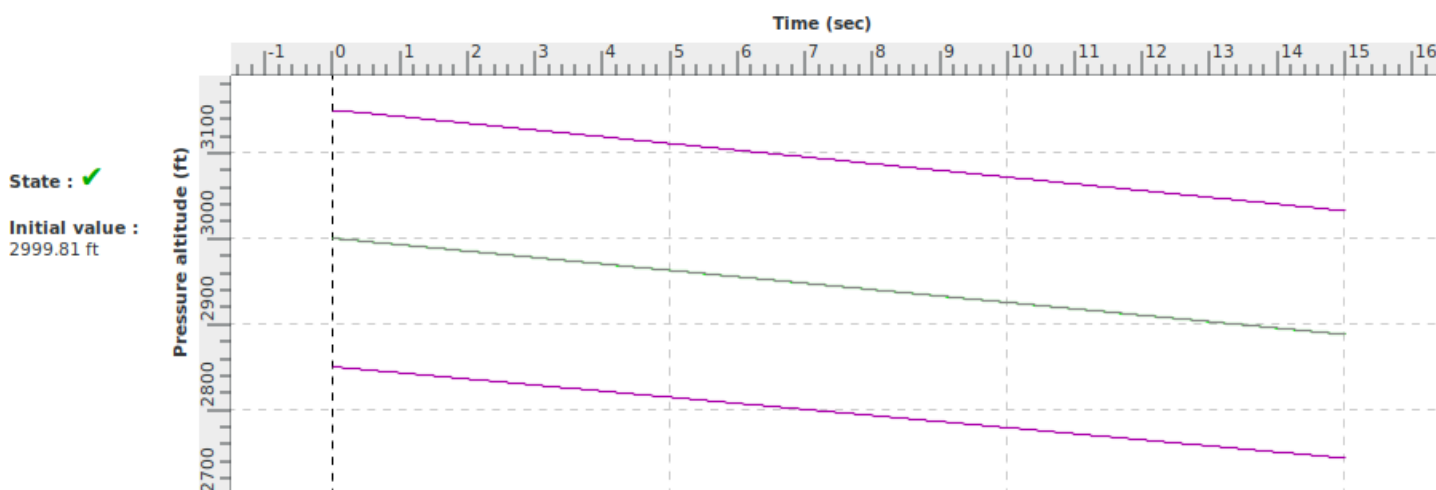
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
15.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Longitudinal trim during approach		
<b>Id</b>	2 c v b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

Log of Revision		
Rev. Nbr	Date	Reason for revision

Notes

Title	Longitudinal trim during approach		
Id	2 c v b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



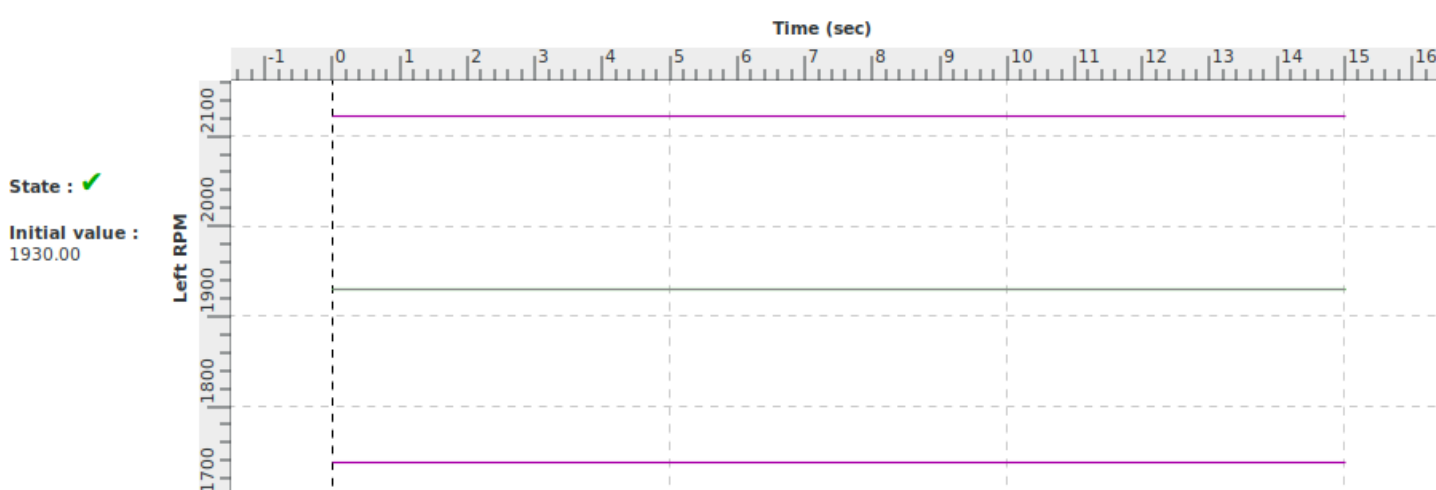
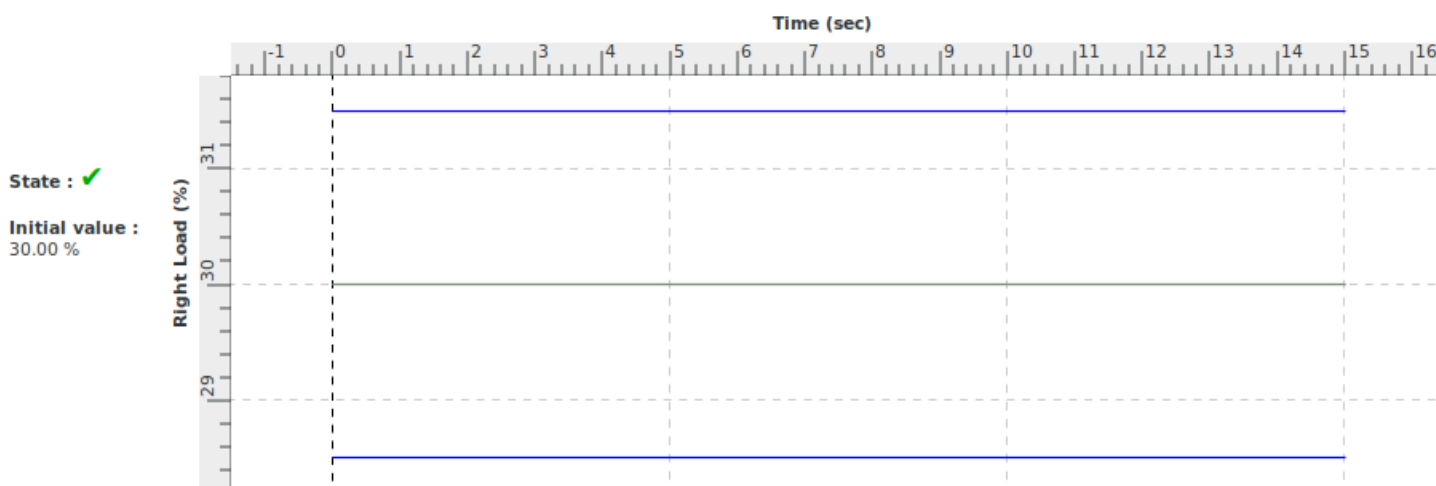
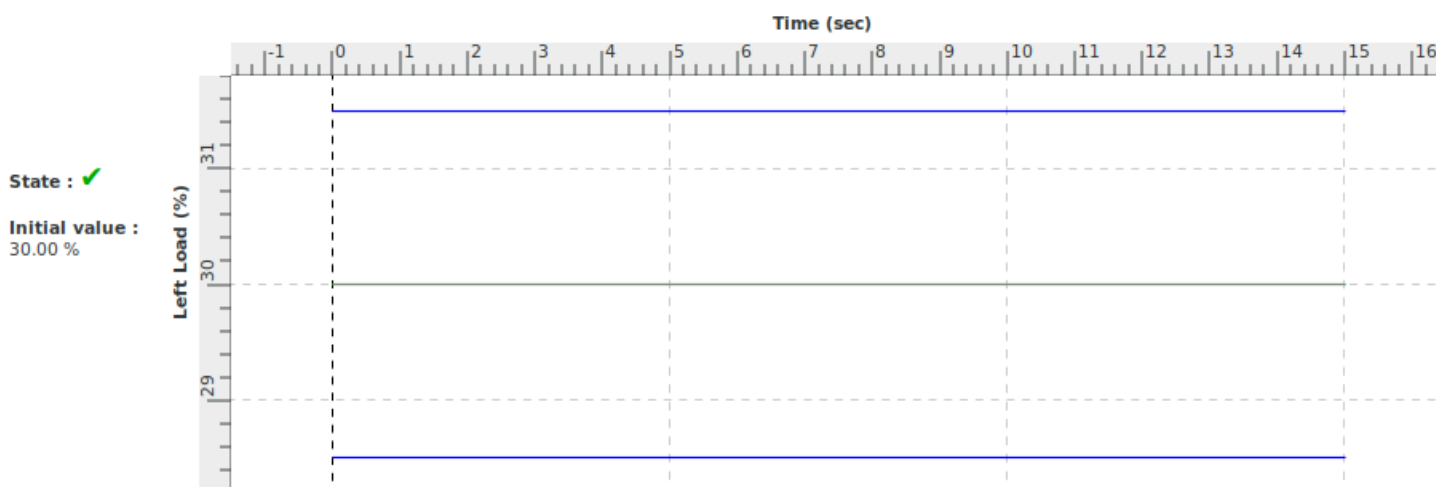
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master

Title	Longitudinal trim during approach		
Id	2 c v b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

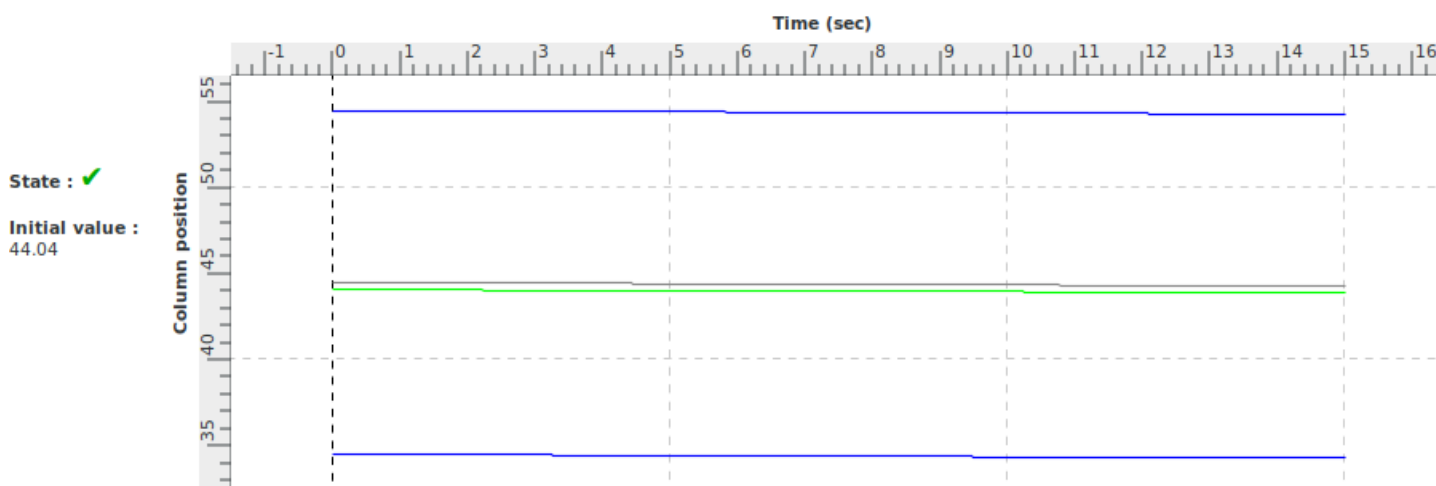
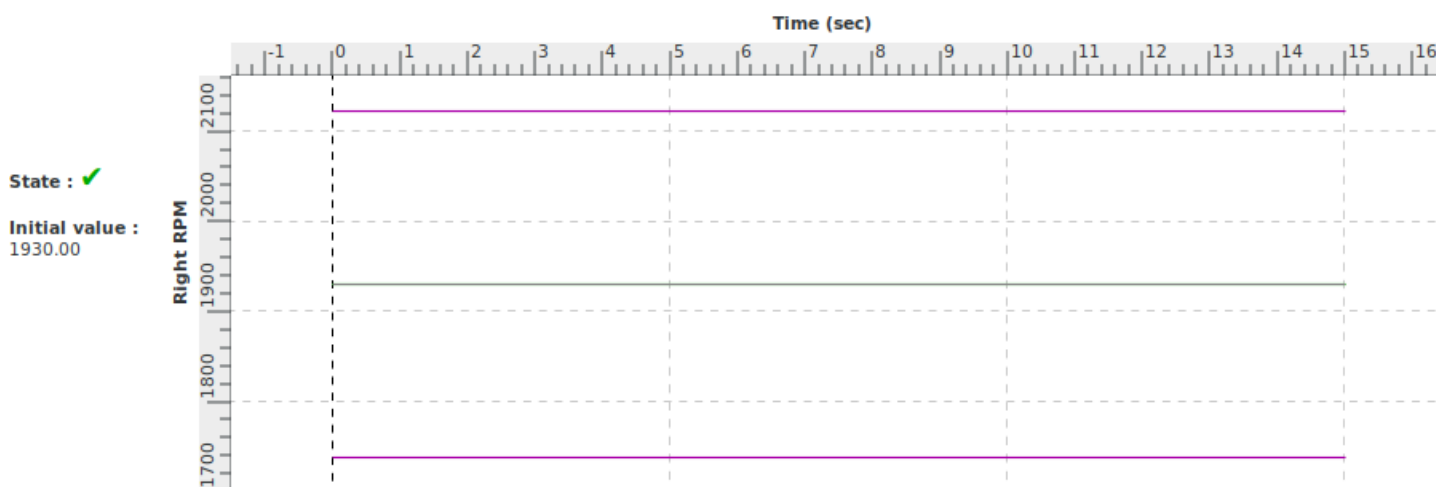
green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master



Title	Longitudinal trim during approach		
Id	2 c v b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



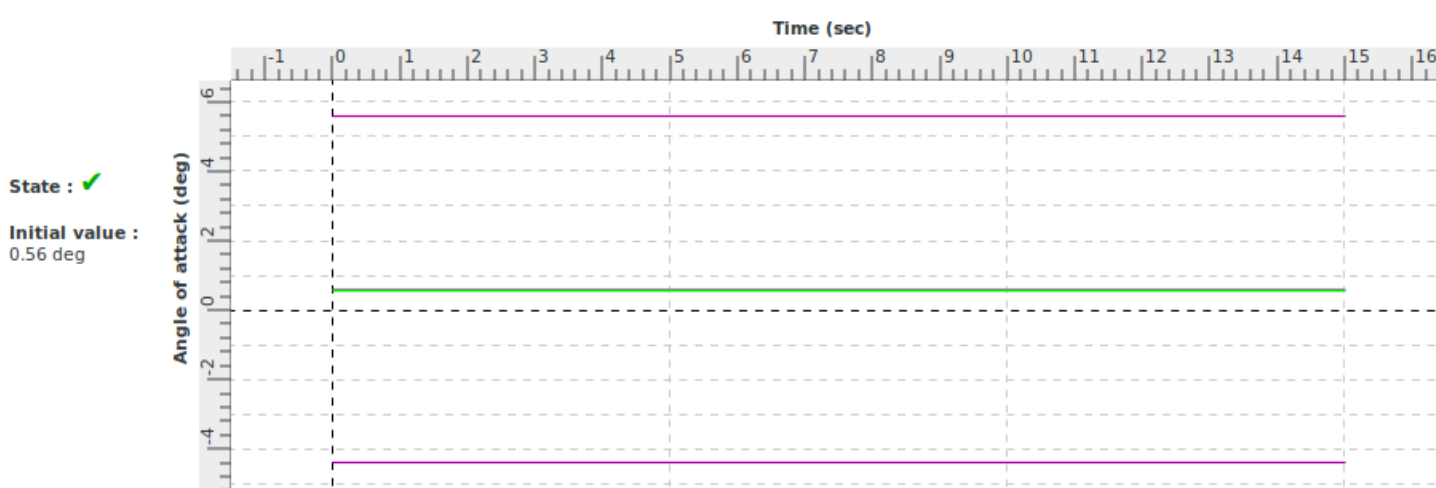
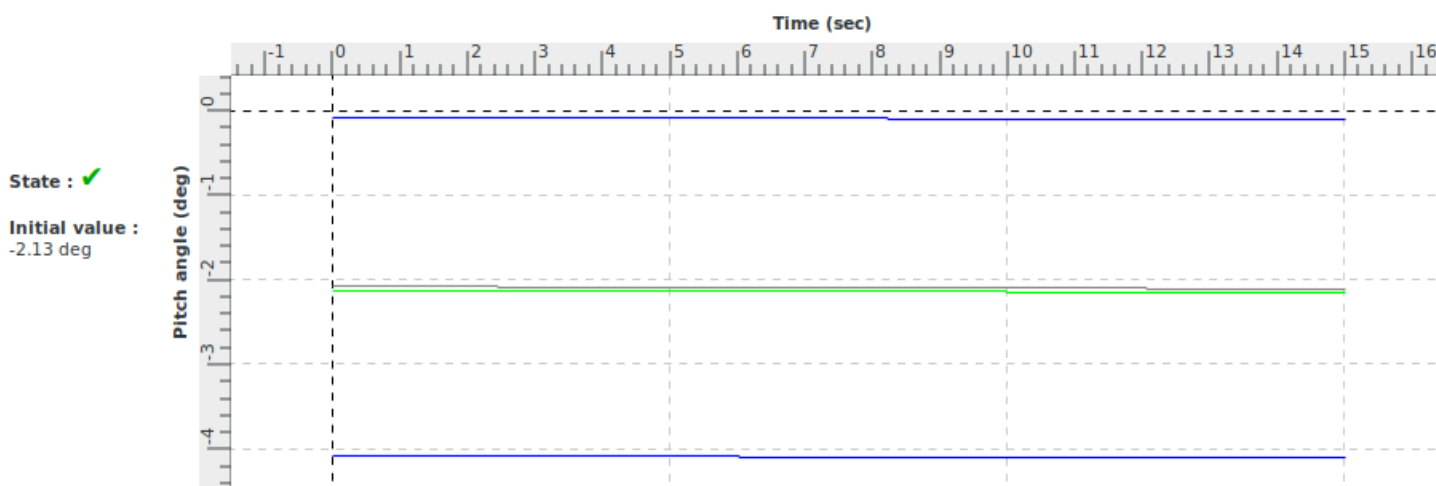
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsimg

grey : master

Title	Longitudinal trim during approach		
Id	2 c v b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



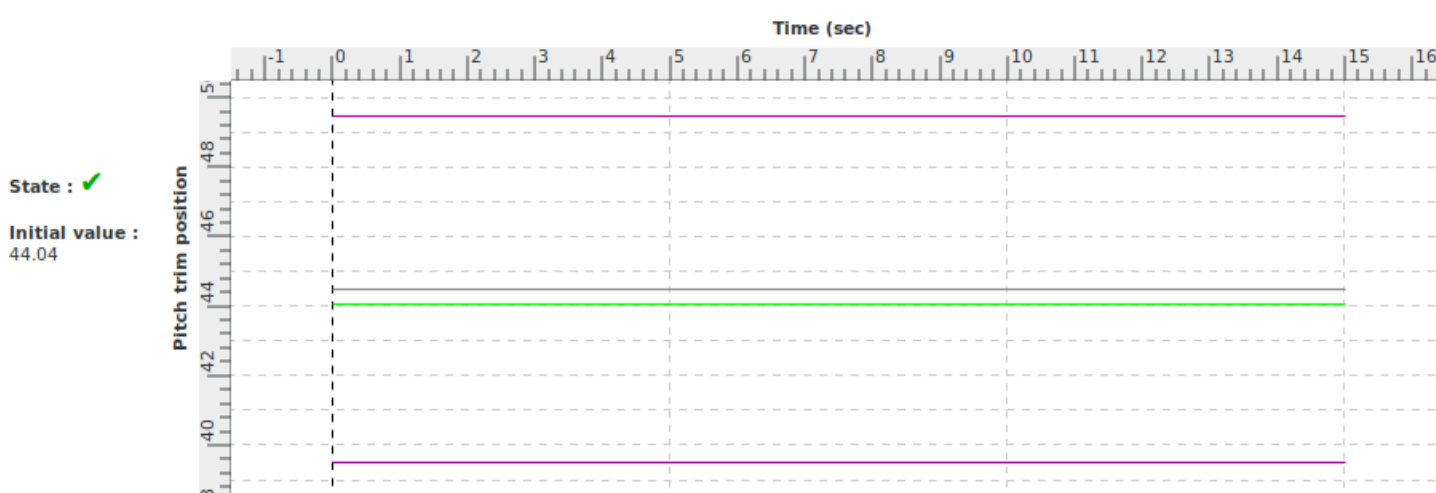
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master

Title	Longitudinal trim during approach		
Id	2 c v b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master

# VALIDATION TEST

<b>Title</b>	Longitudinal manoeuvring stability during cruise		
<b>Id</b>	2 c vi a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.03
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	04/02/24	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the simulation of manoeuvring stability during cruise, conforms to the class of aeroplanes	Column force +13.5 N approx. for 45° of bank angle
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.c.vi.a	+/- 2.2 daN (5lbs) or +/- 10% column force.

<b>Demonstration procedure</b>	From steady cruise initial conditions, a right steady turn of 45° is performed.
<b>Manual test procedure</b>	The aeroplane is trimmed in cruise condition. The pilot sets the aircraft bank angle to the right to 45° using the control column, the rudder and the engine load as required, while attempting to maintain the trim airspeed.
<b>Automatic test procedure</b>	2 c vi a

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

<b>Title</b>	Longitudinal manoeuvring stability during cruise		
<b>Id</b>	2 c v i a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.03
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	04/02/24	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Autopilot mode</b>	AUTO_PWR
Automatic AUTO_POWER mode : Vertical Speed and IAS (airspeed) are maintained through pitch trim and engine parameters changes.	

<b>Initial parameters</b>	CRUISE
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 6000 Vertical speed (ft/min) : 0 IAS (kt) : 139 Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : 0 Pedal Position (%) : 0 Column Position (%) : 9 Wheel Position (%) : 0	Flaps lever position : 0 Gear lever position : 0 Left Load (%) : 70 (free) Right Load (%) : 70 (free) Left RPM : 2060 (free) Right RPM : 2060 (free)

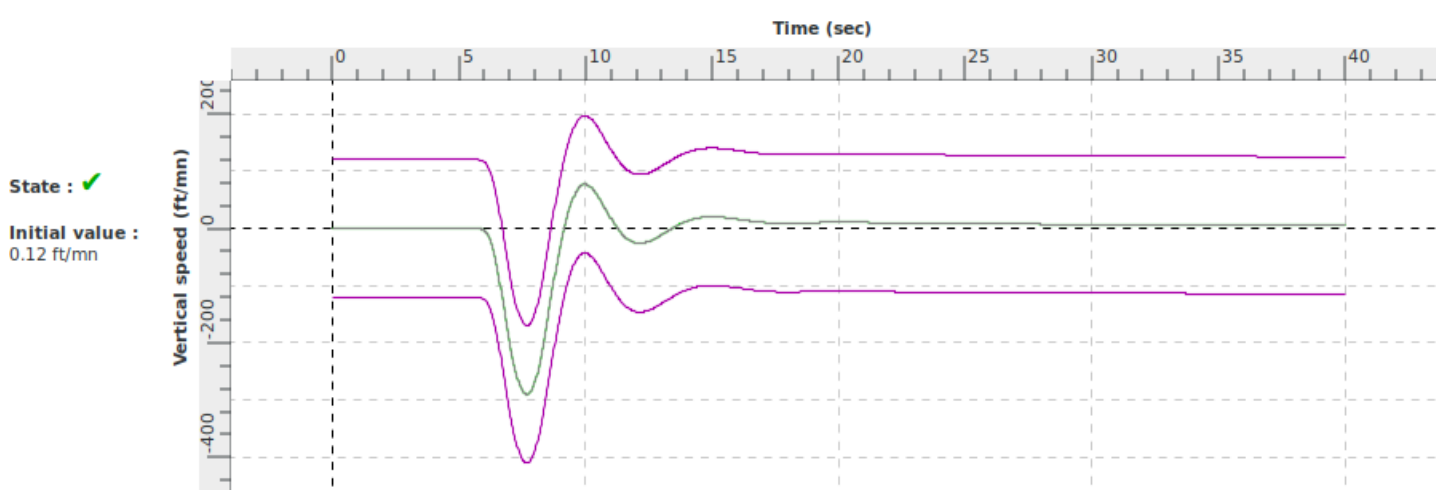
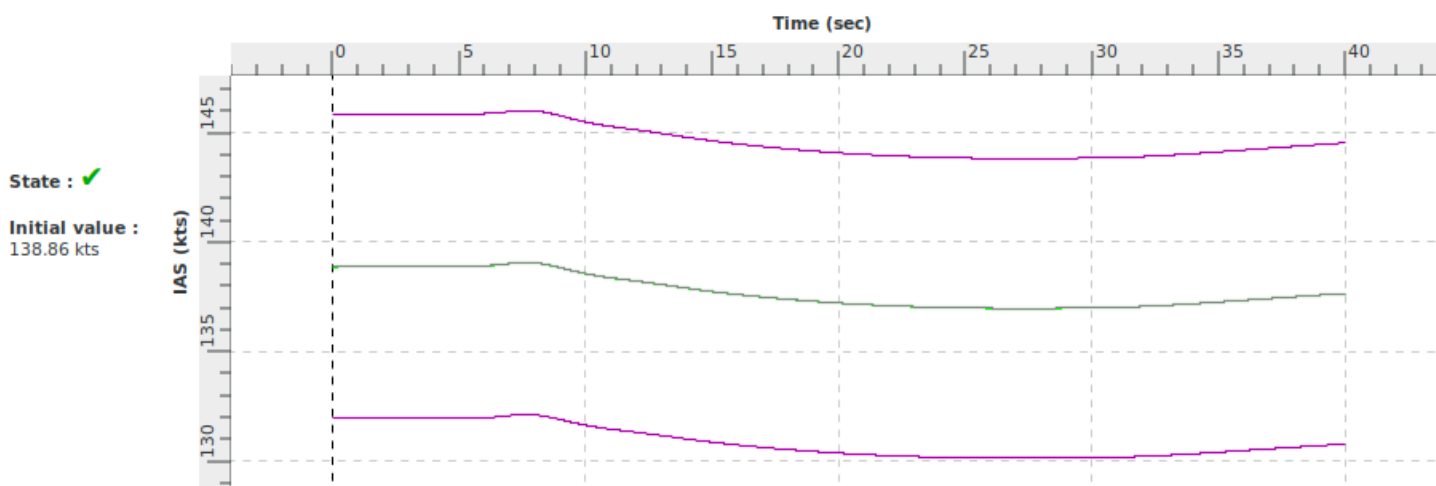
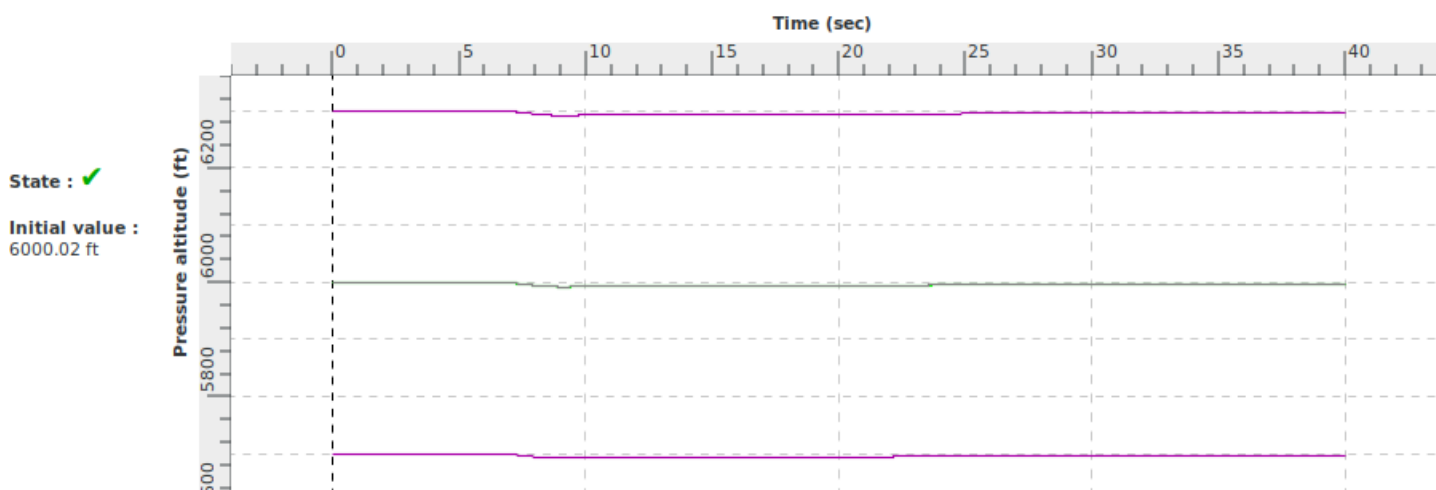
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
5.0	set_bank_angle	45.0	Ask the Qtg Autopilot to maintain the desired bank angle
40.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Longitudinal manoeuvring stability during cruise		
<b>Id</b>	2 c v i a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.03
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	04/02/24	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

Log of Revision		
Rev. Nbr	Date	Reason for revision
1.01	29/03/21	1909 Master. Expected results unchanged.
1.02	27/07/21	2012-R1 Master. Expected results unchanged.
1.03	05/04/22	Tolerance of Mag Heading Angle Removed.

Notes

Title	Longitudinal manoeuvring stability during cruise		
Id	2 c v i a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.03
Result Date	04/02/24	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



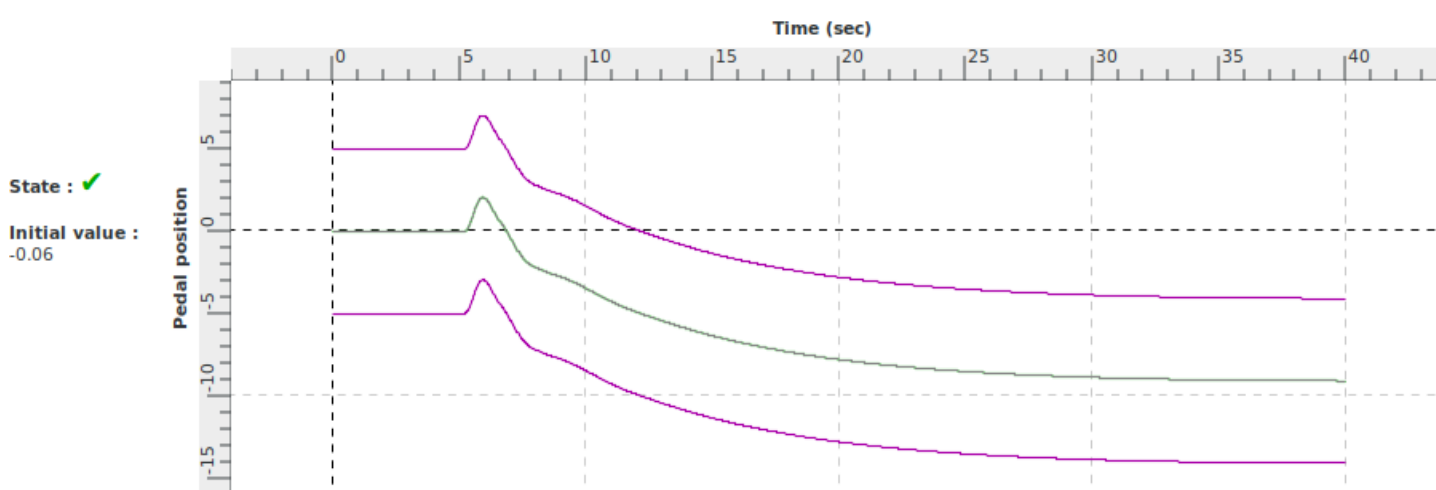
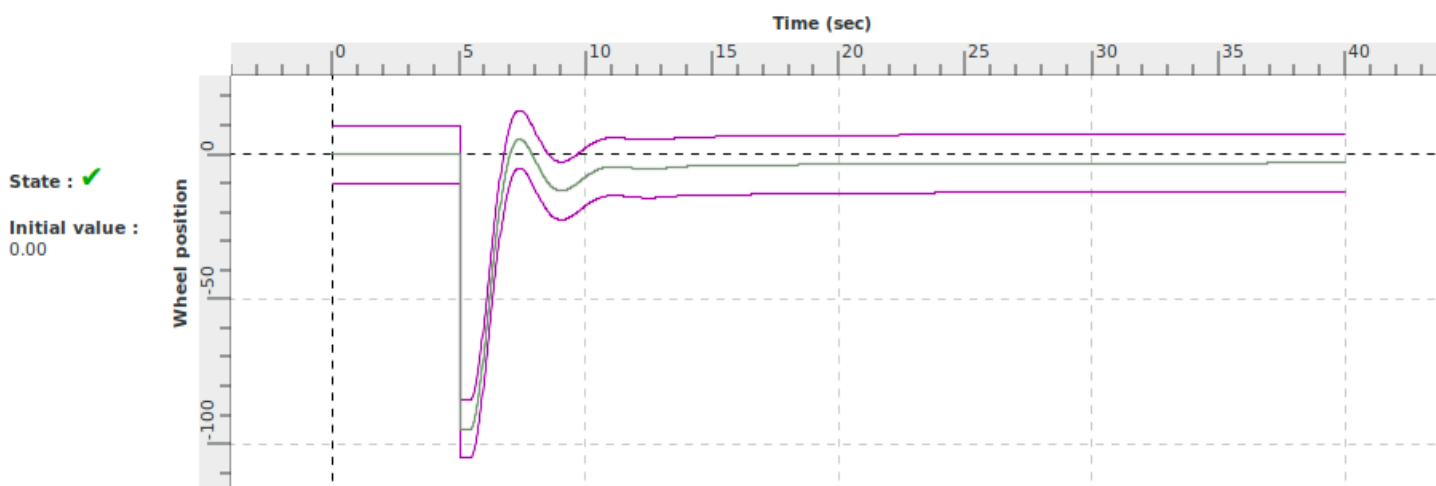
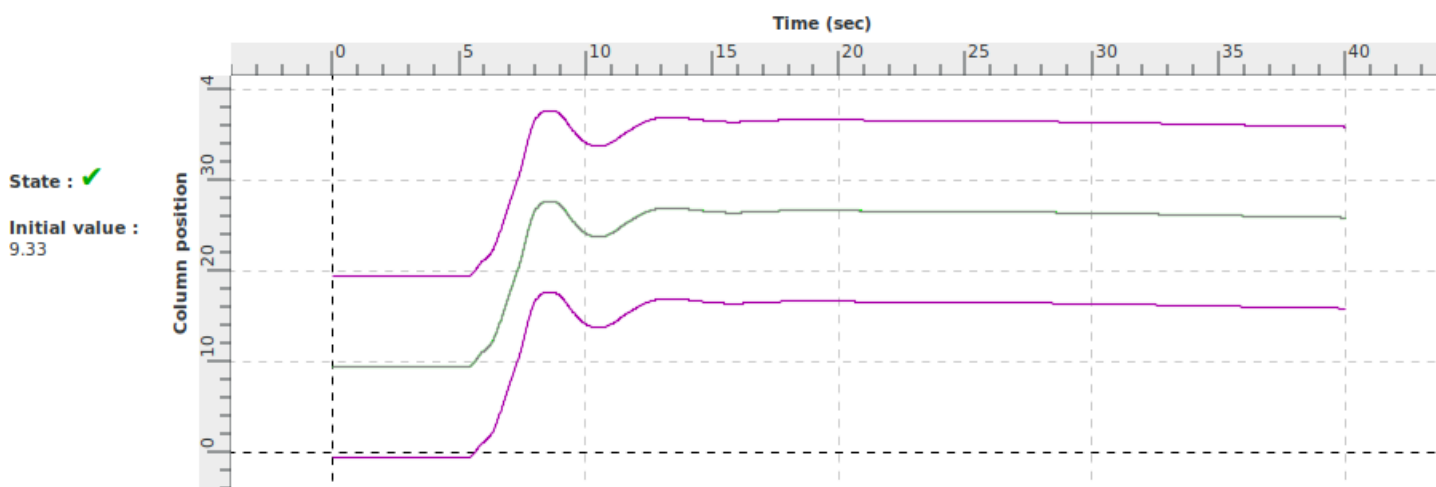
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Longitudinal manoeuvring stability during cruise		
Id	2 c v i a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.03
Result Date	04/02/24	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



### Legend :

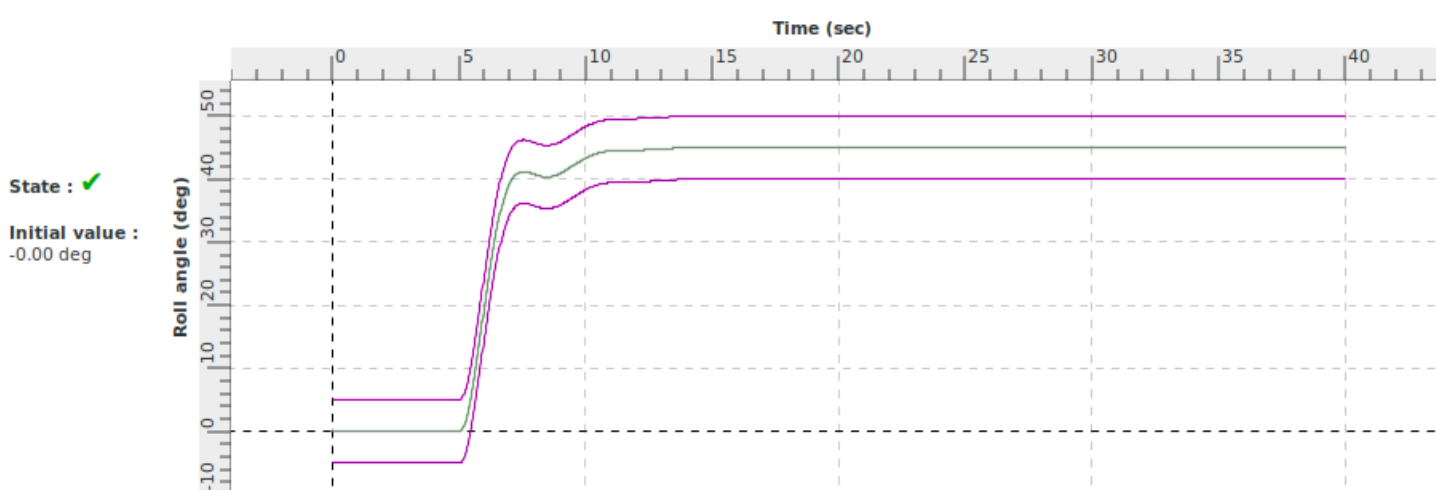
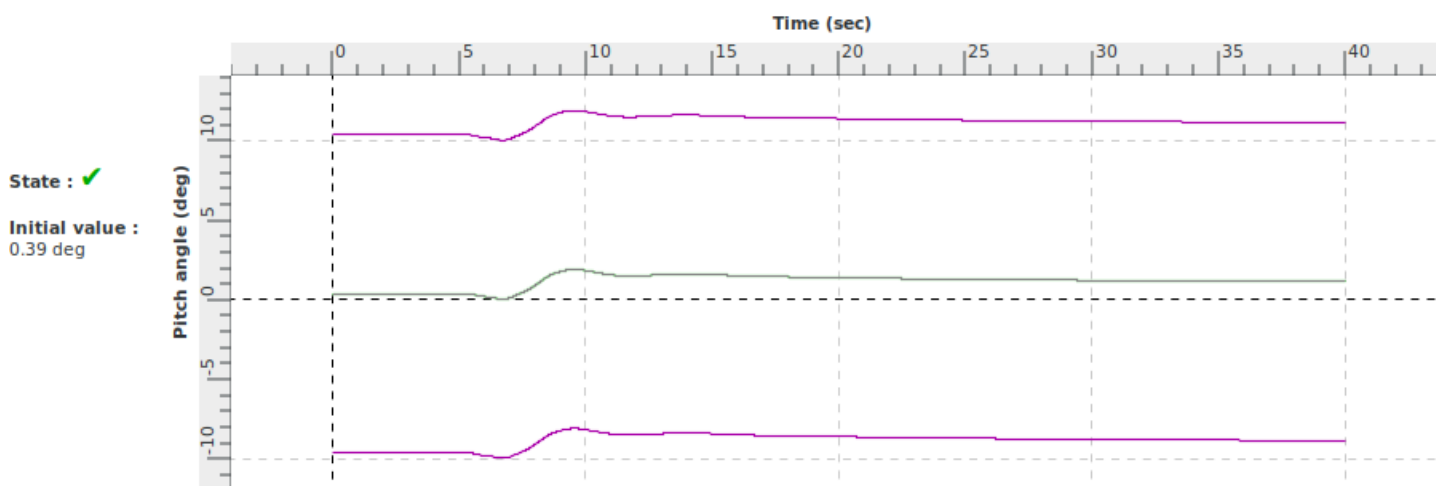
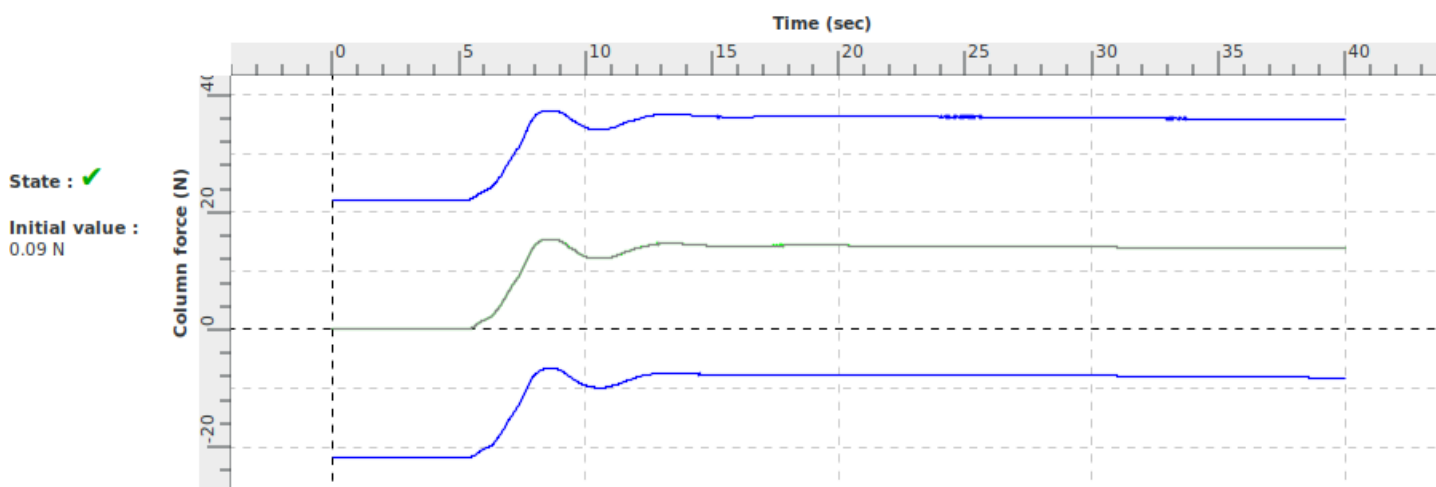
green : results within tolerances  
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red : results out of tolerances  
violet : tolerances Alsim

grey : master



Title	Longitudinal manoeuvring stability during cruise		
Id	2 c v i a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.03
Result Date	04/02/24	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



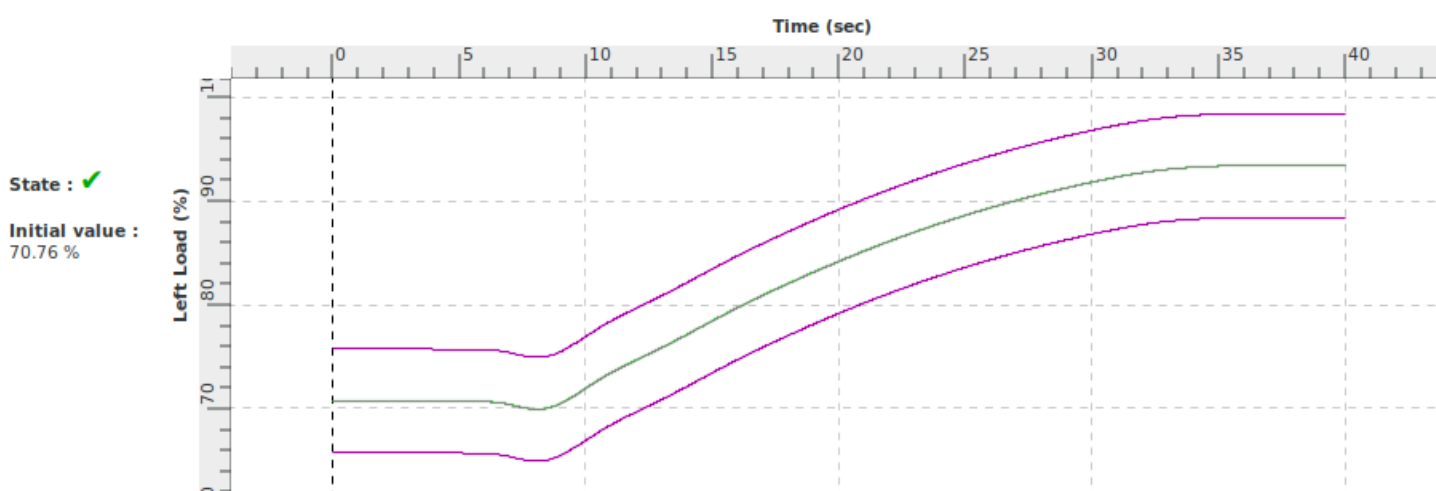
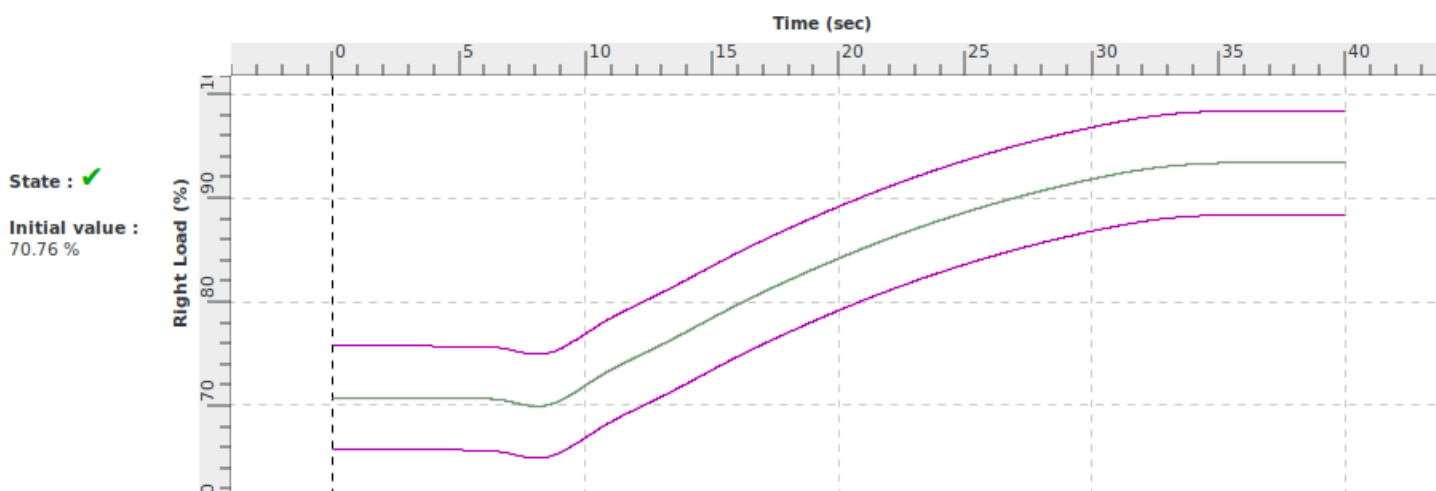
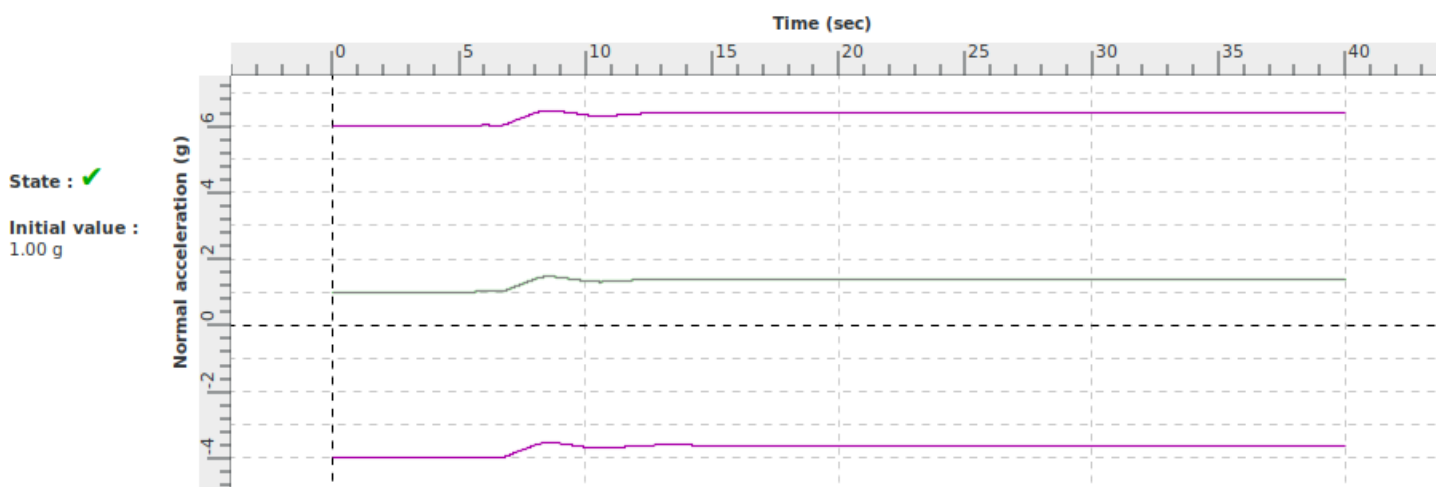
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Longitudinal manoeuvring stability during cruise		
Id	2 c v i a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.03
Result Date	04/02/24	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



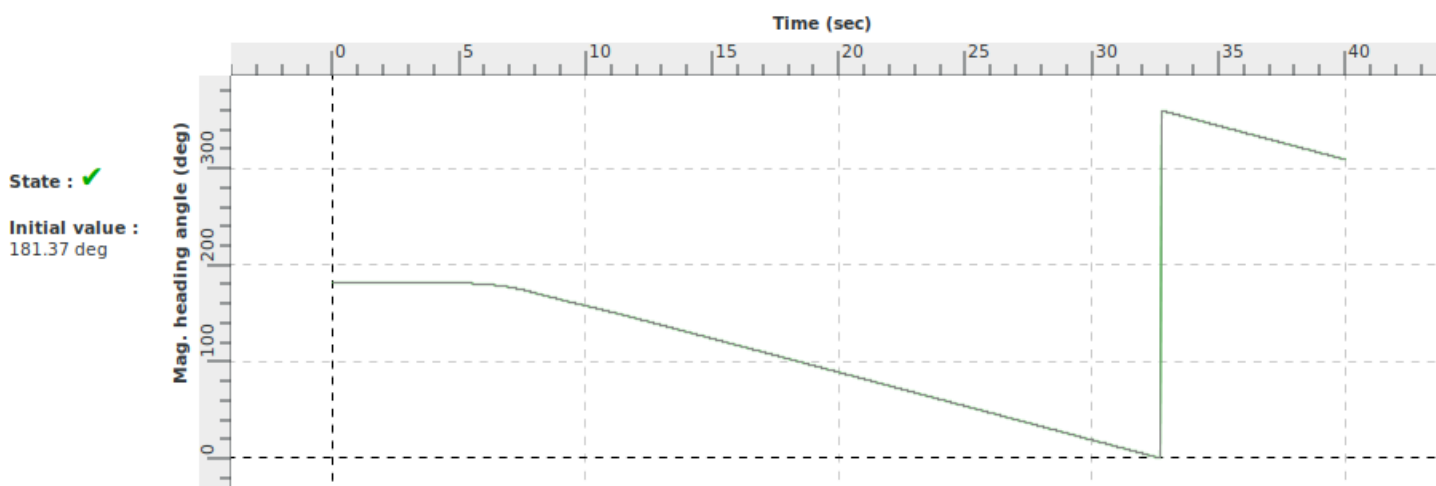
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Longitudinal manoeuvring stability during cruise		
Id	2 c v i a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.03
Result Date	04/02/24	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

# VALIDATION TEST

<b>Title</b>	Longitudinal manoeuvring stability during approach		
<b>Id</b>	2 c vi b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the simulation of manoeuvring stability during approach, conforms to the class of aeroplanes	Column force +7 N approx. for 30° of bank angle
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.c.vi.b	+/- 2.2 daN (5lbs) or +/- 10% column force.

<b>Demonstration procedure</b>	From steady approach initial conditions, a right steady turn of 30° is performed.
<b>Manual test procedure</b>	Trim the aeroplane in approach condition (see initial parameters in the next page). Use the column and pedals to set the aircraft bank angle to 30° to the right while maintaining the initial airspeed using the engine power (load). At the end of the test, check the column force value and compare it to the master value.
<b>Automatic test procedure</b>	2 c vi b

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

<b>Title</b>	Longitudinal manoeuvring stability during approach		
<b>Id</b>	2 c vi b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Autopilot mode</b>	AUTO_PWR
Automatic AUTO_POWER mode : Vertical Speed and IAS (airspeed) are maintained through pitch trim and engine parameters changes.	

<b>Initial parameters</b>	HOLD_FLAPS_APP_GEAR
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 3000 Vertical speed (ft/min) : 0 IAS (kt) : 106 Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : -1 Pedal Position (%) : 0 Column Position (%) : 32 Wheel Position (%) : 0	Flaps lever position : 1 Gear lever position : 1 Left Load (%) : 70 (free) Right Load (%) : 70 (free) Left RPM : 2060 (free) Right RPM : 2060 (free)

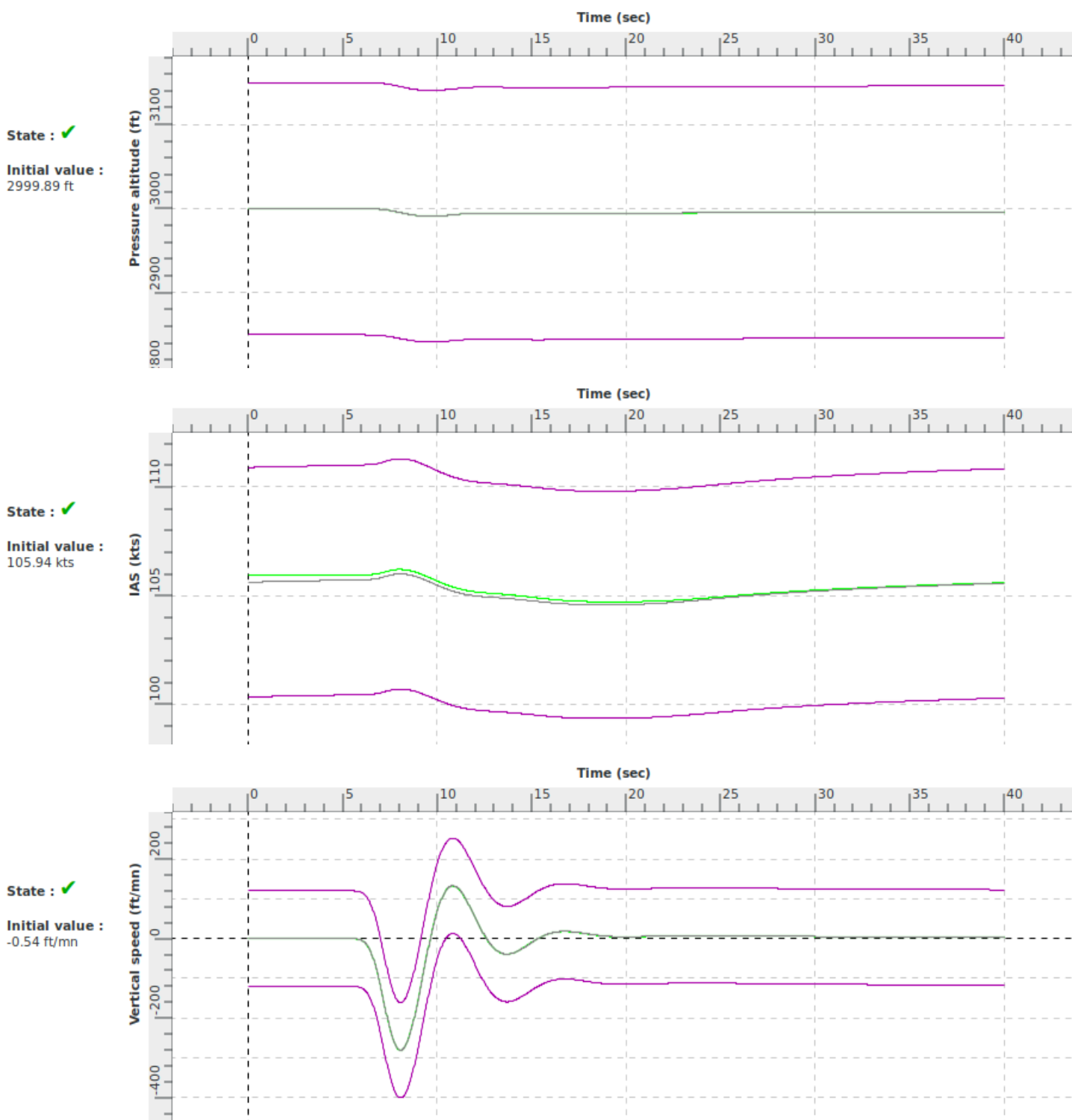
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
5.0	set_bank_angle	30.0	Ask the Qtg Autopilot to maintain the desired bank angle
40.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Longitudinal manoeuvring stability during approach		
<b>Id</b>	2 c vi b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

Log of Revision		
Rev. Nbr	Date	Reason for revision
1.01	29/03/21	1909 Master. Expected results unchanged.
1.02	27/07/21	2012-R1 Master. Expected results unchanged.

Notes

Title	Longitudinal manoeuvring stability during approach		
Id	2 c vi b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	14/06/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



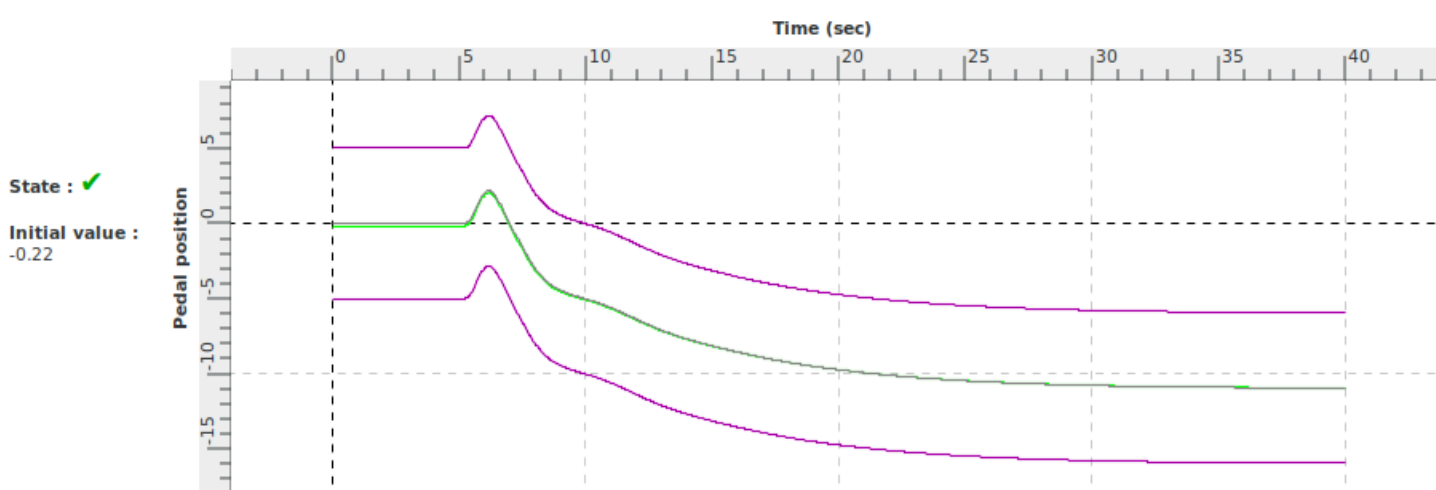
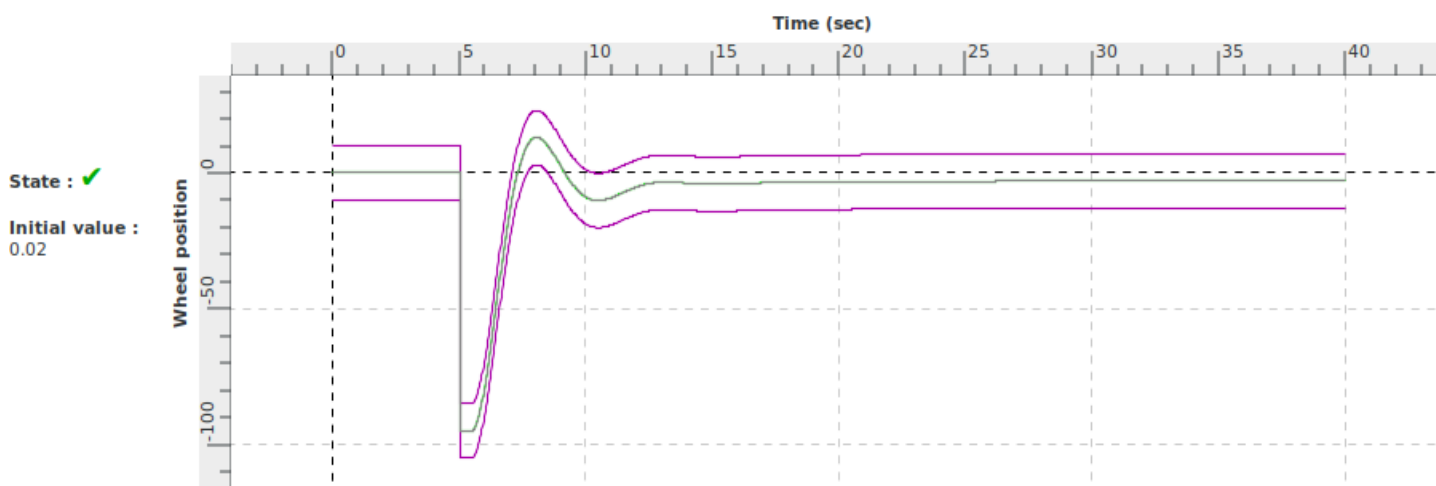
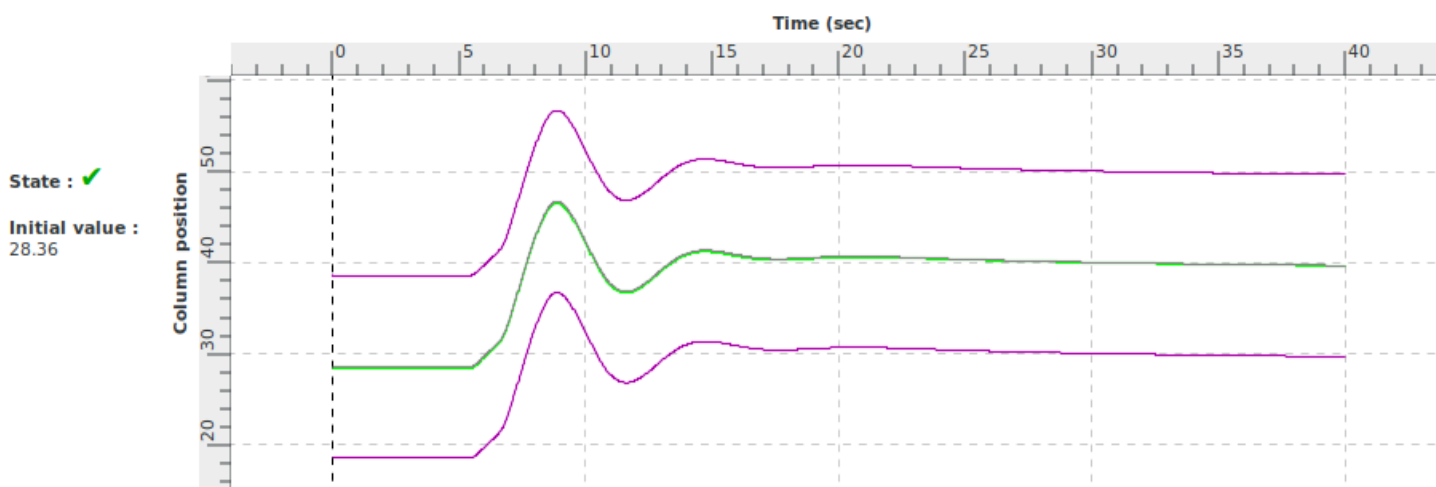
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master

Title	Longitudinal manoeuvring stability during approach		
Id	2 c vi b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	14/06/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



### Legend :

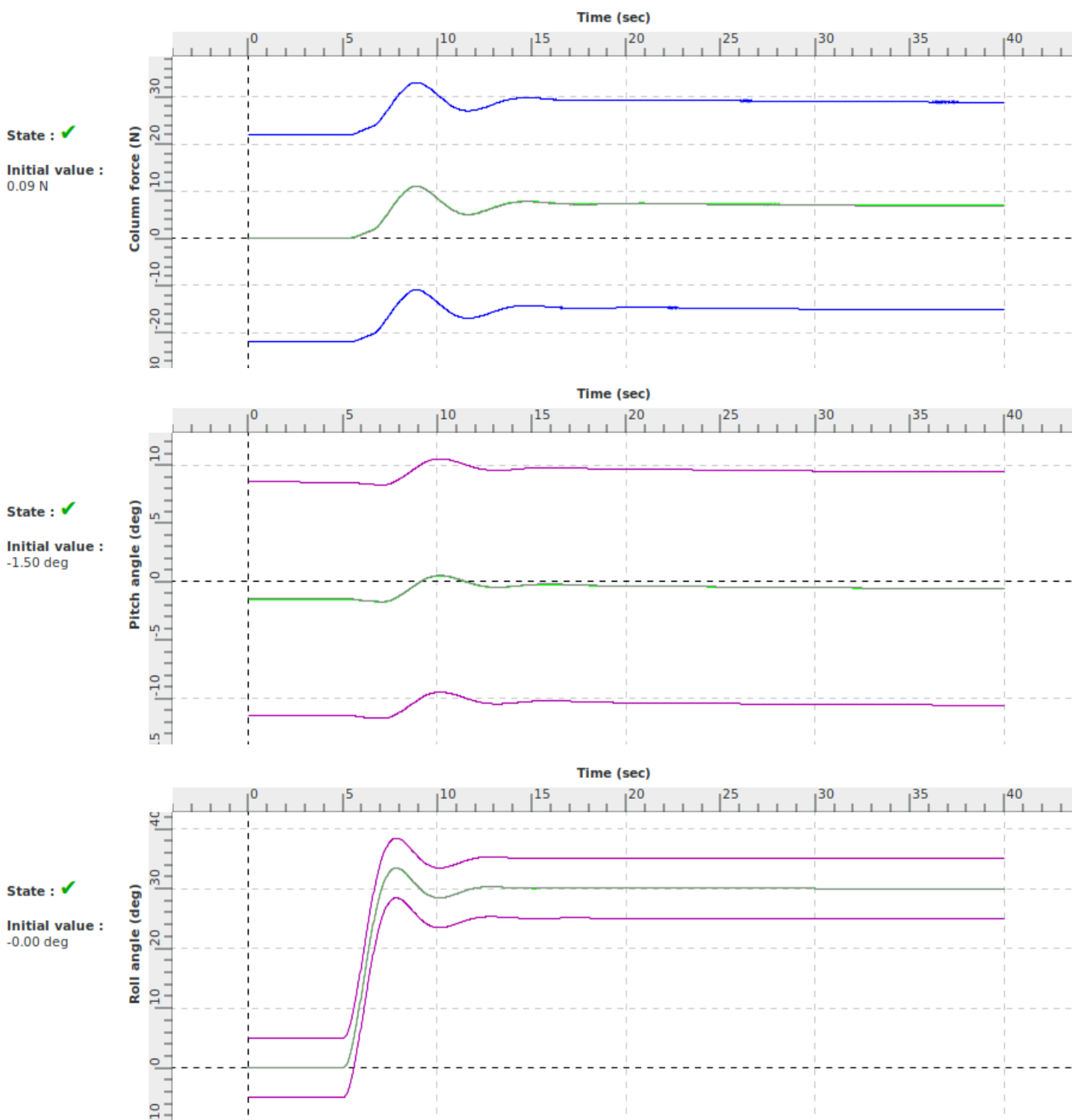
green : results within tolerances  
blue : tolerances

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violet : tolerances Alsim

grey : master



Title	Longitudinal manoeuvring stability during approach		
Id	2 c vi b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	14/06/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



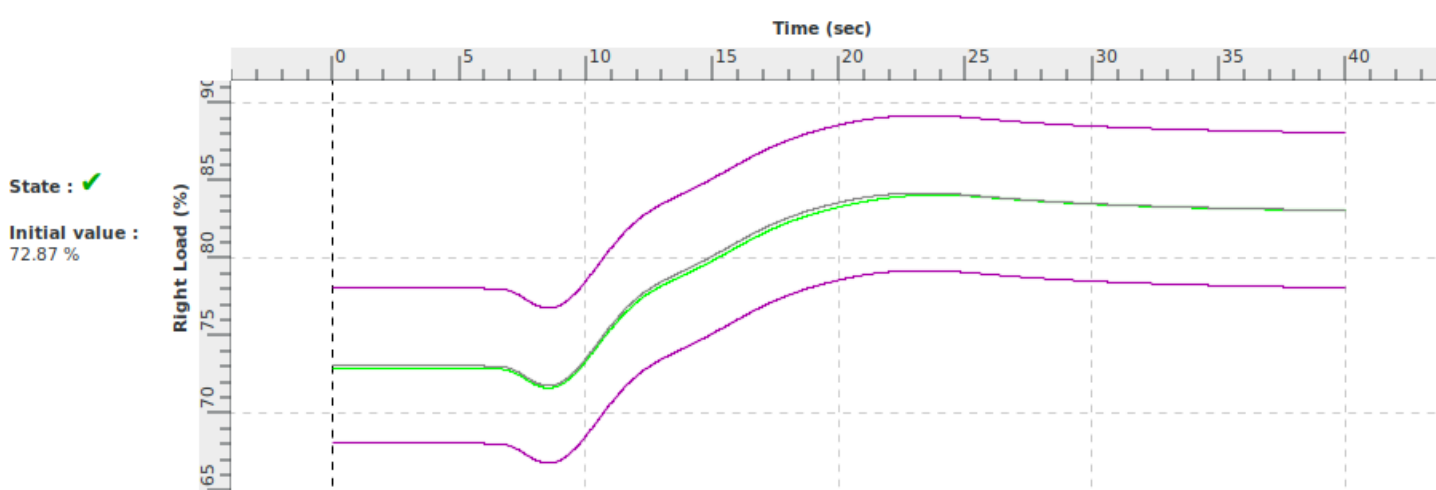
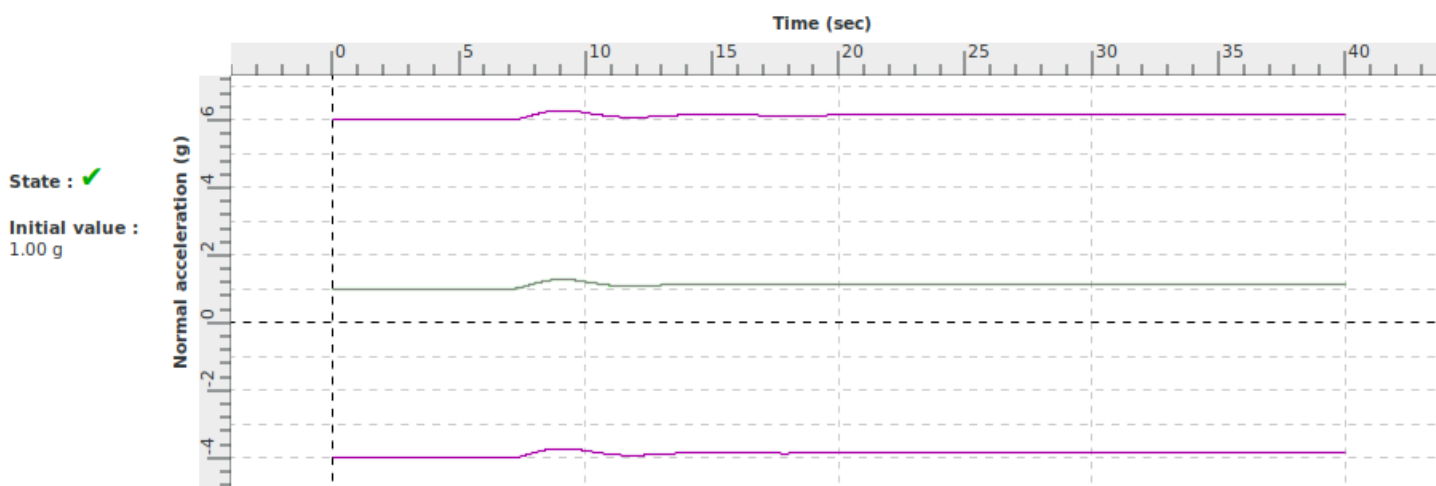
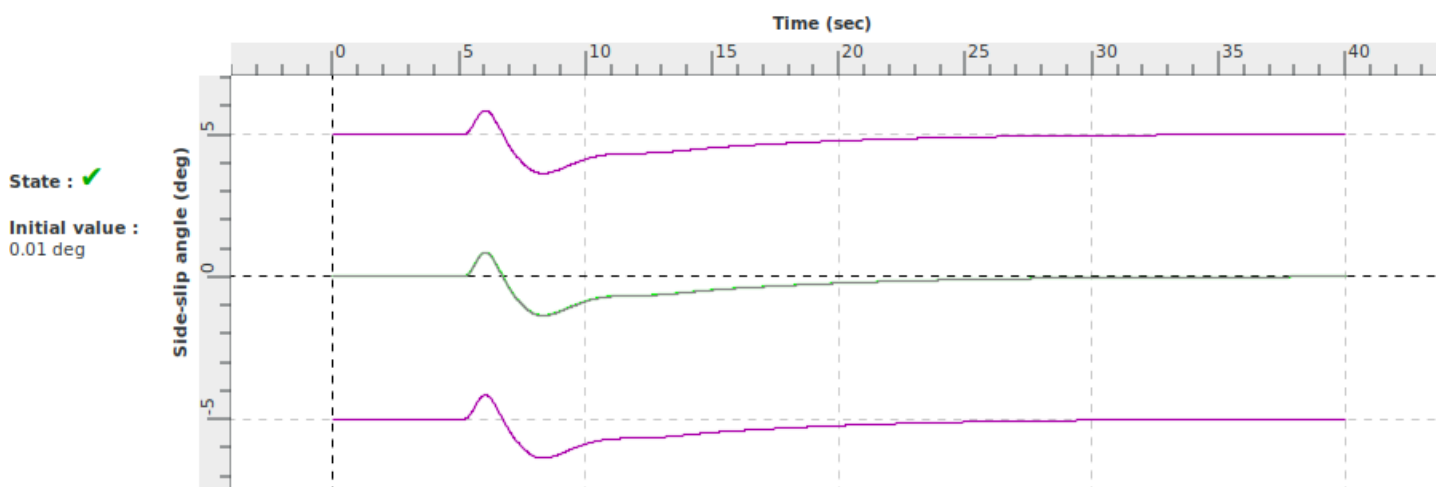
#### Legend :

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blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Longitudinal manoeuvring stability during approach		
Id	2 c vi b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	14/06/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



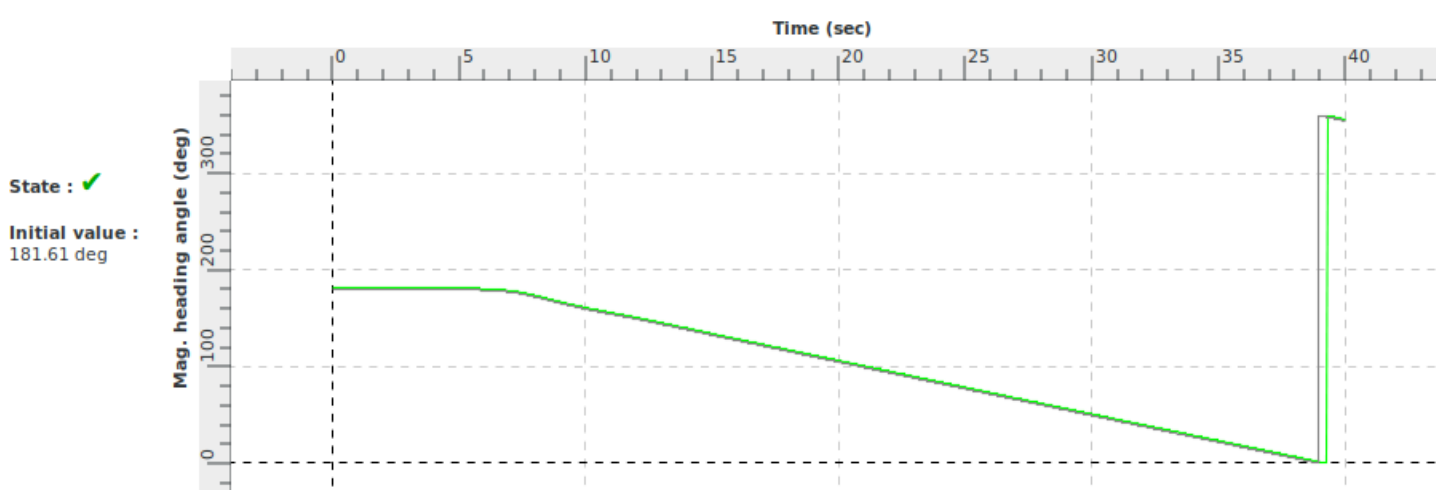
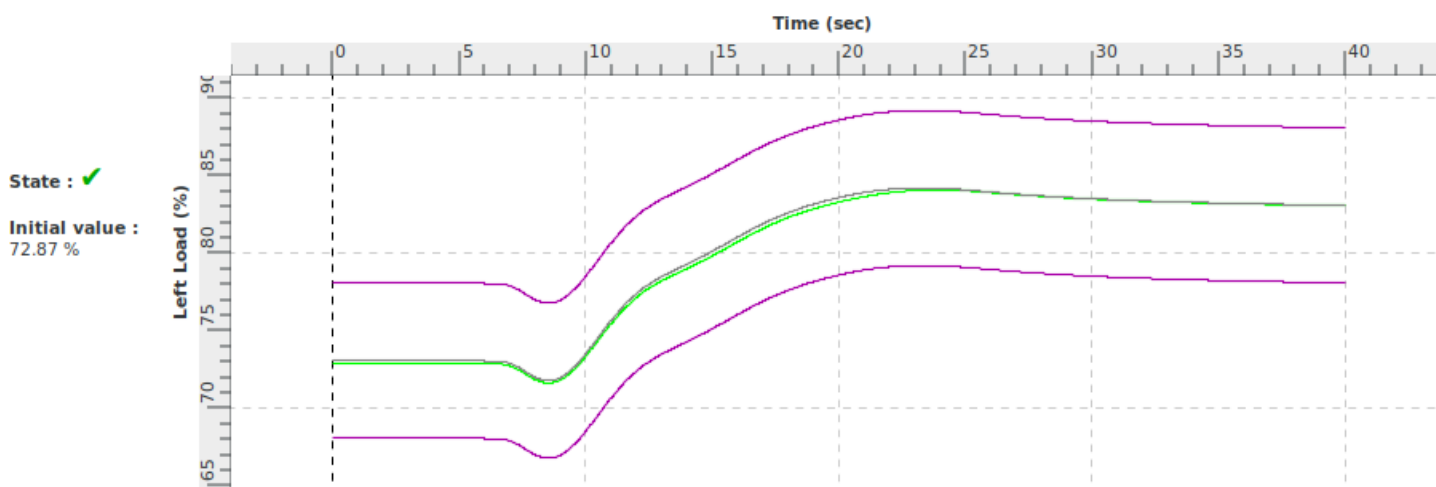
### Legend :

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blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Longitudinal manoeuvring stability during approach		
Id	2 c vi b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	14/06/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

# VALIDATION TEST

<b>Title</b>	Longitudinal static stability during approach		
<b>Id</b>	2 c v ii	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.01
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the simulator static longitudinal stability characteristics conforms to the class of aeroplanes	At 110 kts: Column force -1.9 N At 100 kts: Column force +3.5 N At 120 kts: Column force -6.7 N At 105 kts: Column force +1.4 N
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.c.vii	+/- 2.2 daN (5Lbs) or +/- 10% Force

<b>Demonstration procedure</b>	From steady approach initial conditions, a longitudinal control step is applied to achieve a deviation from the trimmed airspeed whilst maintaining wings level. Longitudinal control force is used to maintain a steady state condition at two speeds above and two speeds below the initial trim airspeed.
<b>Manual test procedure</b>	In ISA conditions and approach configuration, the pilot trims the aircraft. Then, the pilot decreases and increases the IAS (until the new IAS value is stable) through pitch angle to maintain the desired IAS.
<b>Automatic test procedure</b>	2 c v ii

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

Title	Longitudinal static stability during approach		
Id	2 c v ii	Aircraft	DA42-VI
Device	A42M2-12	Version	1.01
Qualification Level	FNPT2	Operator	AFTA
Result Date	22/08/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01

Autopilot mode	AUTO_VZ
Automatic IAS (airspeed) and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and IAS. Roll Trim is computed to maintain 0° bank angle.	

Initial parameters	HOLD_FLAPS_APP_GEAR
Gross weight (kg) : 1900	Flaps lever position : 1
Balance (%) : 50	Gear lever position : 1
Altitude (ft) : 3000	Left Load (%) : 70
Vertical speed (ft/min) : 0 (free)	Right Load (%) : 70
IAS (kt) : 106	Left RPM : 2060
Heading (°) : 0 (free)	Right RPM : 2060
Bank (°) : 0	
Attitude (°) : -1	
Pedal Position (%) : 0	
Column Position (%) : 32	
Wheel Position (%) : 0	

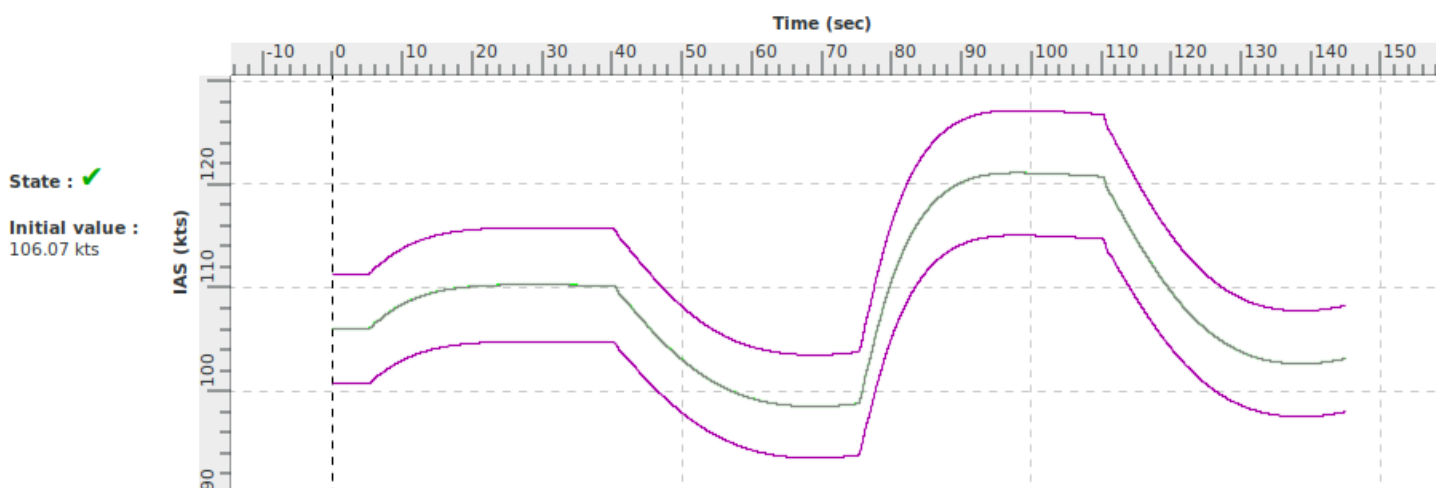
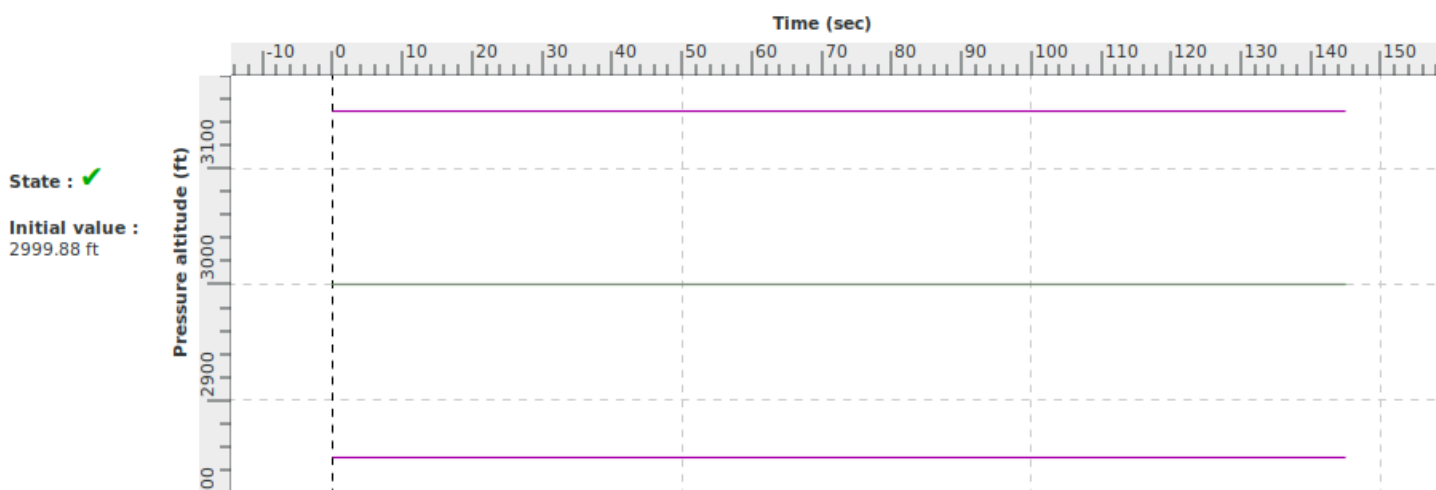
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
0.0	mode_freeze	1.0	Set the aircraft to freeze mode
5.0	SetSpeed	110.0	Ask the QTG Autopilot to maintain the desired speed
40.0	SetSpeed	100.0	Ask the QTG Autopilot to maintain the desired speed
75.0	SetSpeed	120.0	Ask the QTG Autopilot to maintain the desired speed
110.0	SetSpeed	105.0	Ask the QTG Autopilot to maintain the desired speed
145.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Longitudinal static stability during approach		
<b>Id</b>	2 c v ii	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.01
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

Log of Revision		
Rev. Nbr	Date	Reason for revision
1.01	27/07/21	2012-R1 Master. Expected results unchanged.

Notes

Title	Longitudinal static stability during approach		
Id	2 c v ii	Aircraft	DA42-VI
Device	A42M2-12	Version	1.01
Result Date	22/08/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



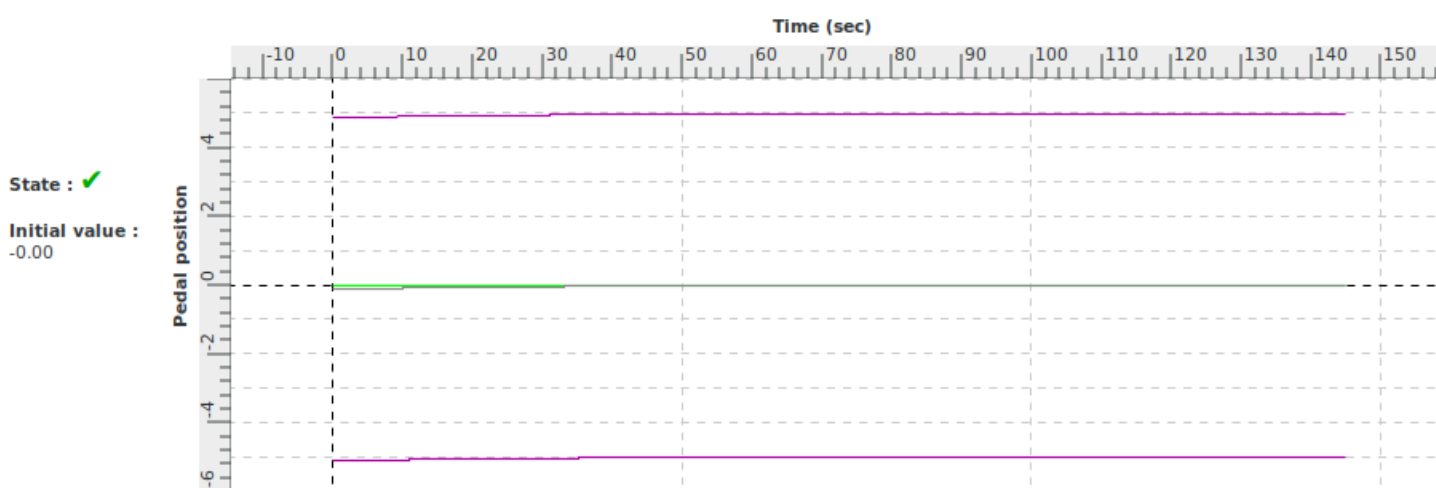
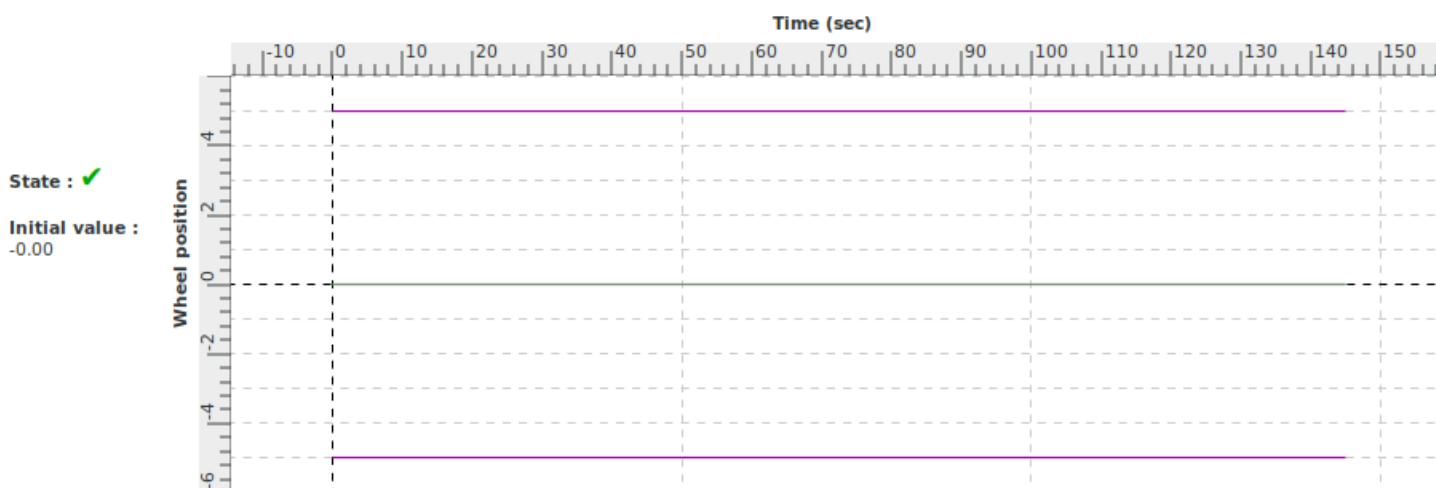
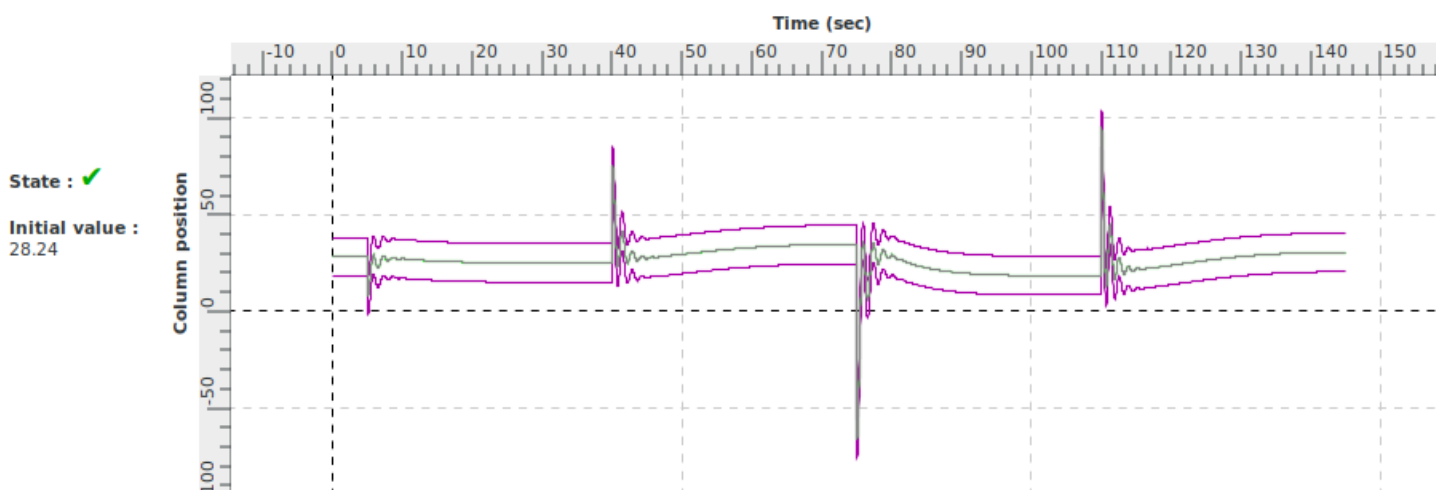
#### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Longitudinal static stability during approach		
Id	2 c v ii	Aircraft	DA42-VI
Device	A42M2-12	Version	1.01
Result Date	22/08/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



### Legend :

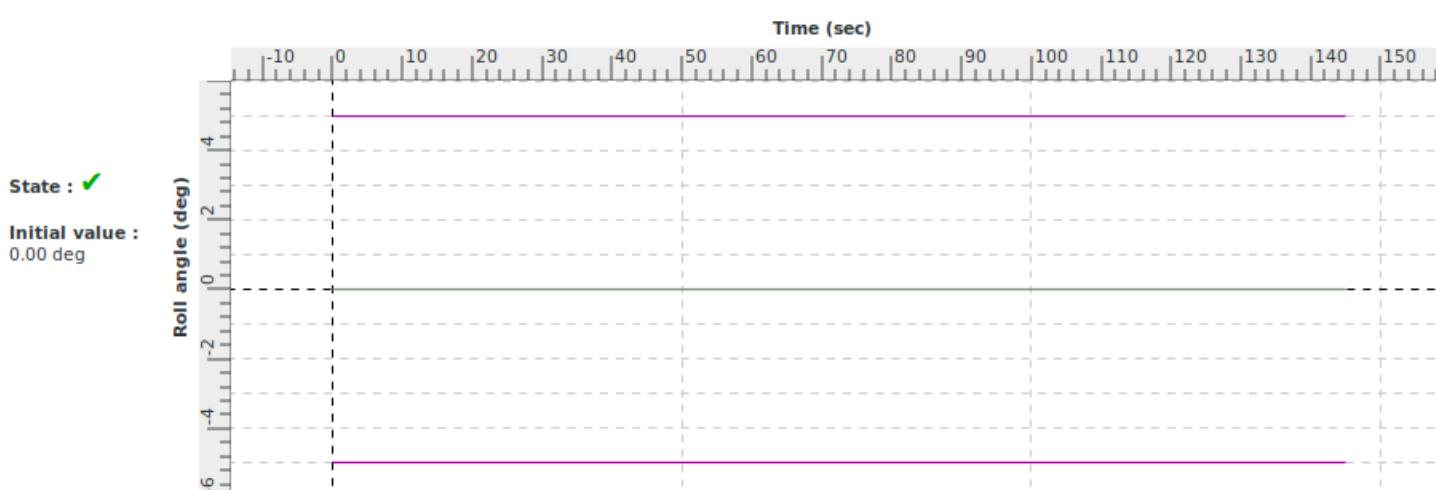
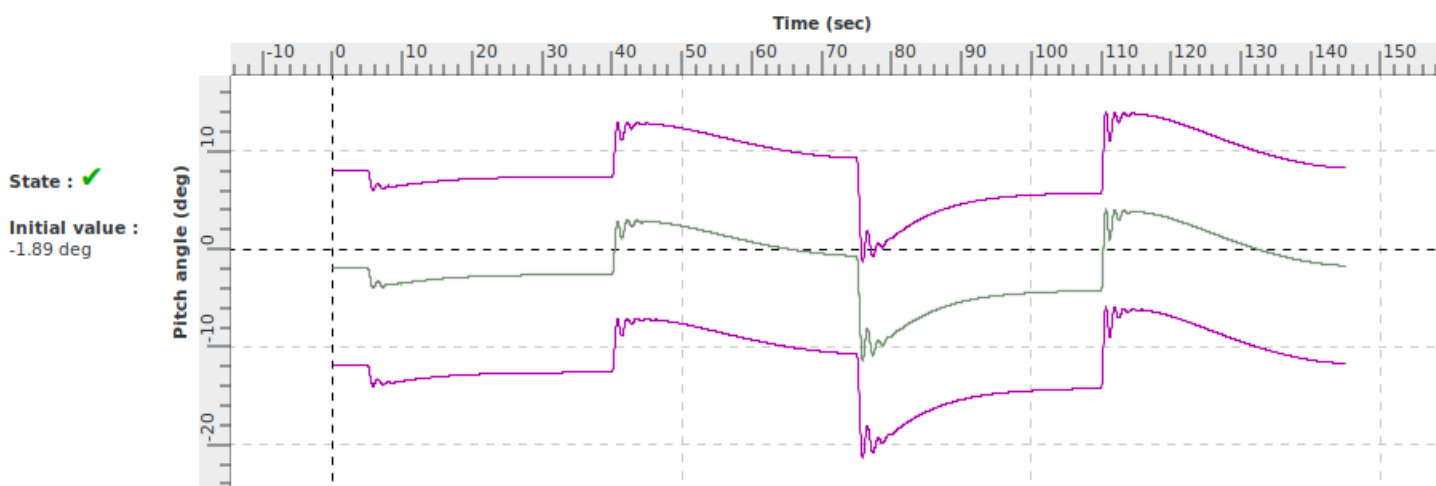
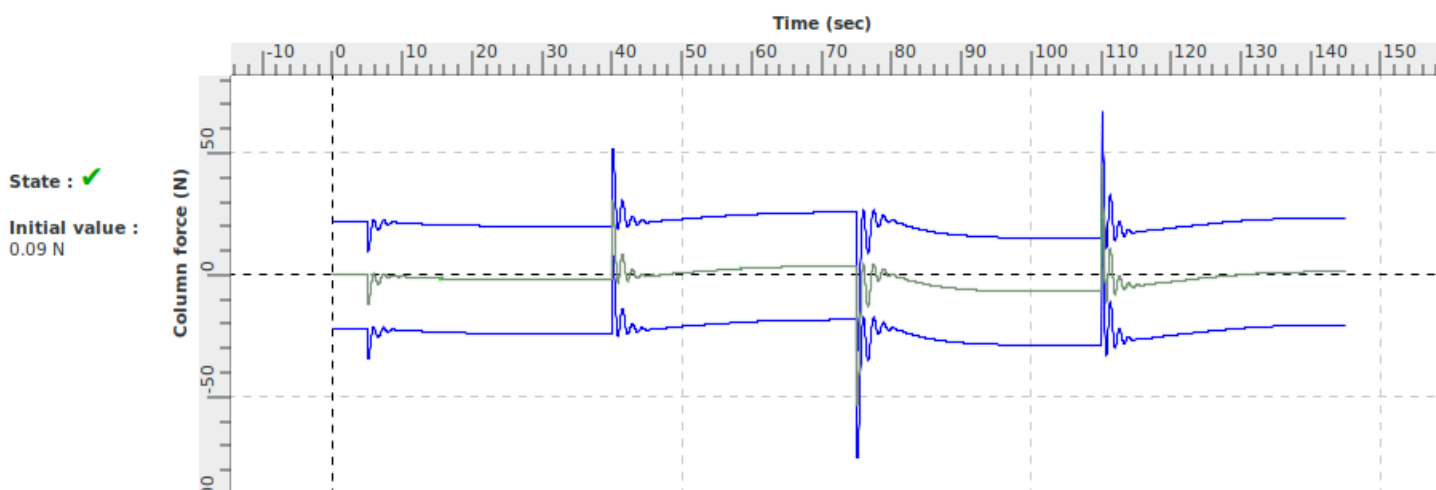
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red : results out of tolerances  
violet : tolerances Alsim

grey : master



Title	Longitudinal static stability during approach		
Id	2 c v ii	Aircraft	DA42-VI
Device	A42M2-12	Version	1.01
Result Date	22/08/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



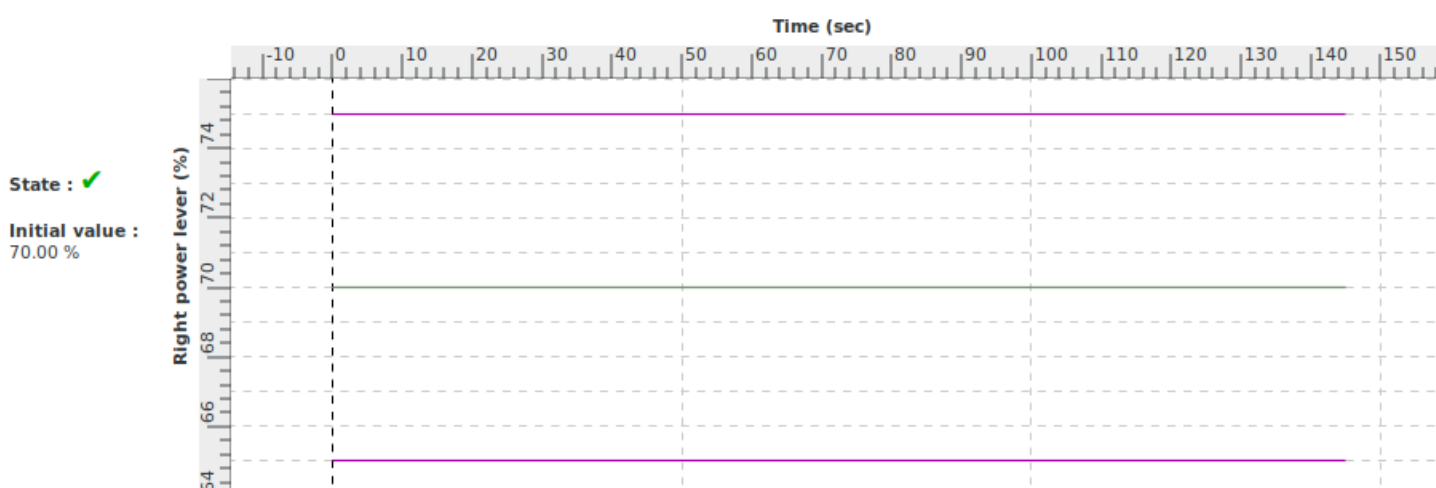
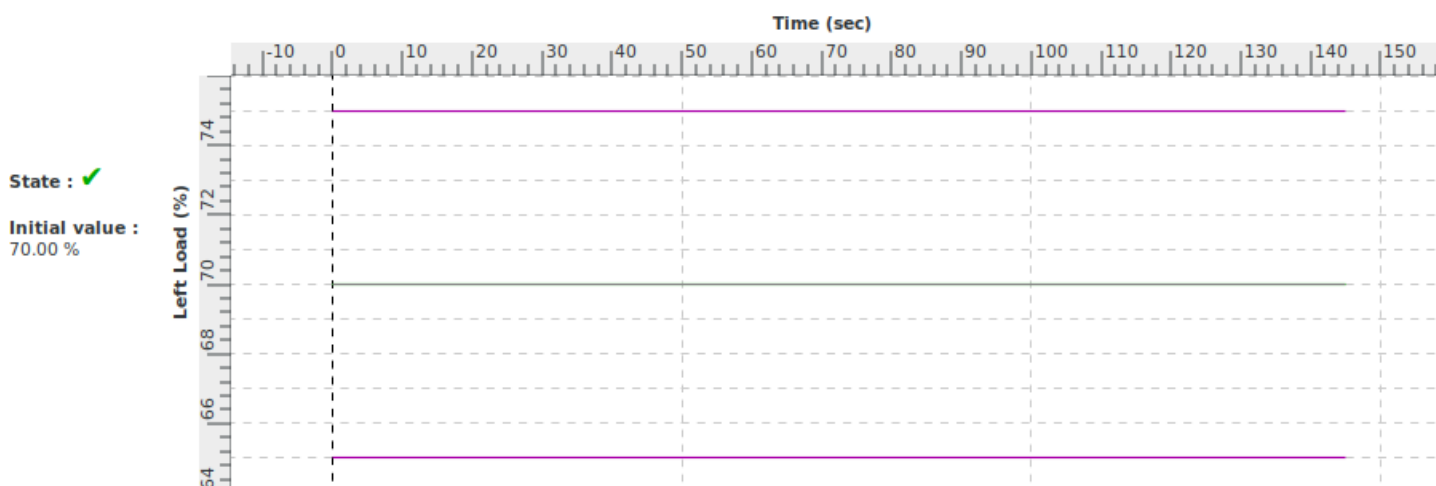
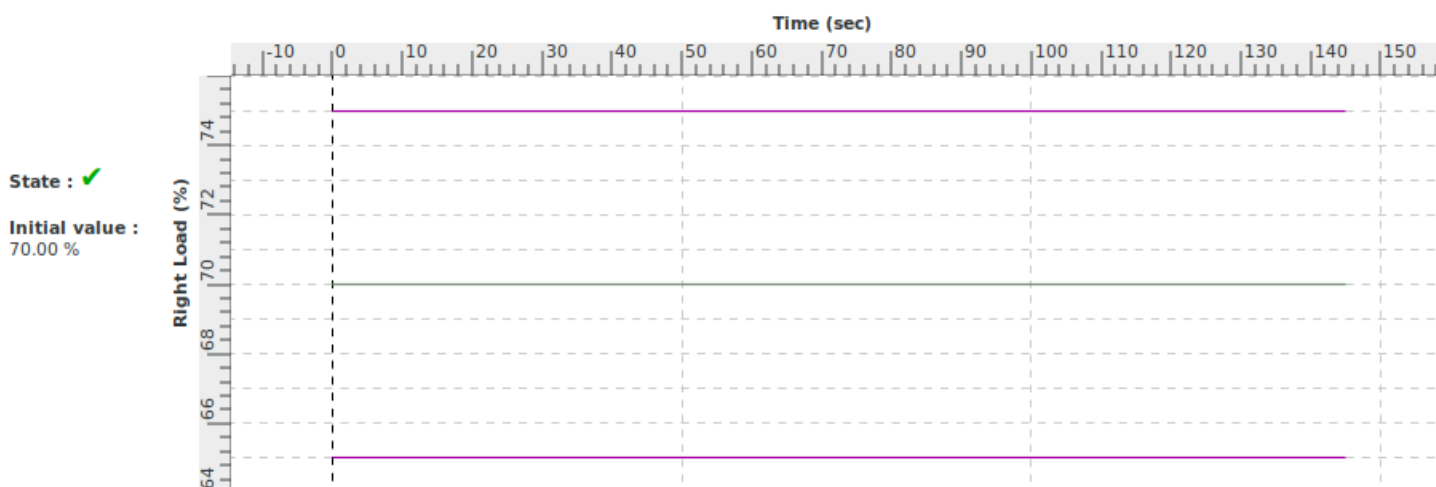
### Legend :

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blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Longitudinal static stability during approach		
Id	2 c v ii	Aircraft	DA42-VI
Device	A42M2-12	Version	1.01
Result Date	22/08/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



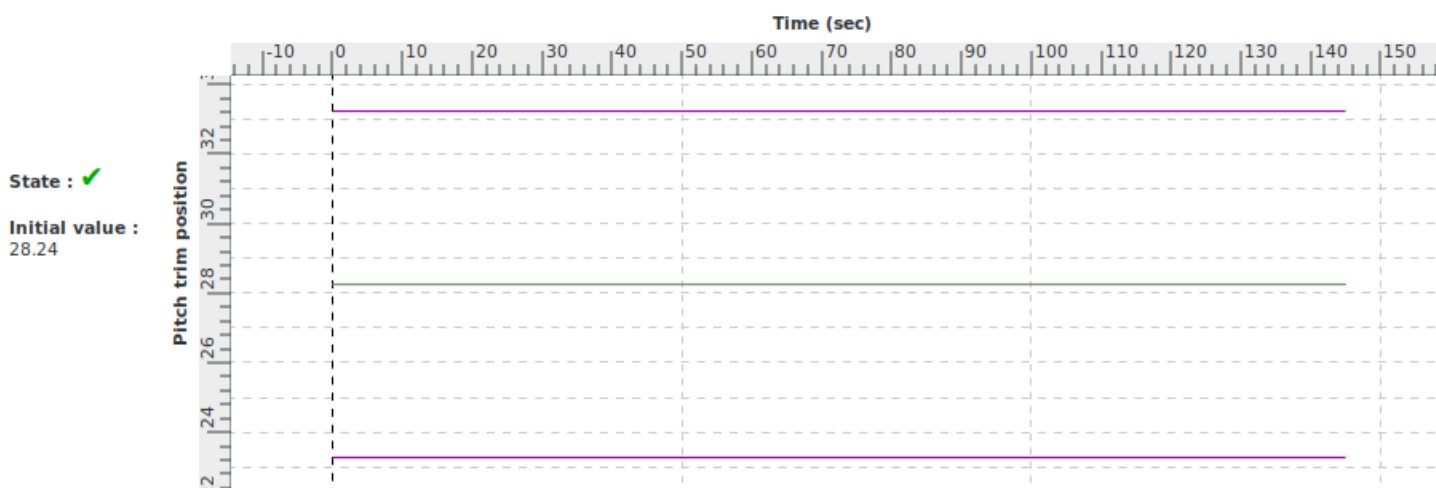
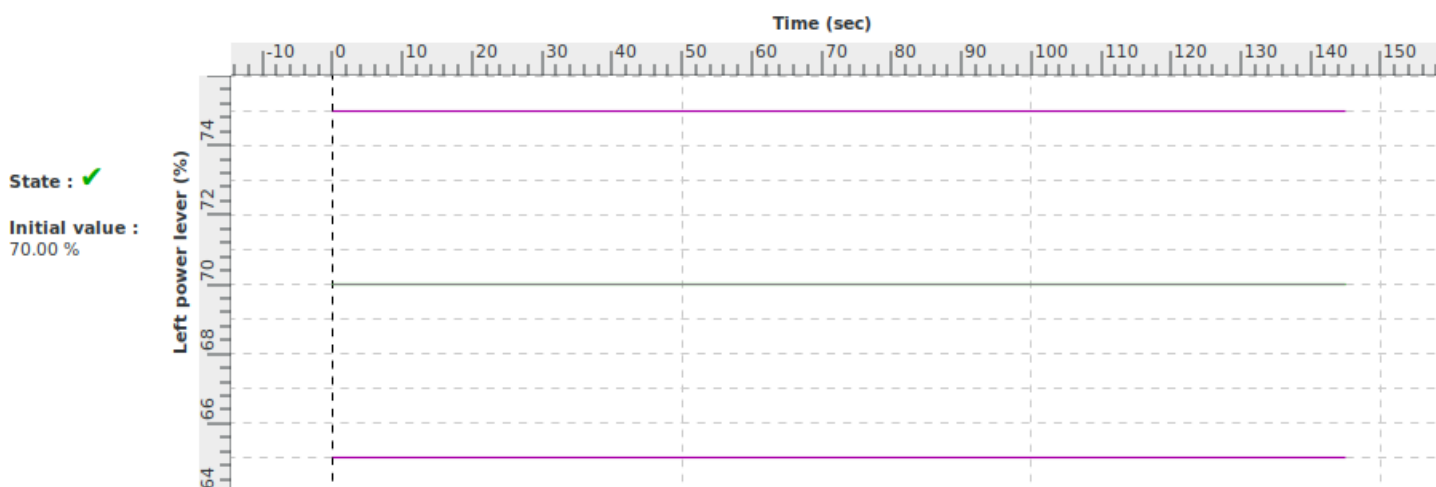
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master

Title	Longitudinal static stability during approach		
Id	2 c v ii	Aircraft	DA42-VI
Device	A42M2-12	Version	1.01
Result Date	22/08/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master

# VALIDATION TEST

<b>Title</b>	Stall characteristics second segment climb		
<b>Id</b>	2 c viii b 1	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the simulation of stall warning indication during second segment climb conforms to the class of aeroplanes	Stall warning expected at 76 kts
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.c.viii.b.1	+/- 3 kts Airspeed

<b>Demonstration procedure</b>	From steady second segment climb initial conditions power is set to idle.
<b>Manual test procedure</b>	Setting the aircraft initial parameters given next page, the pilot performs a standard climb profile maintaining vertical speed and constant power setting. When climb is stabilized, the pilot reduces the power to idle and maintains the vertical speed such as to increase the pitch attitude and one knot per second deceleration allowing the aeroplane to stall. (Do not trim below 1.4 vs).
<b>Automatic test procedure</b>	2 c viii b 1

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

Title	Stall characteristics second segment climb		
<b>Id</b>	2 c viii b 1	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Autopilot mode</b>	AUTO_SPEED
<p>Automatic Vertical Speed and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and VS. Roll Trim is computed to maintain 0° bank angle.</p>	

<b>Initial parameters</b>	CLIMB
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 3000 Vertical speed (ft/min) : 1200 IAS (kt) : 90 (free) Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : 12 Pedal Position (%) : 0 Column Position (%) : 44 Wheel Position (%) : 0	Flaps lever position : 0 Gear lever position : 0 Left Load (%) : 92 Right Load (%) : 92 Left RPM : 2090 Right RPM : 2090

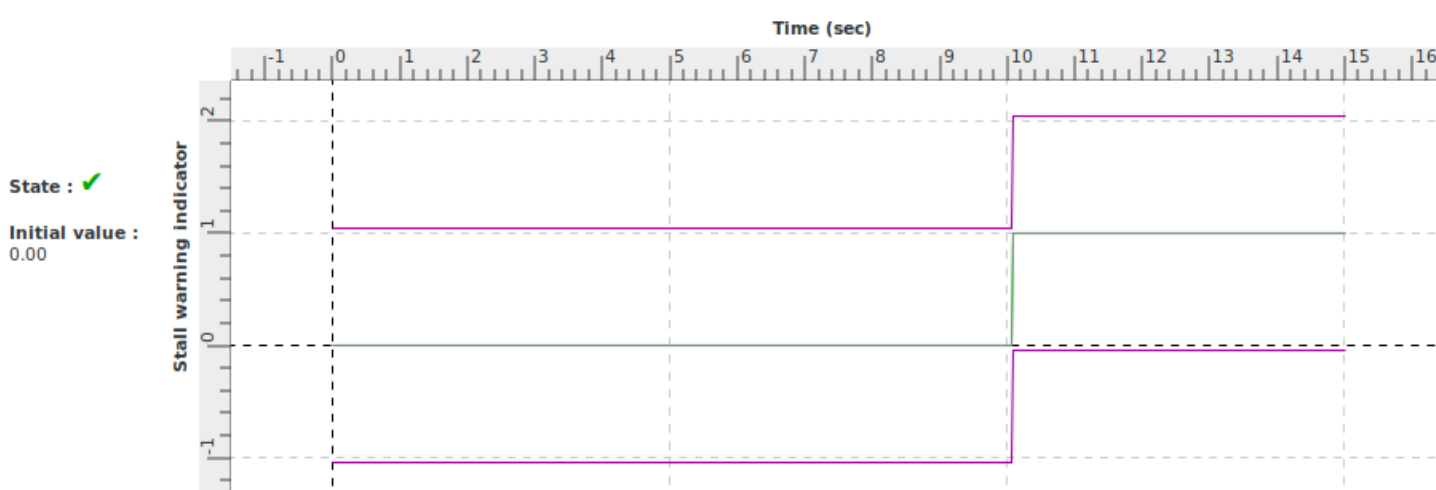
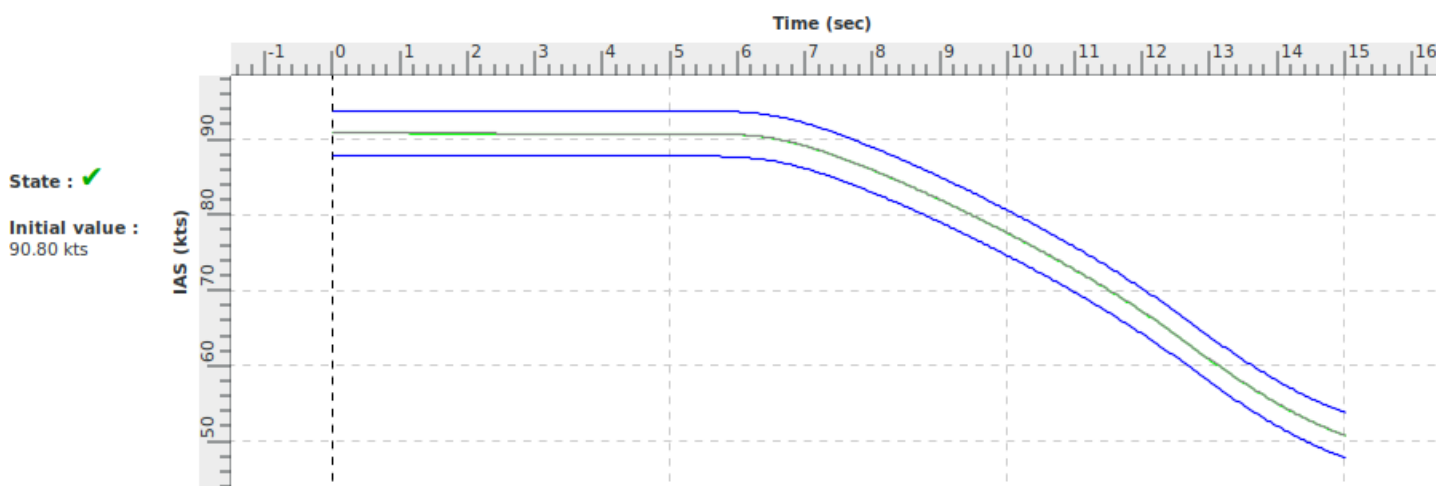
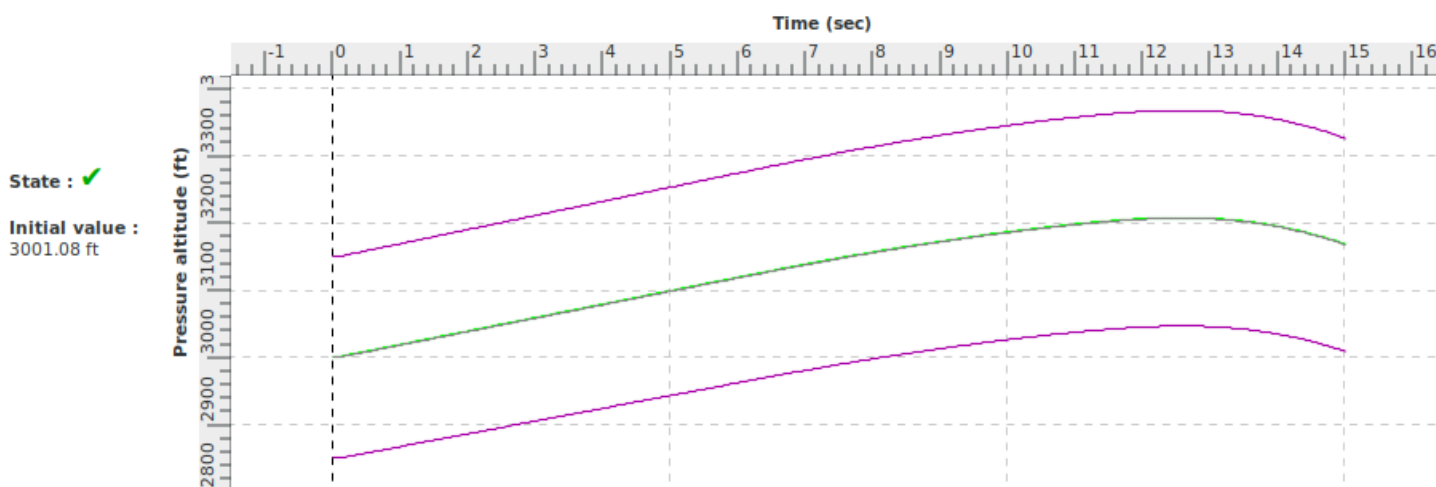
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
5.0	power_FLIGHT_IDLE	0.0	Set engine parameters to flight iddle power
15.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Stall characteristics second segment climb		
<b>Id</b>	2 c viii b 1	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

Log of Revision		
Rev. Nbr	Date	Reason for revision
1.01	29/03/21	1909 Master. Expected results unchanged. Time reduction to 15s
1.01	27/07/21	2012-R1 Master. Expected results unchanged.

Notes

Title	Stall characteristics second segment climb		
Id	2 c viii b 1	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	03/12/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



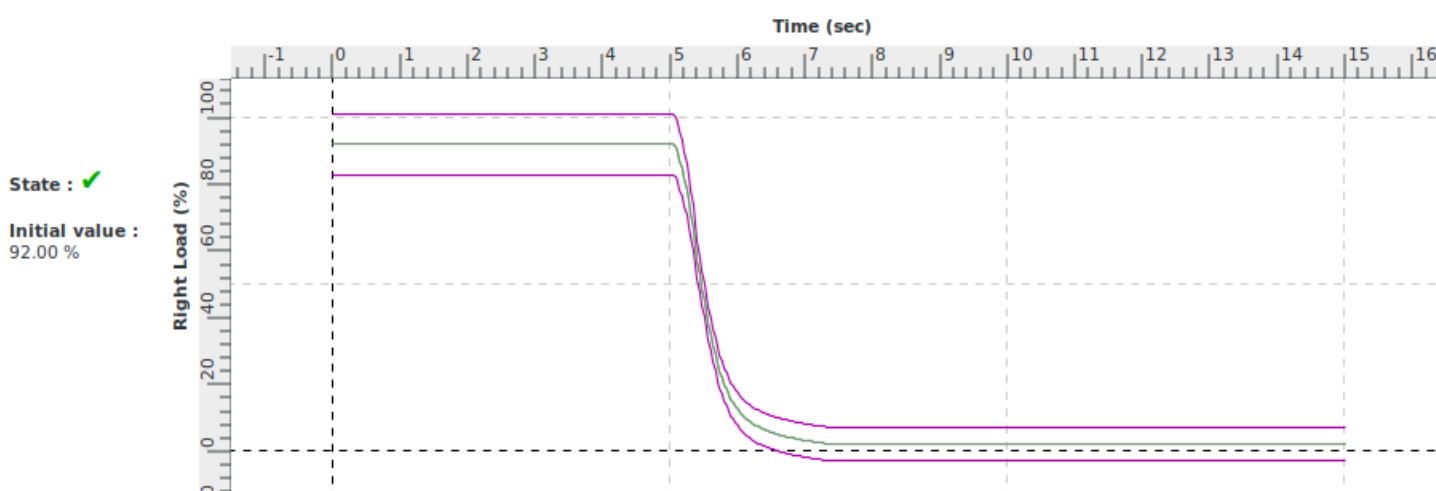
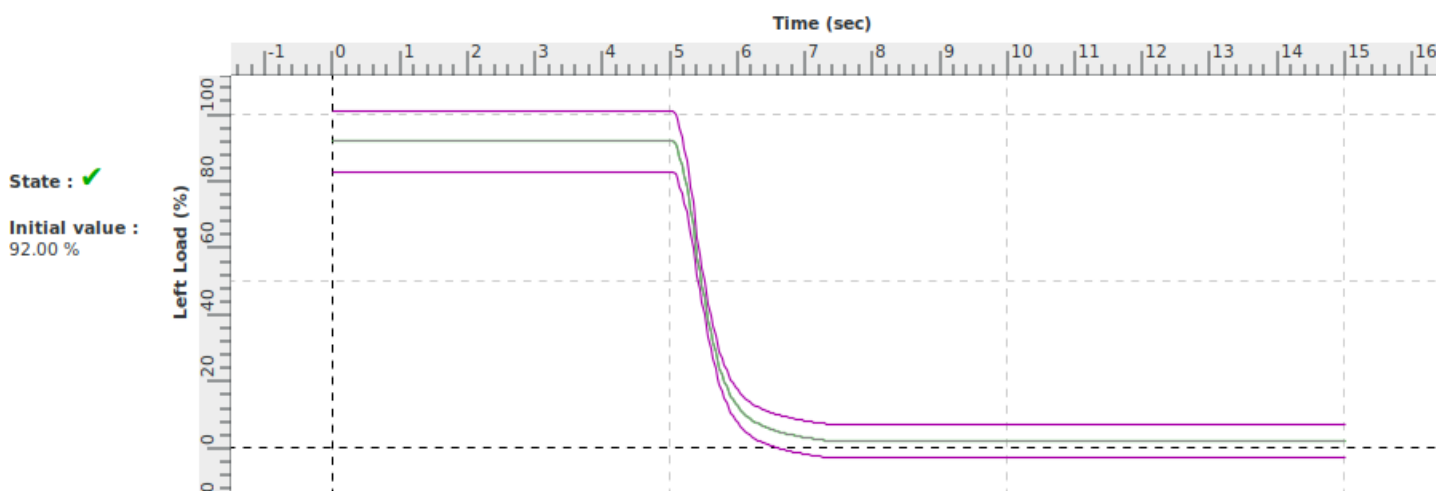
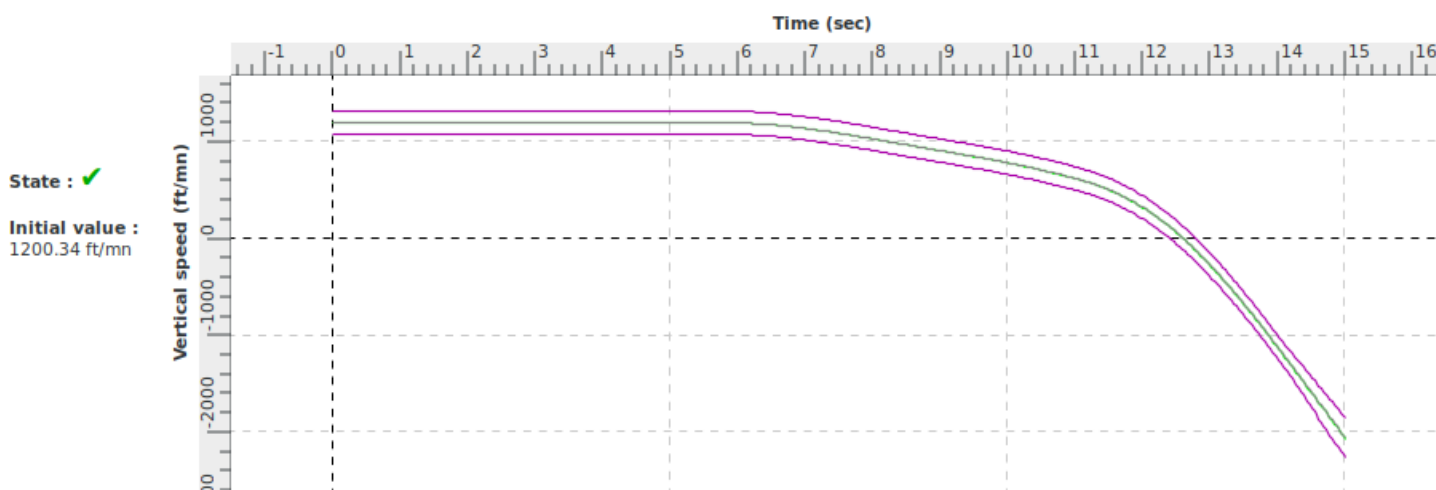
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master

Title	Stall characteristics second segment climb		
Id	2 c viii b 1	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	03/12/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



### Legend :

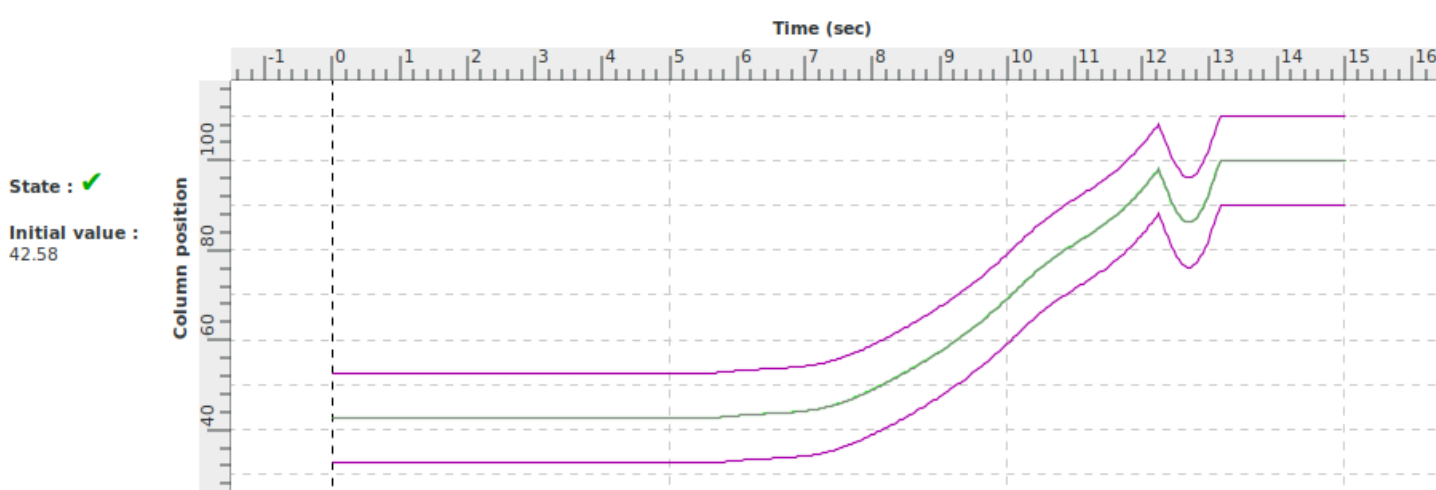
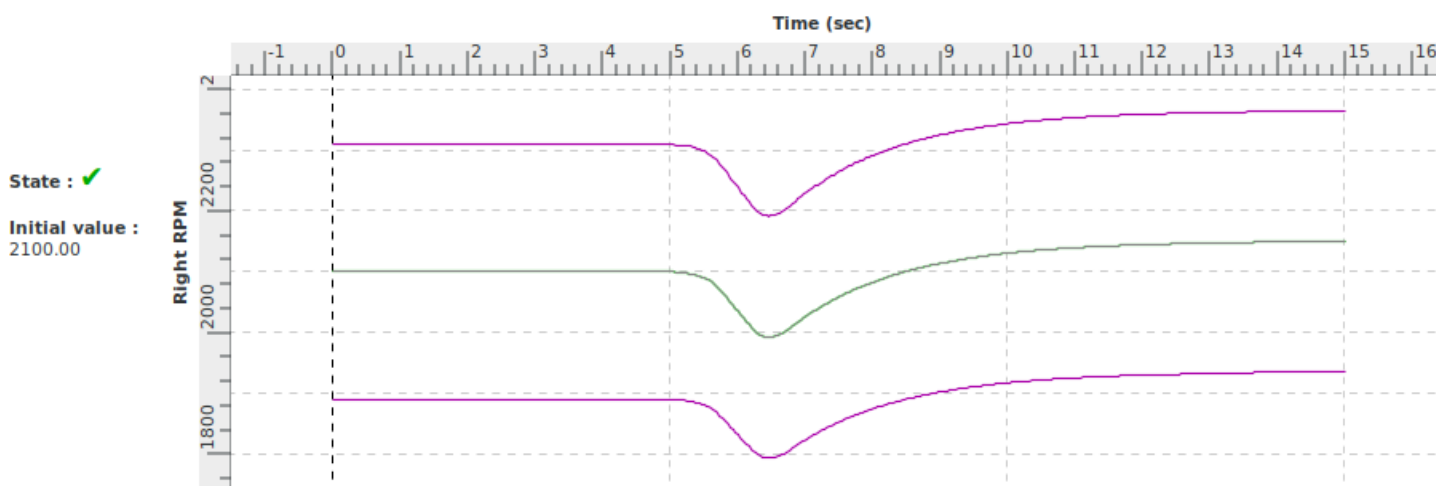
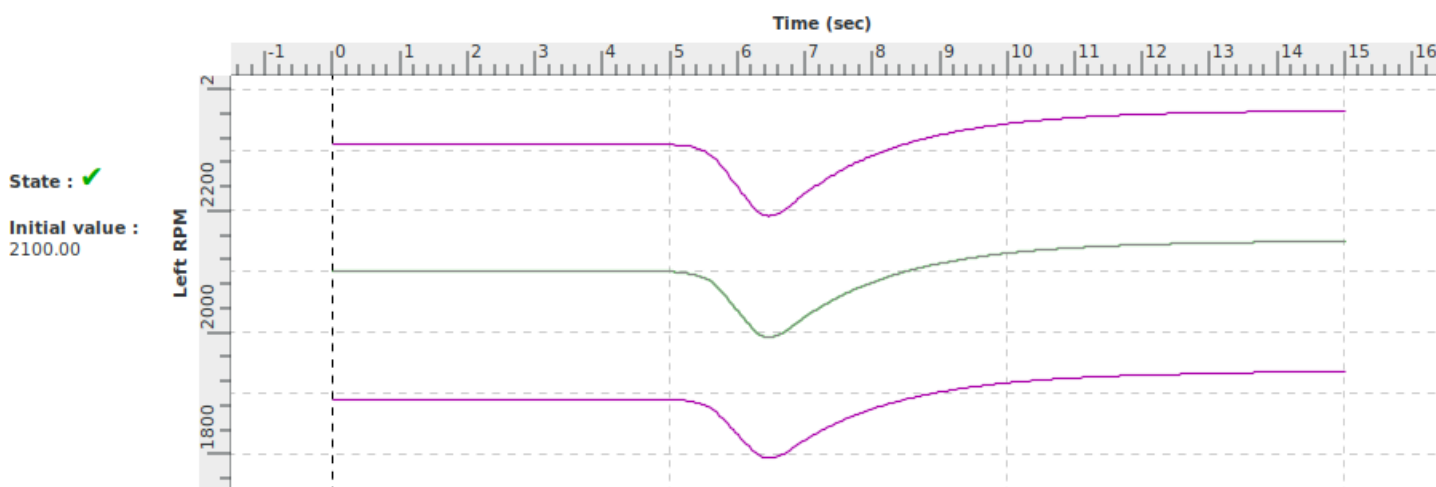
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blue : tolerances

red : results out of tolerances  
violet : tolerances Alsimg

grey : master



Title	Stall characteristics second segment climb		
Id	2 c viii b 1	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	03/12/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



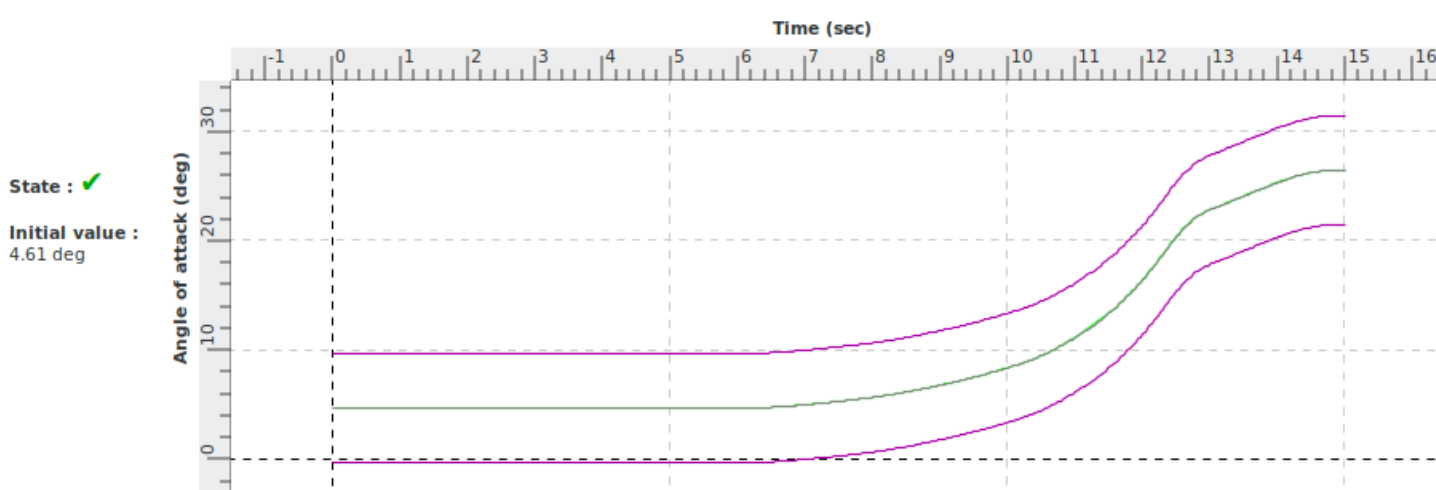
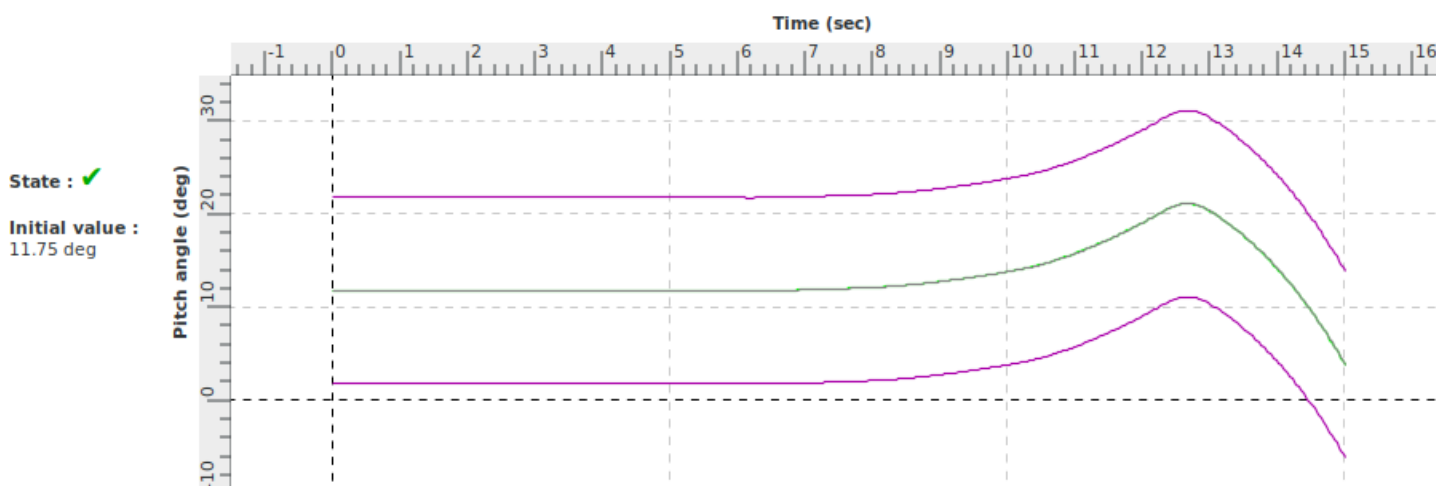
### Legend :

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blue : tolerances

red : results out of tolerances  
violet : tolerances Alsimg

grey : master

Title	Stall characteristics second segment climb		
Id	2 c viii b 1	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	03/12/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



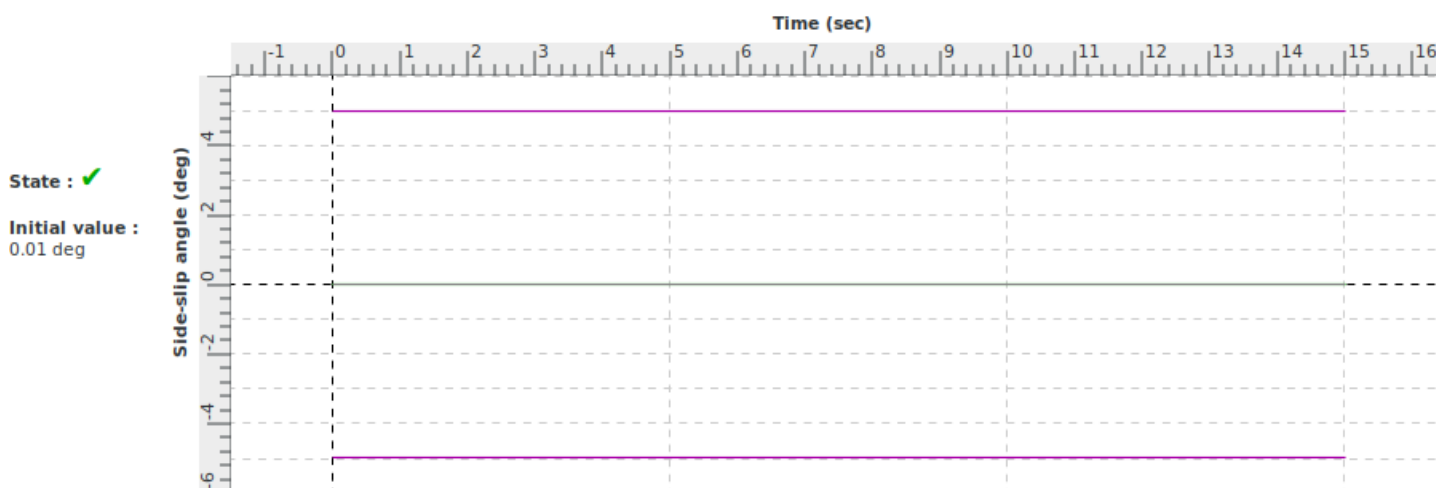
### Legend :

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blue : tolerances

red : results out of tolerances  
violet : tolerances Alsimg

grey : master

Title	Stall characteristics second segment climb		
Id	2 c viii b 1	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	03/12/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



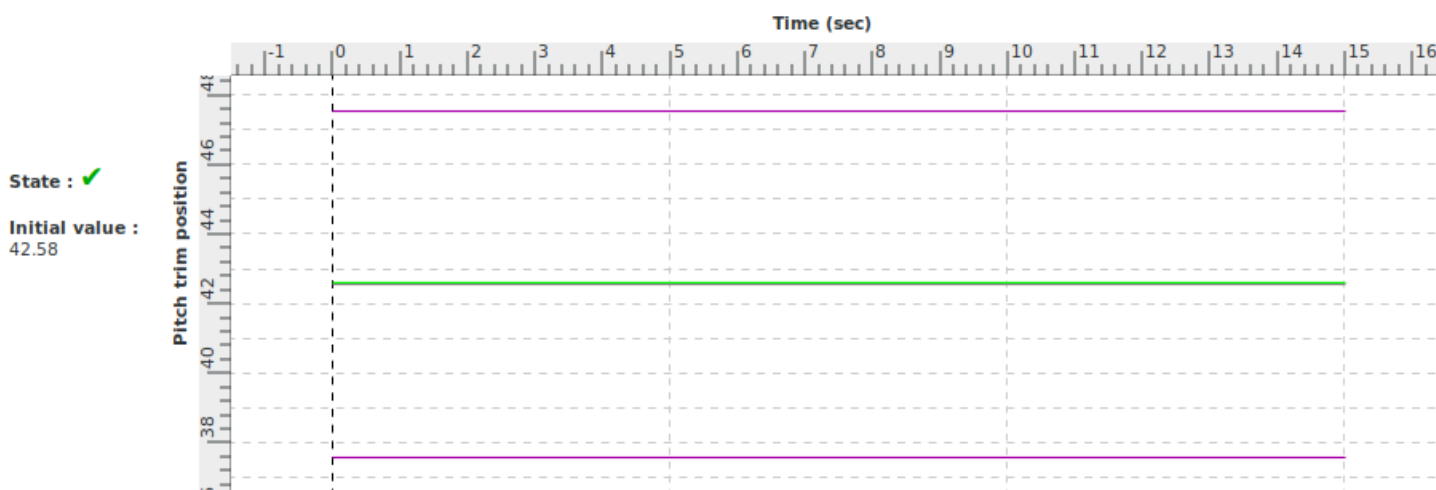
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Stall characteristics second segment climb		
Id	2 c viii b 1	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	03/12/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

# VALIDATION TEST

<b>Title</b>	Stall characteristics during high altitude cruise		
<b>Id</b>	2 c viii b 2	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	04/02/24	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the simulation of stall warning indication during cruise conforms to the class of aeroplanes	Stall warning expected at 74 kts
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.c.viii.b.2	+/- 3 kts Airspeed

<b>Demonstration procedure</b>	From high altitude cruise initial conditions power is set to idle.
<b>Manual test procedure</b>	Setting the aircraft initial parameters given next page, the pilot performs a standard high altitude cruise maintaining vertical speed and constant power setting. When high altitude cruise is stabilized, the pilot reduces the power to idle and maintains the vertical speed such as to increase the pitch attitude and one knot per second deceleration allowing the aeroplane to stall. (Do not trim below 1.4 vs).
<b>Automatic test procedure</b>	2 c viii b 2

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

<b>Title</b>	Stall characteristics during high altitude cruise		
<b>Id</b>	2 c viii b 2	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	04/02/24	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Autopilot mode</b>	AUTO_SPEED
<p>Automatic Vertical Speed and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and VS. Roll Trim is computed to maintain 0° bank angle.</p>	

<b>Initial parameters</b>	CRUISE
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 6000 Vertical speed (ft/min) : 0 IAS (kt) : 139 (free) Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : 0 Pedal Position (%) : 0 Column Position (%) : 9 Wheel Position (%) : 0	Flaps lever position : 0 Gear lever position : 0 Left Load (%) : 70 Right Load (%) : 70 Left RPM : 2060 Right RPM : 2060

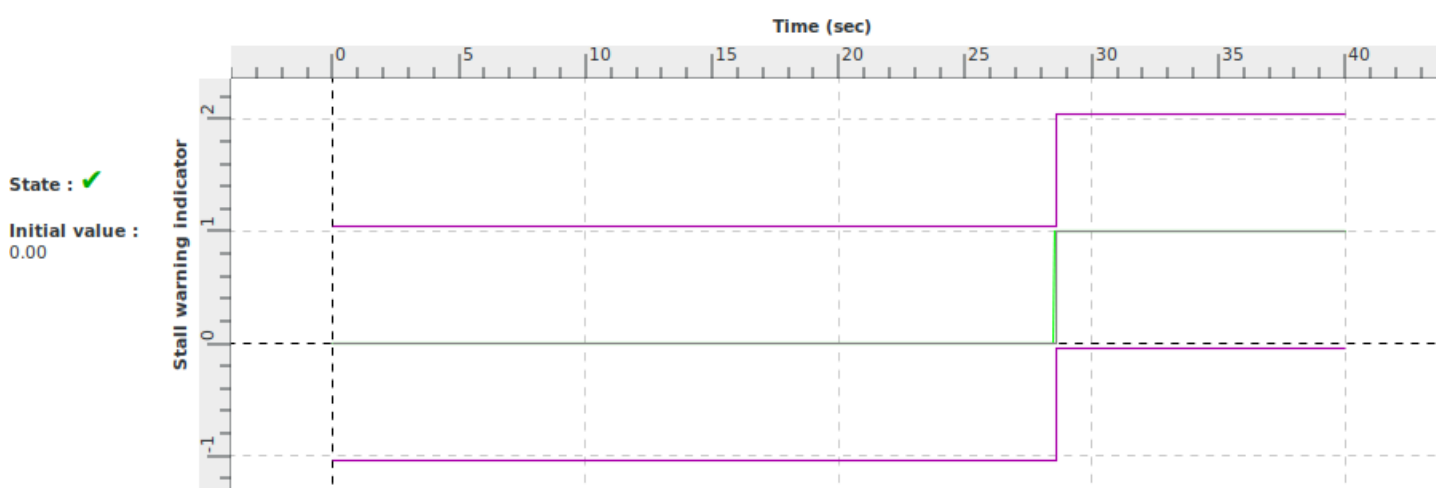
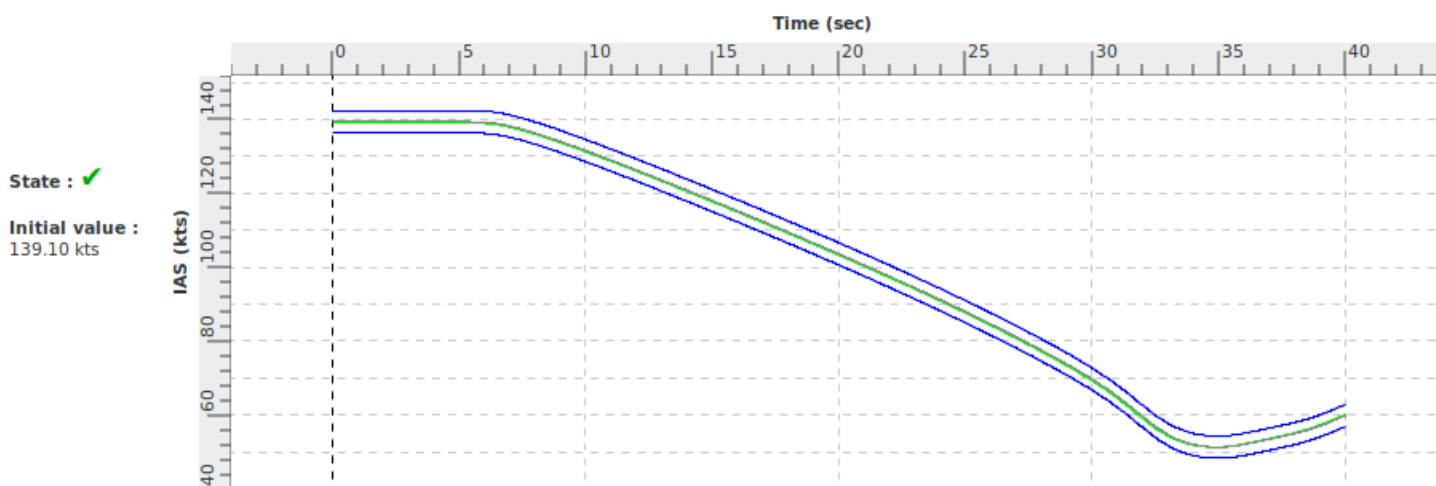
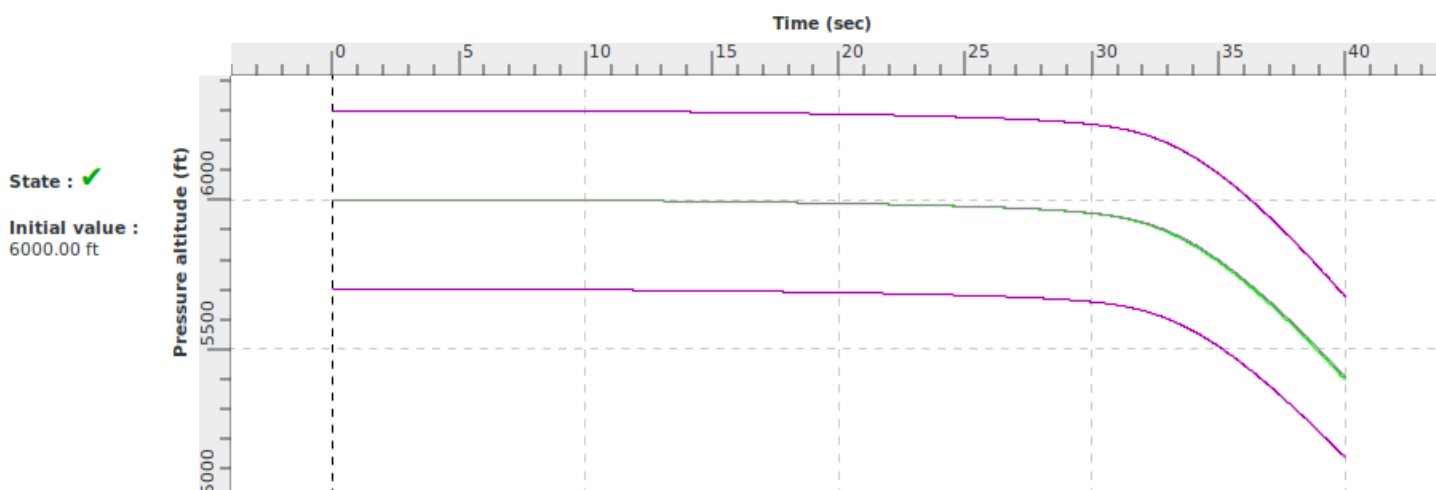
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
5.0	power_FLIGHT_IDLE	0.0	Set engine parameters to flight iddle power
40.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Stall characteristics during high altitude cruise		
<b>Id</b>	2 c viii b 2	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	04/02/24	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

Log of Revision		
Rev. Nbr	Date	Reason for revision
1.01	29/03/21	1909 Master. Expected results unchanged. Time reduction to 40s
1.02	27/07/21	2012-R1 Master. Expected results unchanged.

Notes

Title	Stall characteristics during high altitude cruise		
Id	2 c viii b 2	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	04/02/24	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



### Legend :

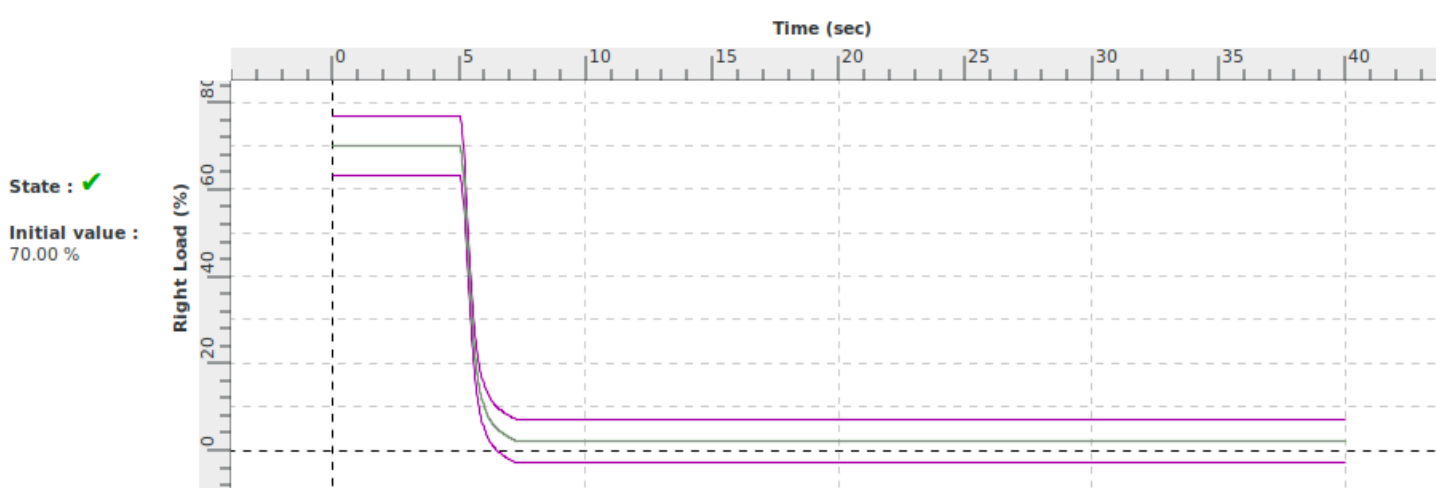
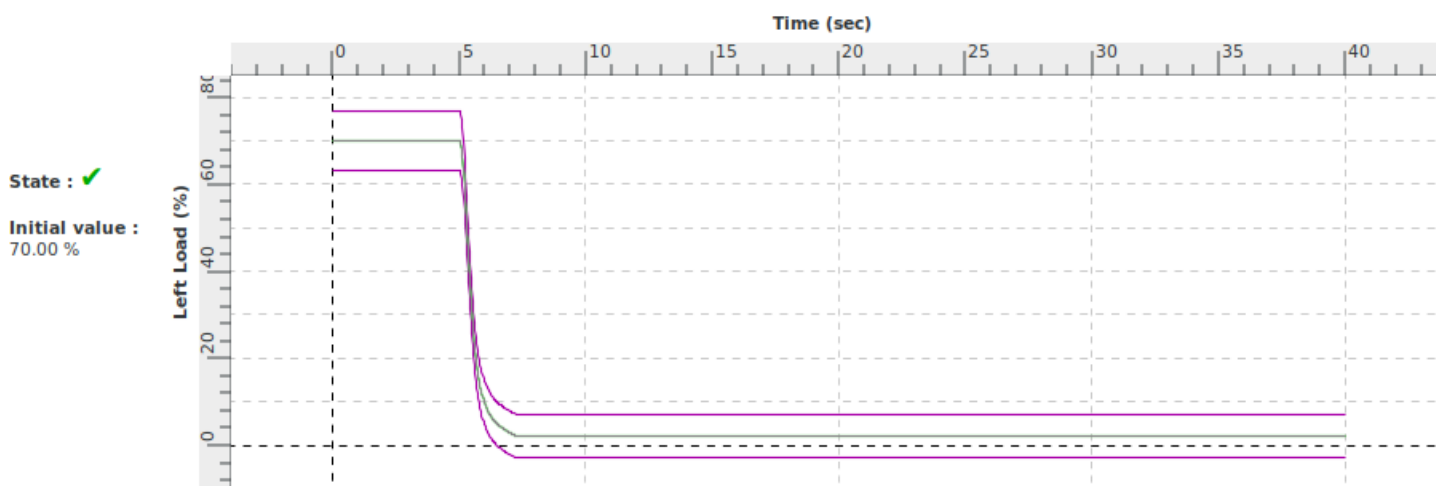
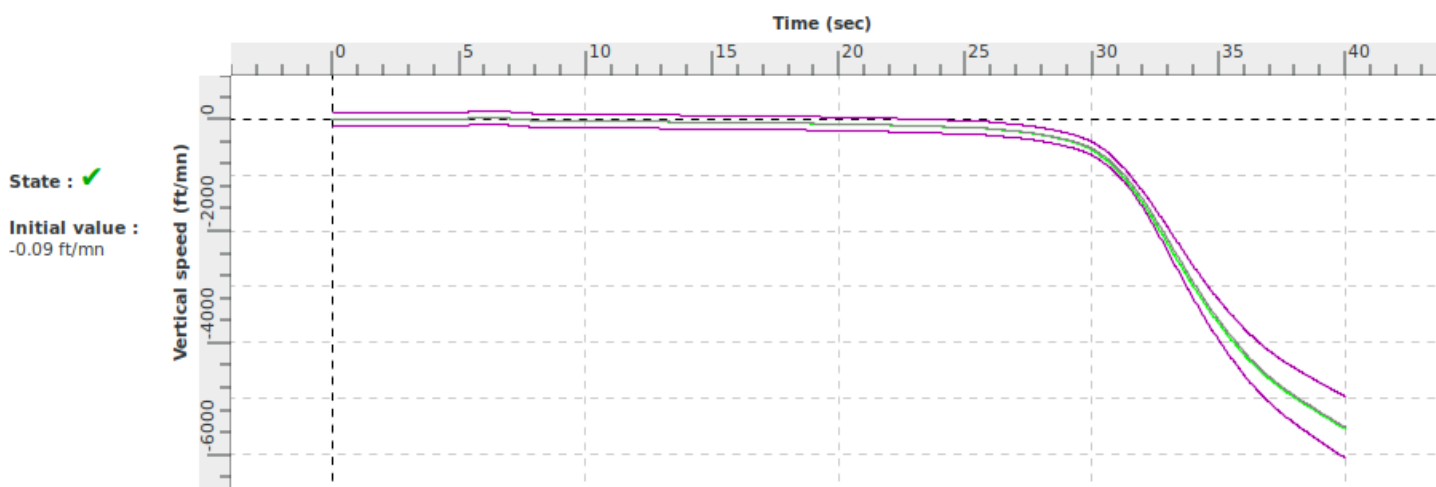
green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master



Title	Stall characteristics during high altitude cruise		
Id	2 c viii b 2	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	04/02/24	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



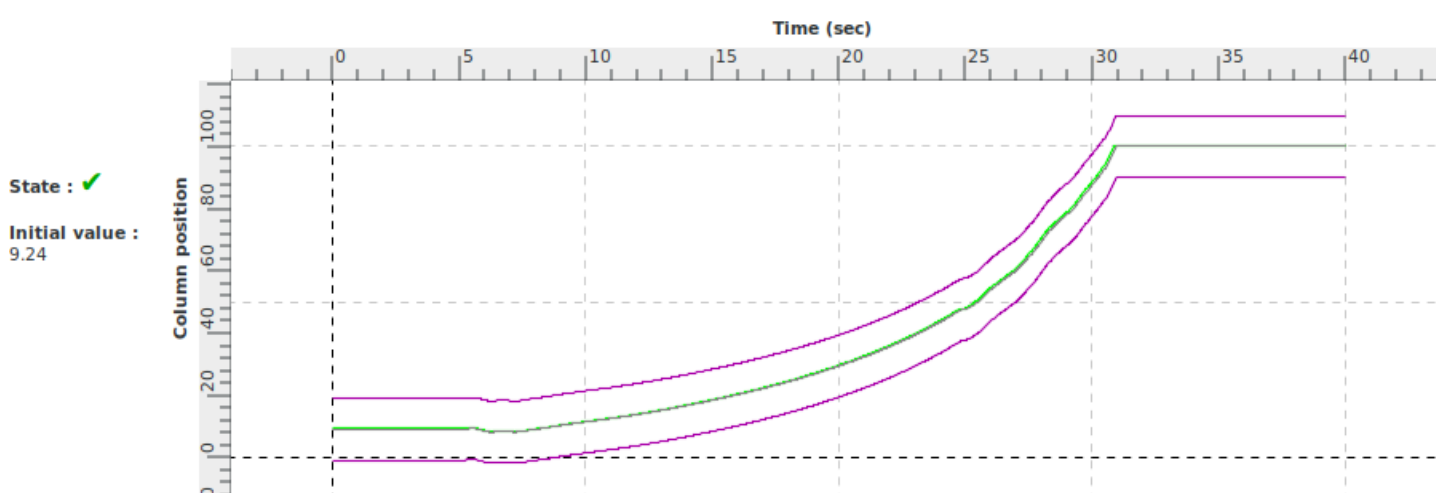
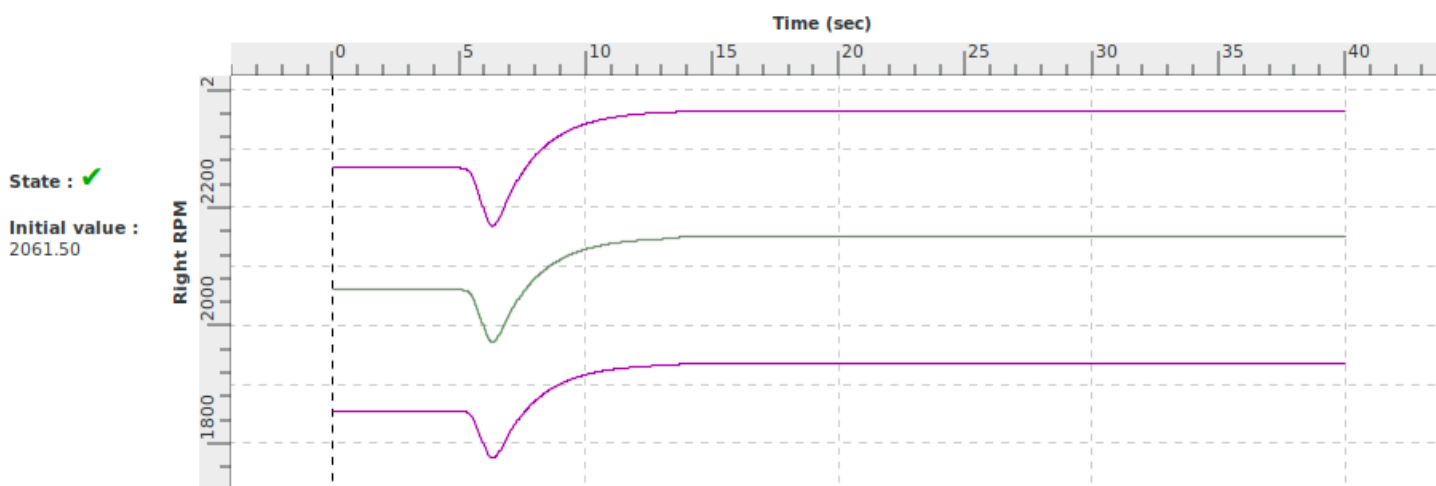
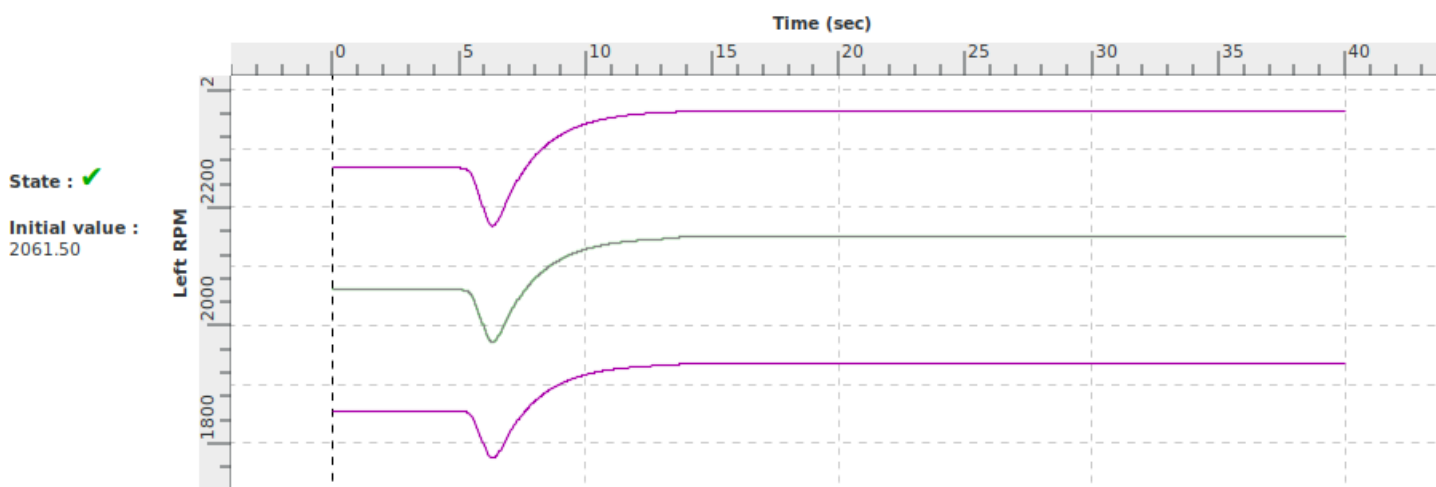
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Stall characteristics during high altitude cruise		
Id	2 c viii b 2	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	04/02/24	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



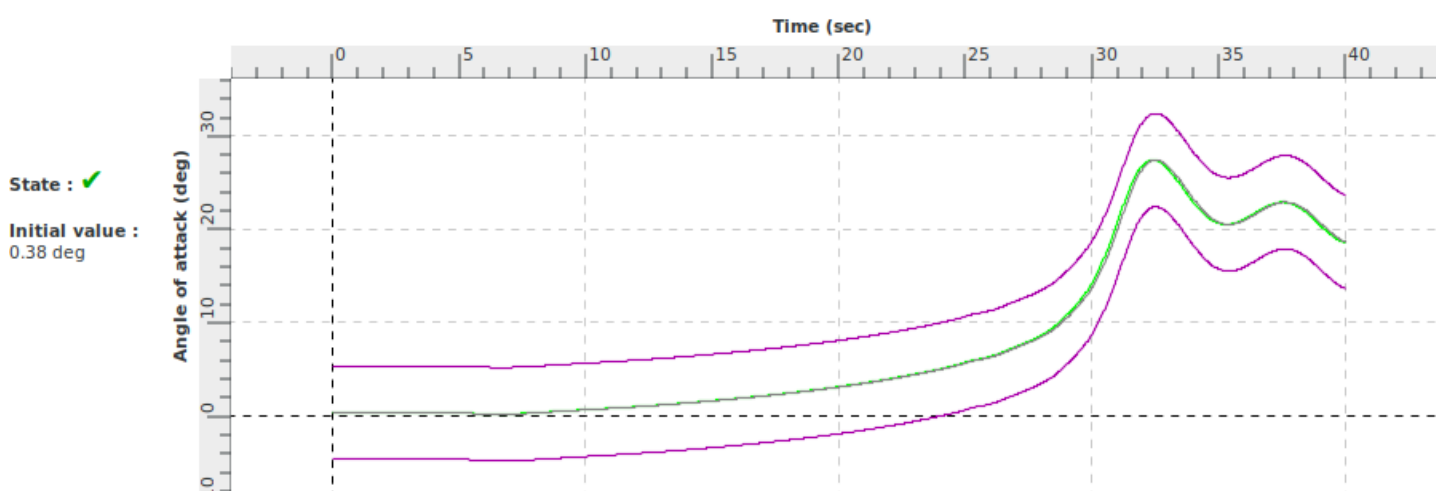
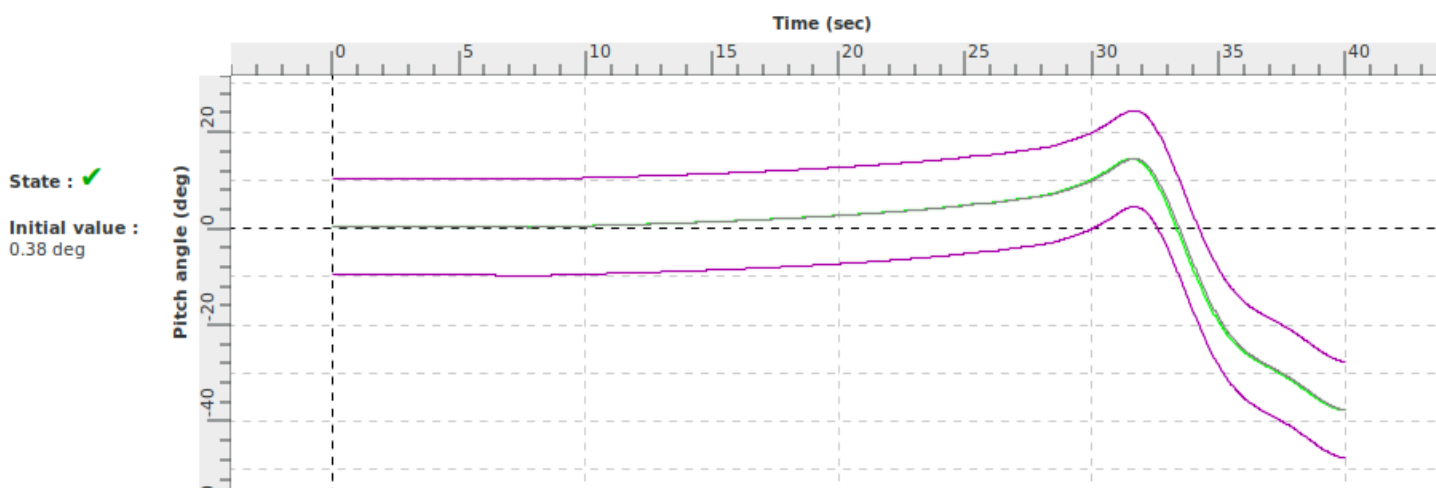
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Stall characteristics during high altitude cruise		
Id	2 c viii b 2	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	04/02/24	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



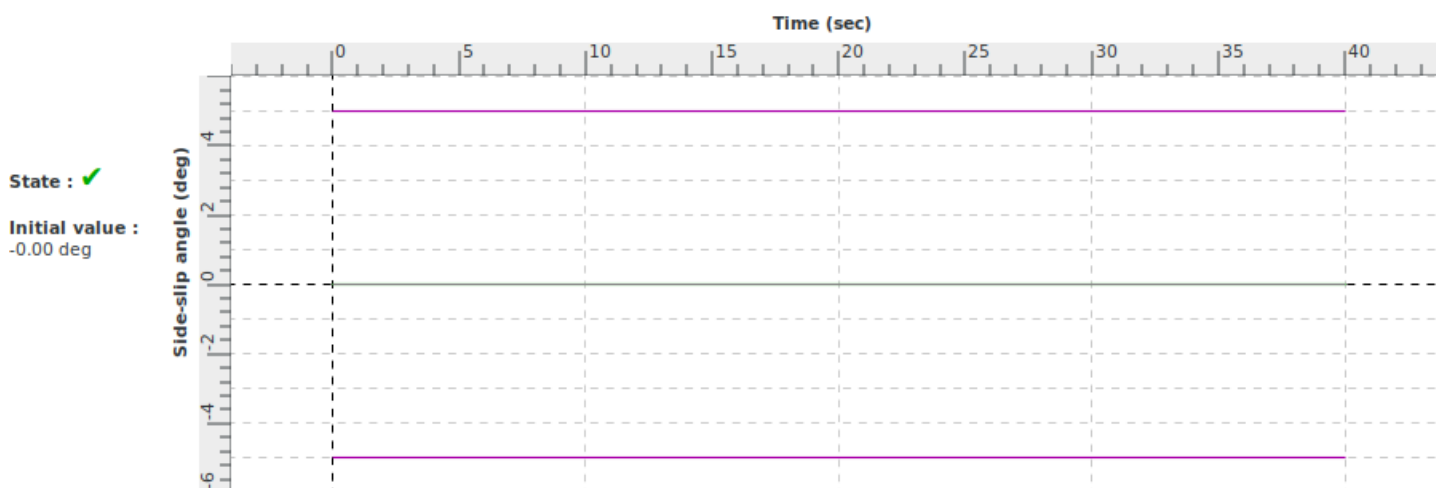
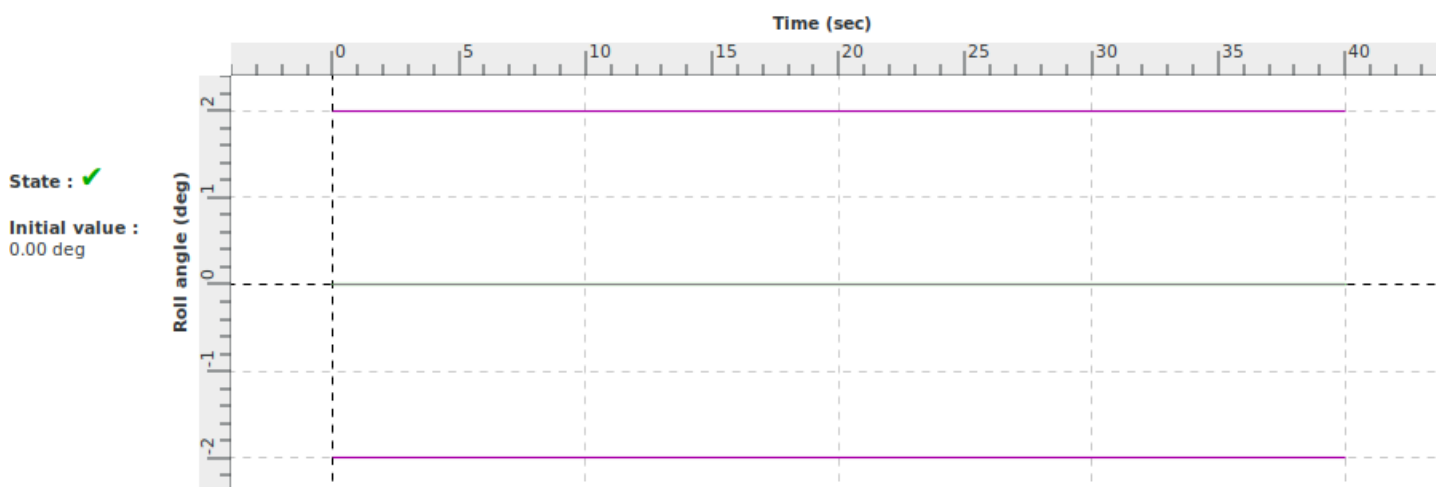
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Stall characteristics during high altitude cruise		
Id	2 c viii b 2	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	04/02/24	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



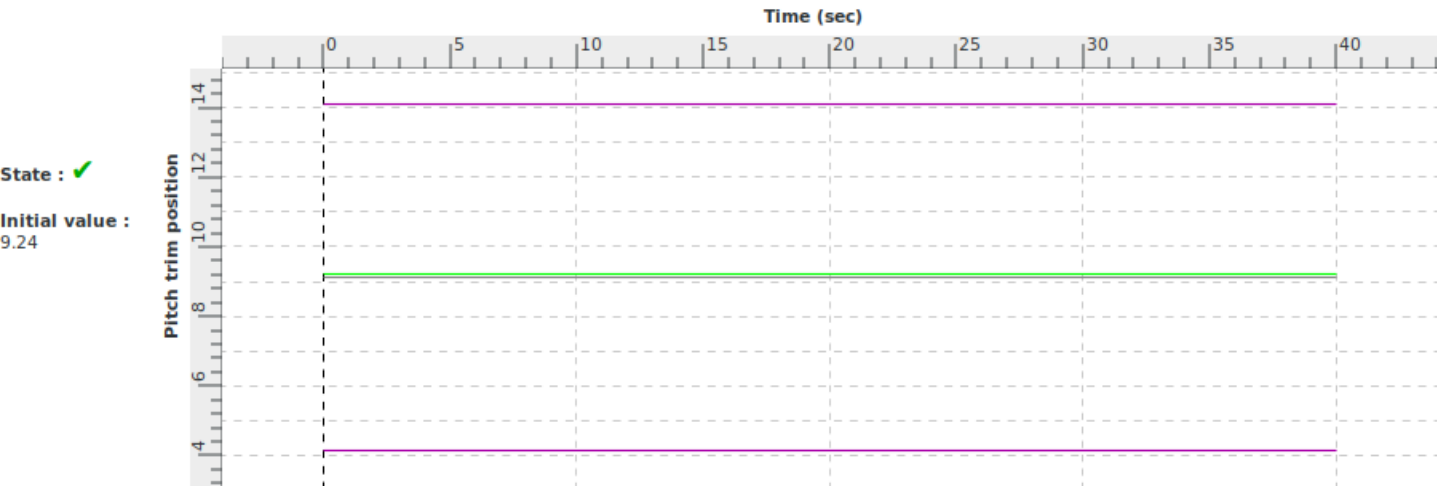
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Stall characteristics during high altitude cruise		
Id	2 c viii b 2	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	04/02/24	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



Legend :

green : results within tolerances      red : results out of tolerances  
blue : tolerances      violet : tolerances Alsim      grey : master

# VALIDATION TEST

<b>Title</b>	Stall characteristics during approach		
<b>Id</b>	2 c viii b 3	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the simulation of stall warning indication during approach conforms to the class of aeroplanes	Stall warning expected at 74 kts
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.c.viii.b	+/- 3 kts Airspeed

<b>Demonstration procedure</b>	From steady approach initial conditions power is set to idle.
<b>Manual test procedure</b>	Setting the aircraft initial parameters given next page, the pilot performs a standard descent profile maintaining vertical speed and constant power setting. When descent is stabilized, the pilot reduces the power to idle and maintains the vertical speed such as to increase the pitch attitude and one knot per second deceleration allowing the aeroplane to stall. (Do not trim below 1.4 vs).
<b>Automatic test procedure</b>	2 c viii b 3

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

Title	Stall characteristics during approach		
<b>Id</b>	2 c viii b 3	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Autopilot mode</b>	AUTO_SPEED
<p>Automatic Vertical Speed and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and VS. Roll Trim is computed to maintain 0° bank angle.</p>	

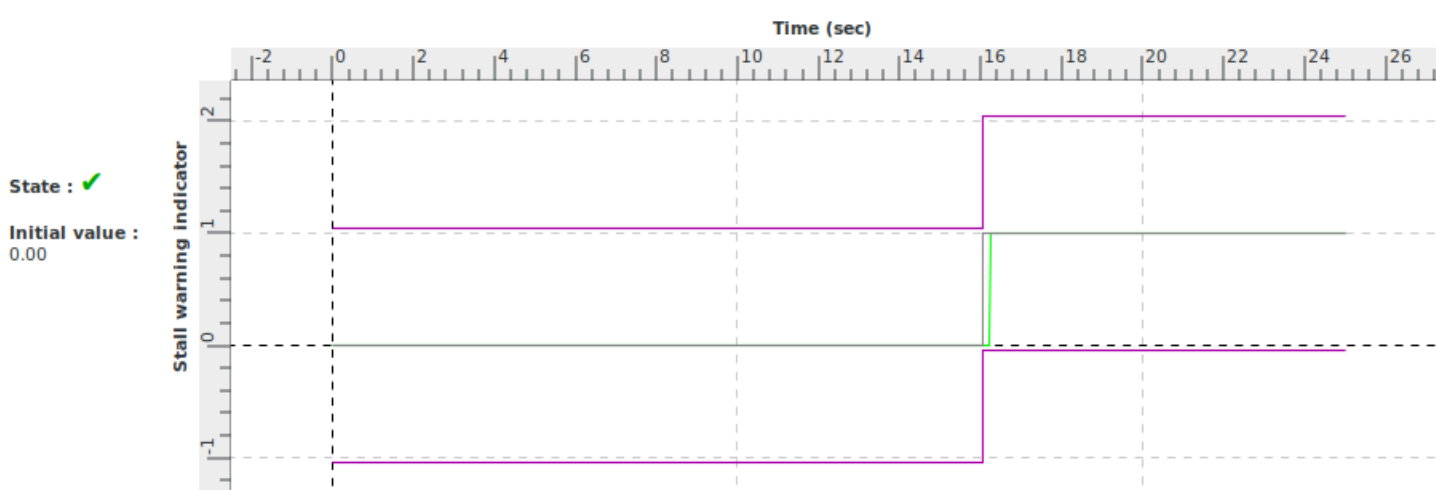
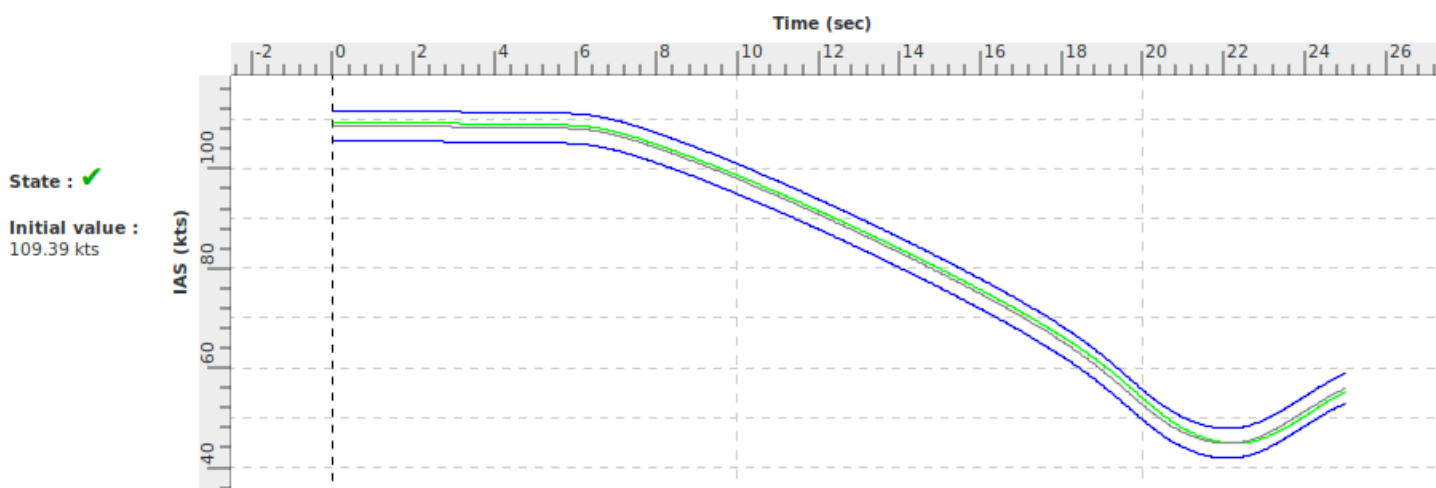
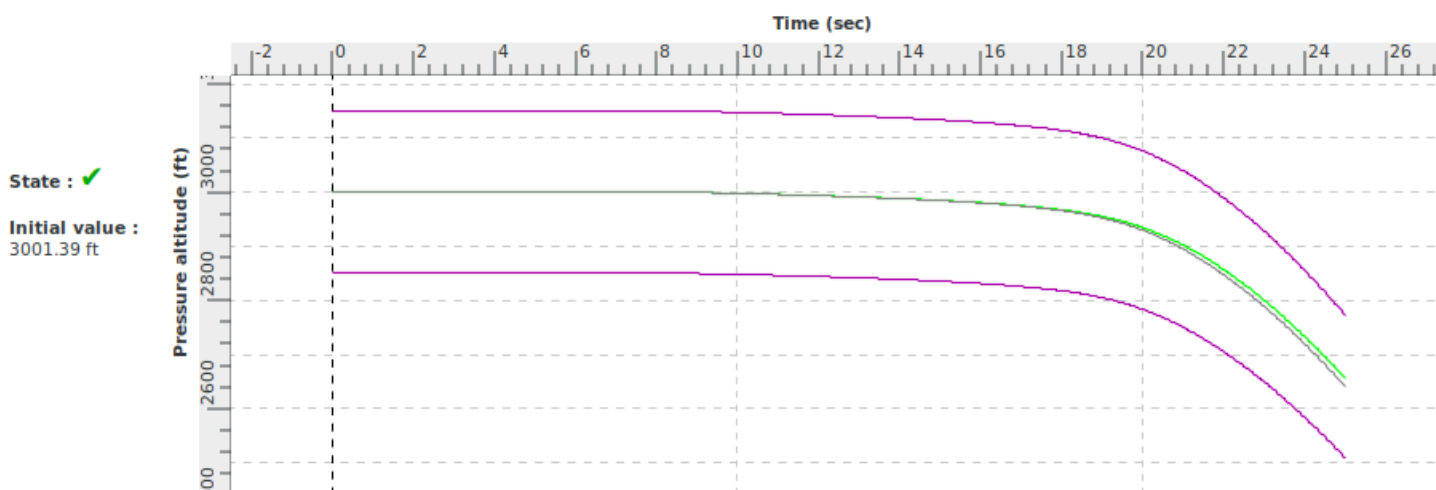
<b>Initial parameters</b>	STALL_FLAPS_APP
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 3000 Vertical speed (ft/min) : 0 IAS (kt) : 135 (free) Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : 10 Pedal Position (%) : 0 Column Position (%) : 9 Wheel Position (%) : 0	Flaps lever position : 1 Gear lever position : 1 Left Load (%) : 70 Right Load (%) : 70 Left RPM : 1950 Right RPM : 1950

Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
5.0	power_FLIGHT_IDLE	0.0	Set engine parameters to flight iddle power
25.0	Stop_Test	0.0	Stop the test procedure





Title	Stall characteristics during approach		
Id	2 c viii b 3	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	14/06/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



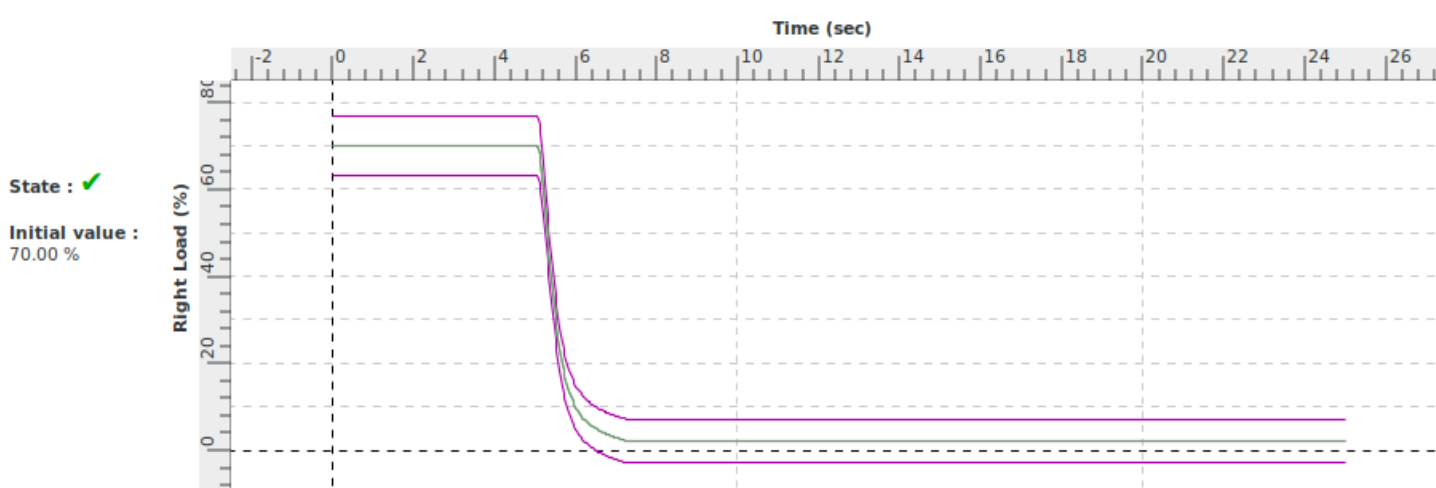
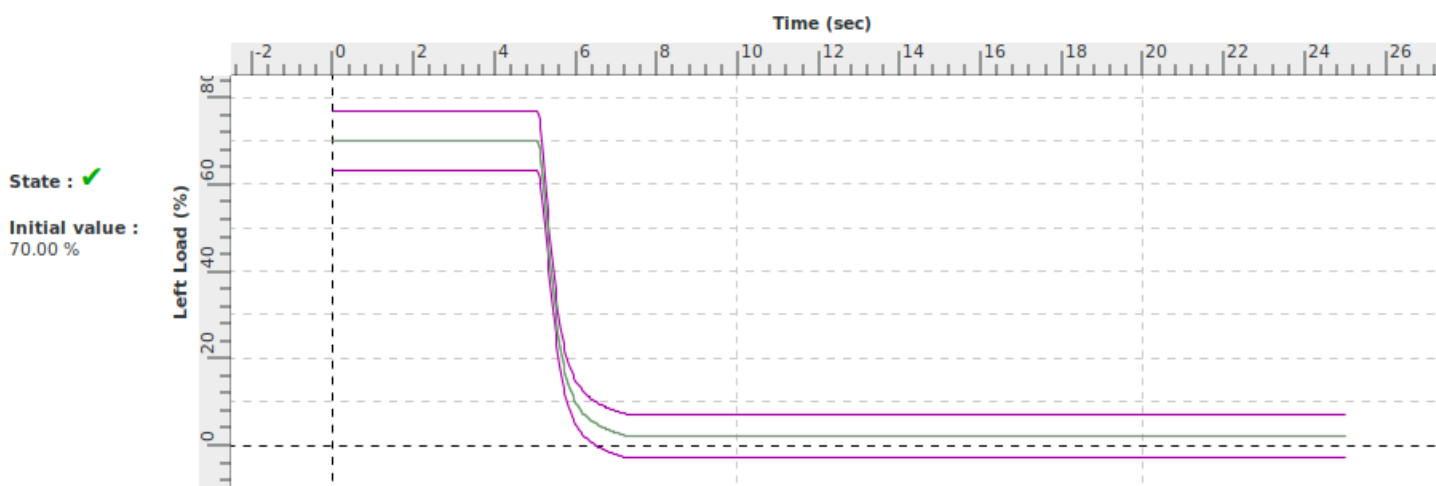
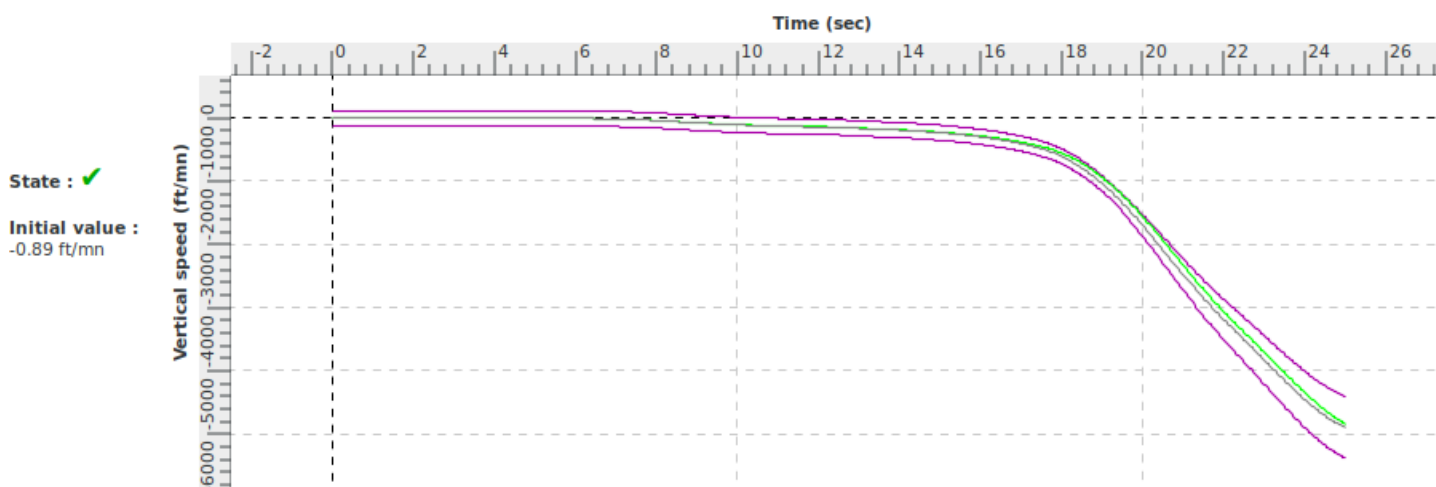
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Stall characteristics during approach		
Id	2 c viii b 3	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	14/06/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



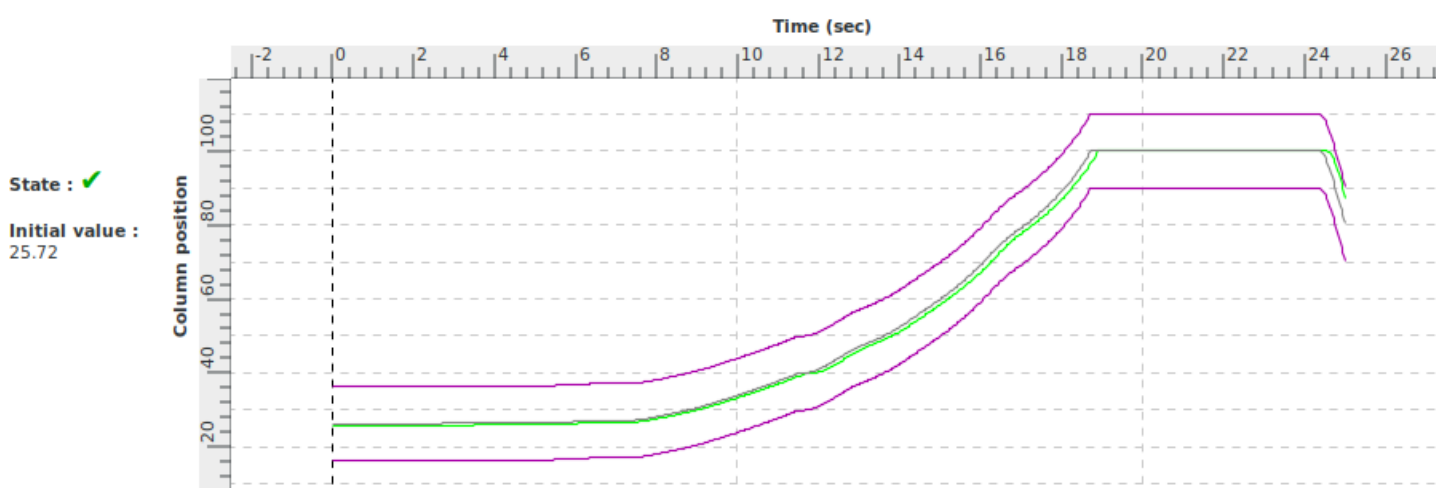
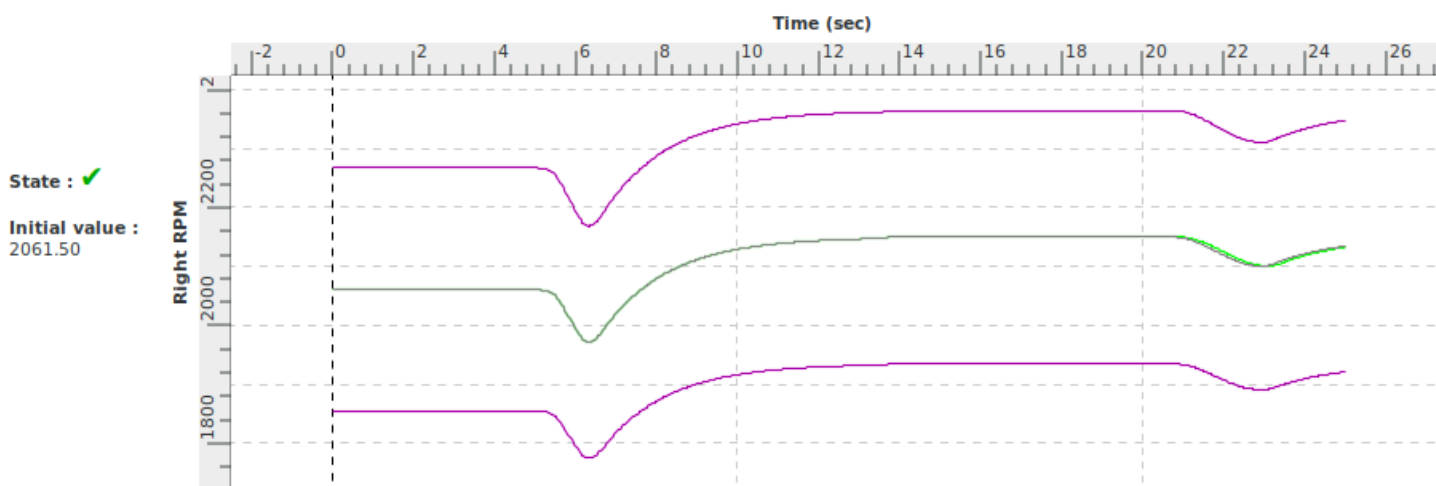
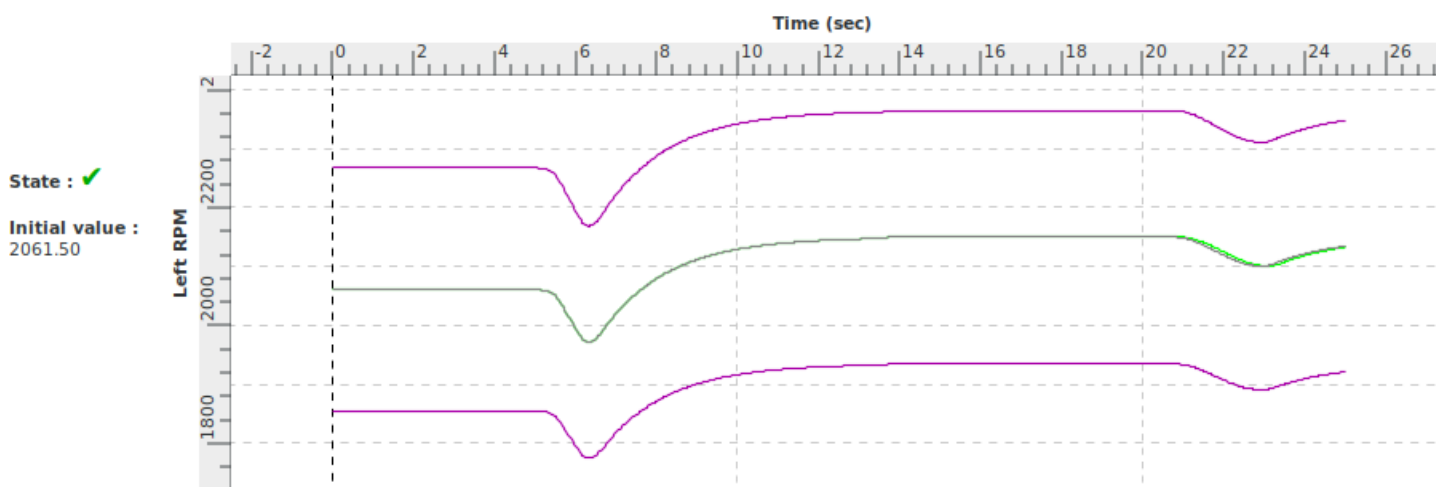
### Legend :

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blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master

Title	Stall characteristics during approach		
Id	2 c viii b 3	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	14/06/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



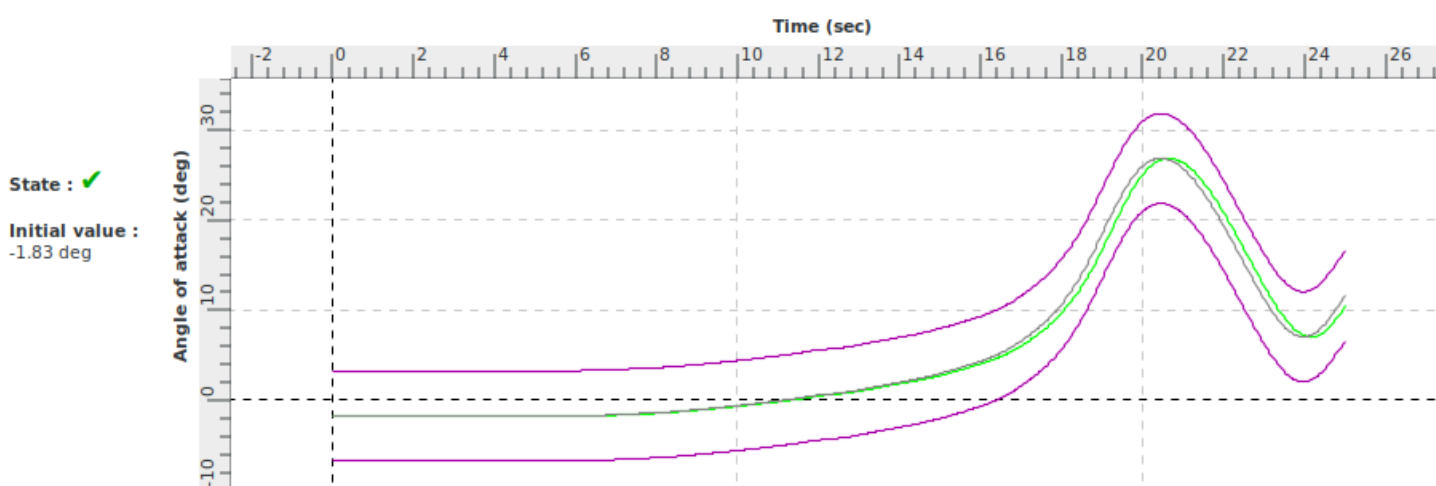
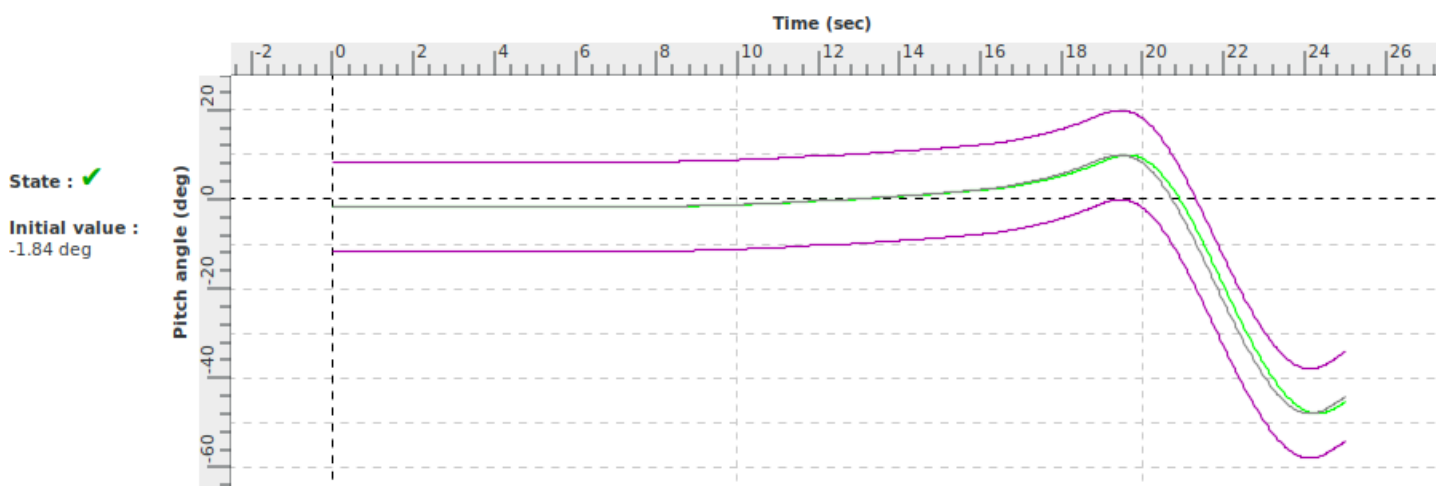
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master

Title	Stall characteristics during approach		
Id	2 c viii b 3	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	14/06/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



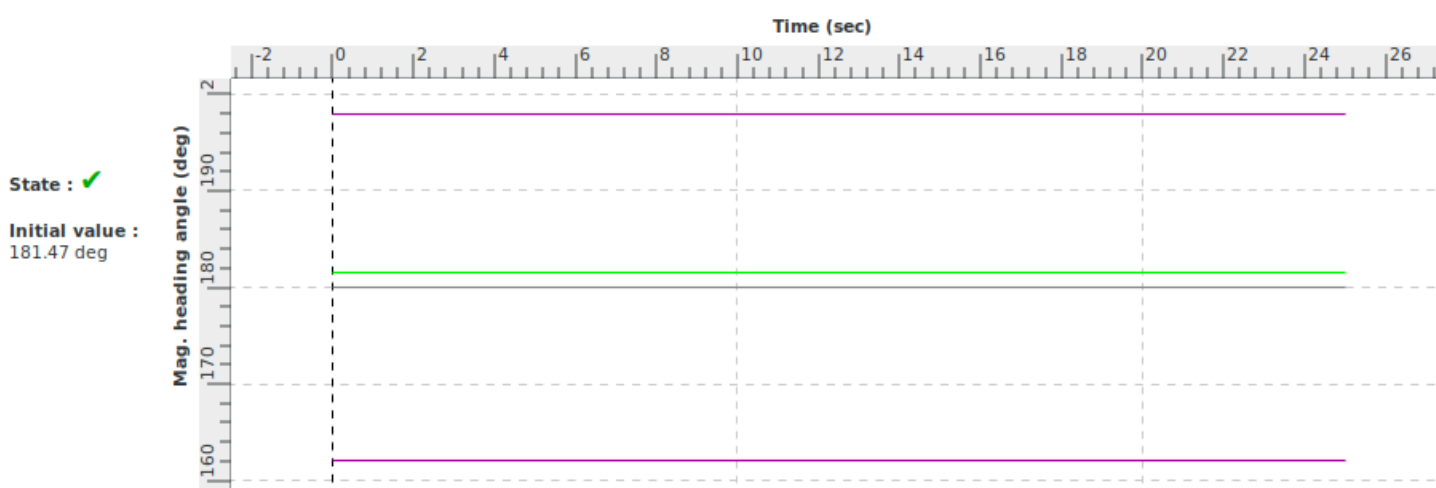
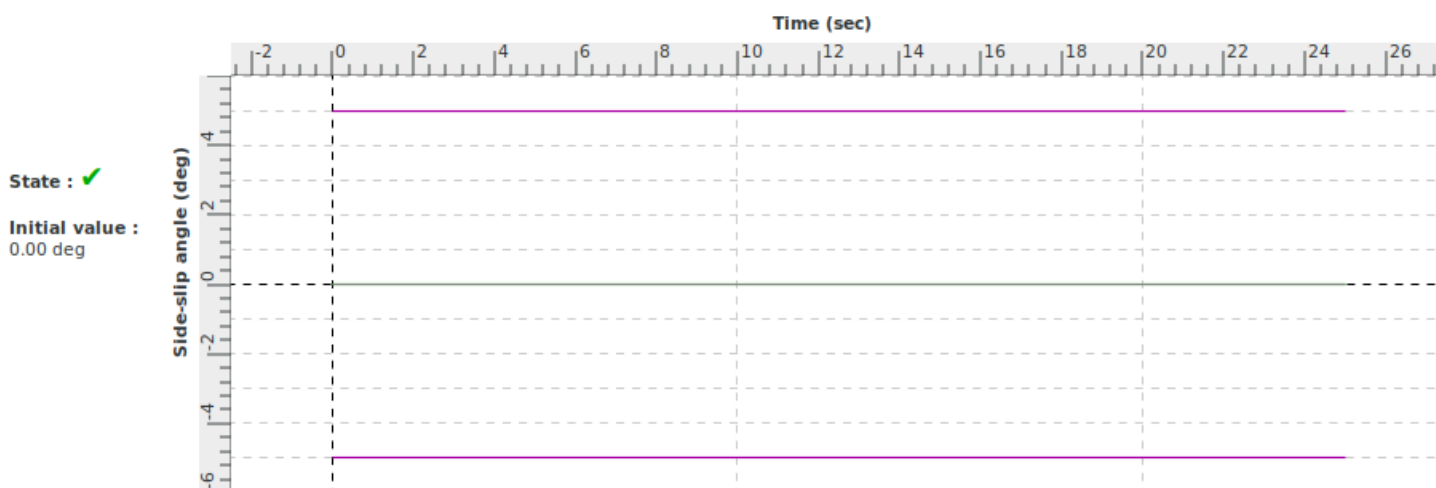
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Stall characteristics during approach		
Id	2 c viii b 3	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	14/06/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



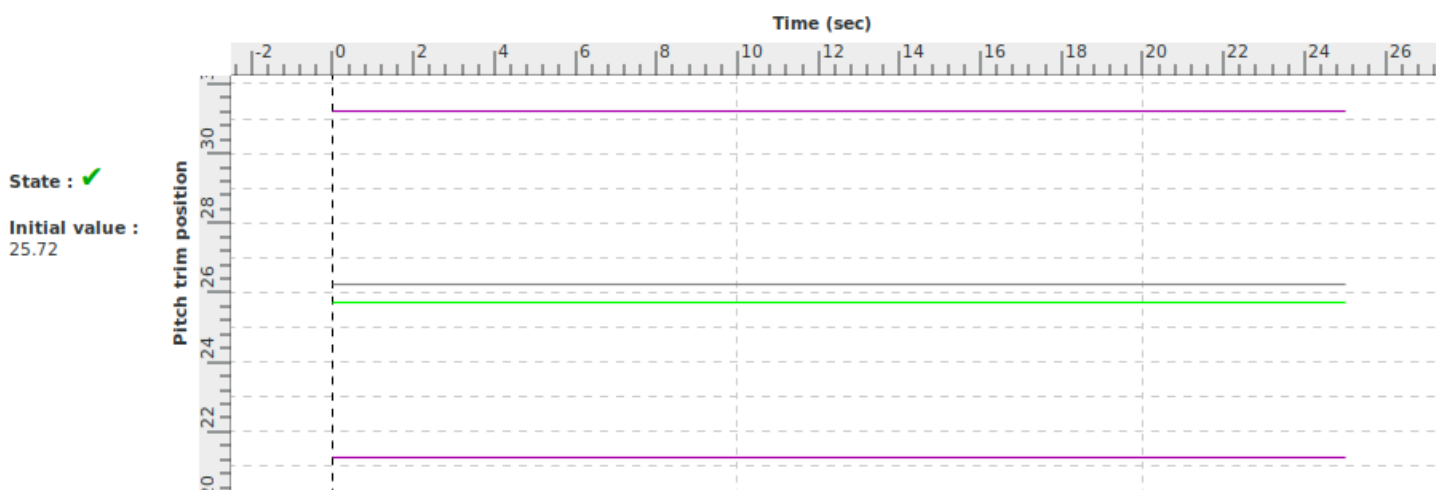
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master

Title	Stall characteristics during approach		
Id	2 c viii b 3	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	14/06/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

# VALIDATION TEST

<b>Title</b>	Phugoid dynamics during cruise		
<b>Id</b>	2 c ix	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the simulator phugoid dynamic characteristics during cruise conform to the class of aeroplanes	Period: 50 sec approx Time to half amplitude: 66 sec approx. (results to be determined using the Table Sheet AL42_DA42VI_Tables_QTG_VolIII.xls)
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.c.ix	+/- 10 % Period +/- 10 % Time to 1/2 amplitude or +/- .02 of Damping ratio

<b>Demonstration procedure</b>	From steady cruise initial conditions, a pitch control step input is applied in order to trim the aeroplane to a lower speed and to excite phugoid mode. The period and half amplitude must be computed manually using the "Plot" function available on the graphs and compared with expected results. Tolerances proposed by Alsim on relevant graphs are more restrictive than required ones.
<b>Manual test procedure</b>	The pilot trims airplane at cruise. When transient disappeared, the pilot excites the longitudinal oscillations by the impulse on the control column.
<b>Automatic test procedure</b>	2 c ix

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

Title	Phugoid dynamics during cruise		
Id	2 c ix	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Qualification Level	FNPT2	Operator	AFTA
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902

Autopilot mode	AUTO_SPEED
Automatic Vertical Speed and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and VS. Roll Trim is computed to maintain 0° bank angle.	

Initial parameters	CRUISE
Gross weight (kg) : 1900	Flaps lever position : 0
Balance (%) : 50	Gear lever position : 0
Altitude (ft) : 6000	Left Load (%) : 70
Vertical speed (ft/min) : 0	Right Load (%) : 70
IAS (kt) : 139 (free)	Left RPM : 2060
Heading (°) : 0 (free)	Right RPM : 2060
Bank (°) : 0	
Attitude (°) : 0	
Pedal Position (%) : 0	
Column Position (%) : 9	
Wheel Position (%) : 0	

Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
0.0	deconnectionPA_att	0.0	disable QTG Autopilot in attitude axis
0.0	deconnectionPA_roll	0.0	disable QTG Autopilot in roll axis
0.0	deconnectionPA_rudder	0.0	disable QTG Autopilot in yaw axis
5.0	SetAttCmdPalier	10.0	Send a step in the attitude govern
8.0	SetAttCmdPalier	0.0	Send a step in the attitude govern
150.0	Stop_Test	0.0	Stop the test procedure

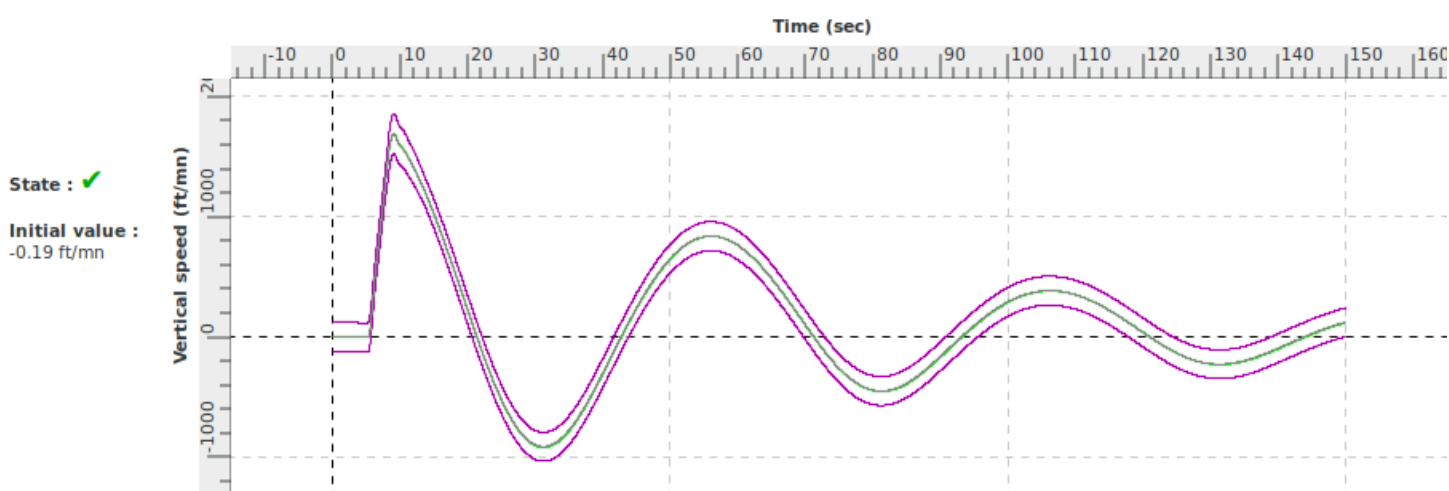
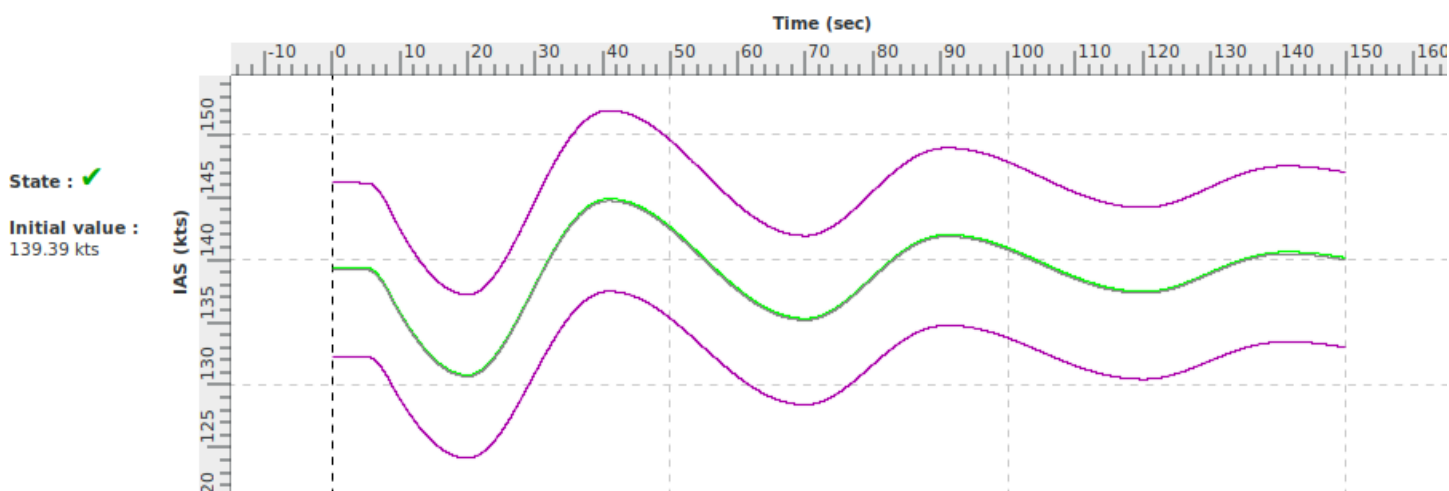
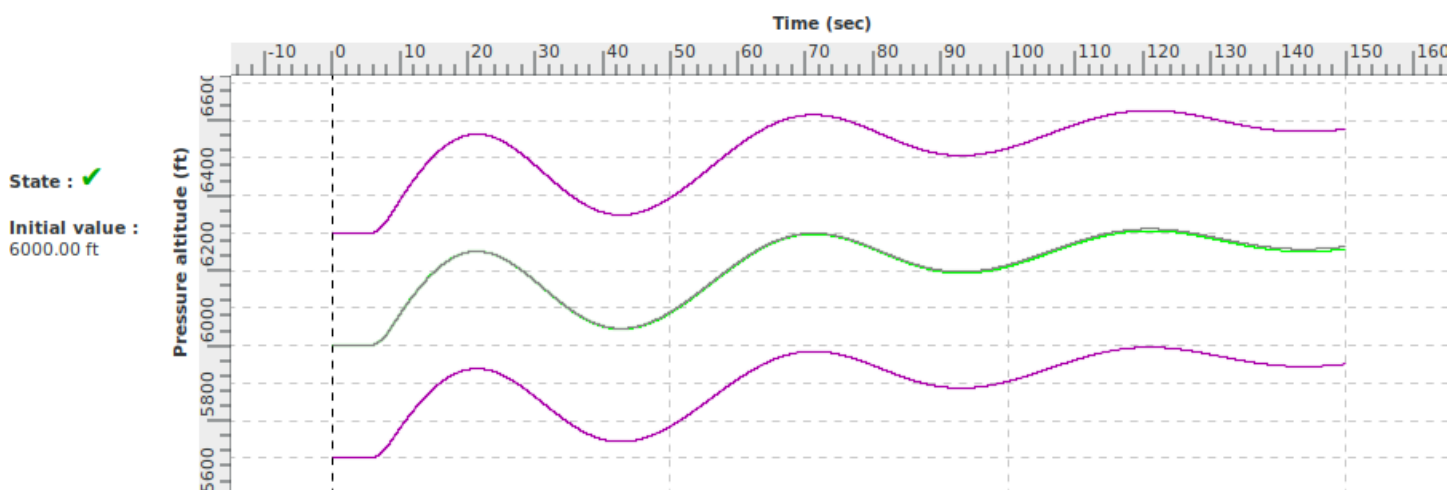


<b>Title</b>	Phugoid dynamics during cruise		
<b>Id</b>	2 c ix	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

Log of Revision		
Rev. Nbr	Date	Reason for revision

Notes

Title	Phugoid dynamics during cruise		
Id	2 c ix	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



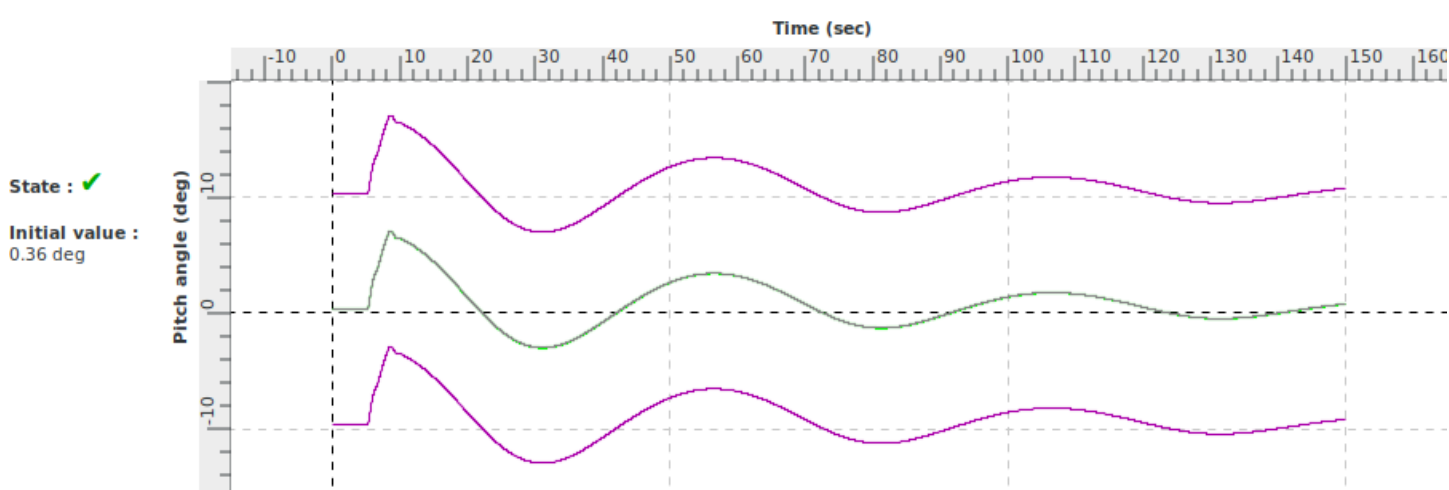
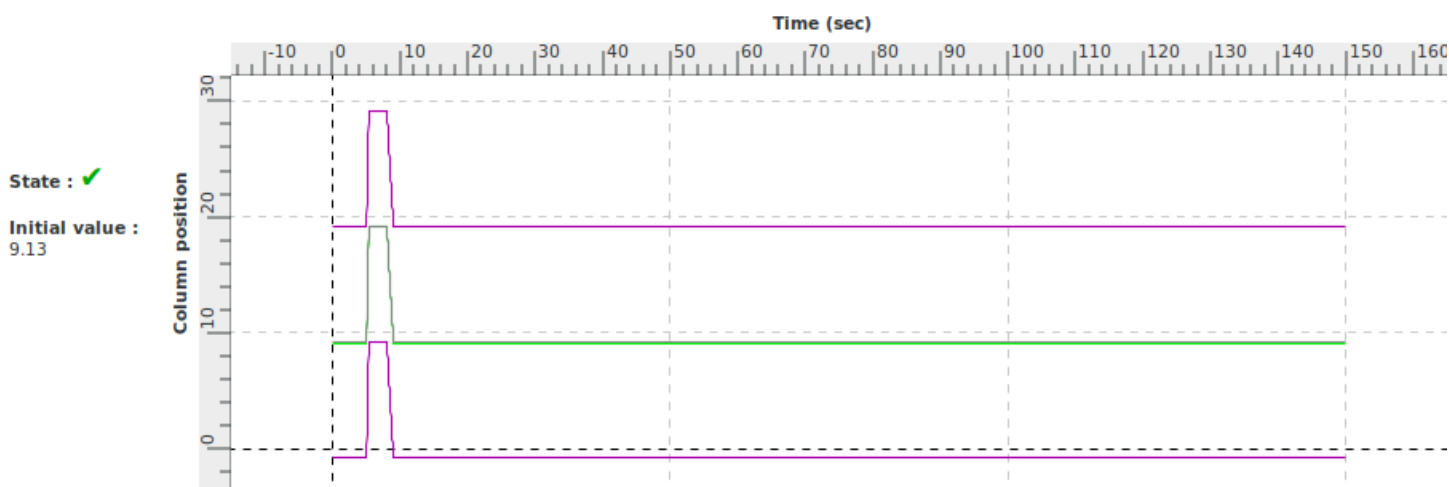
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Phugoid dynamics during cruise		
Id	2 c ix	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



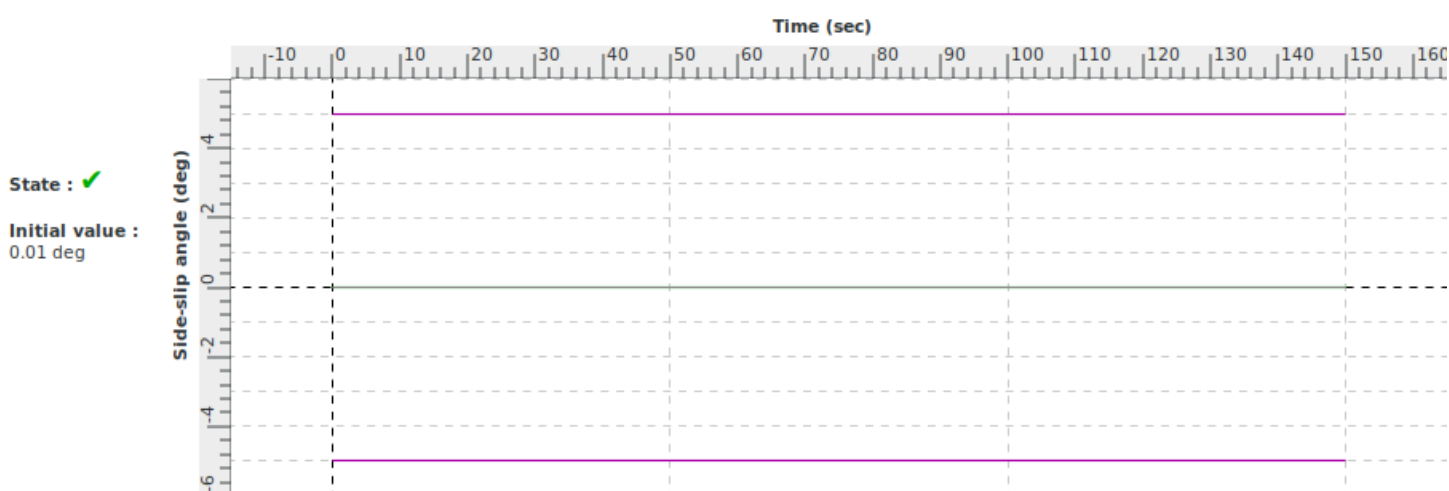
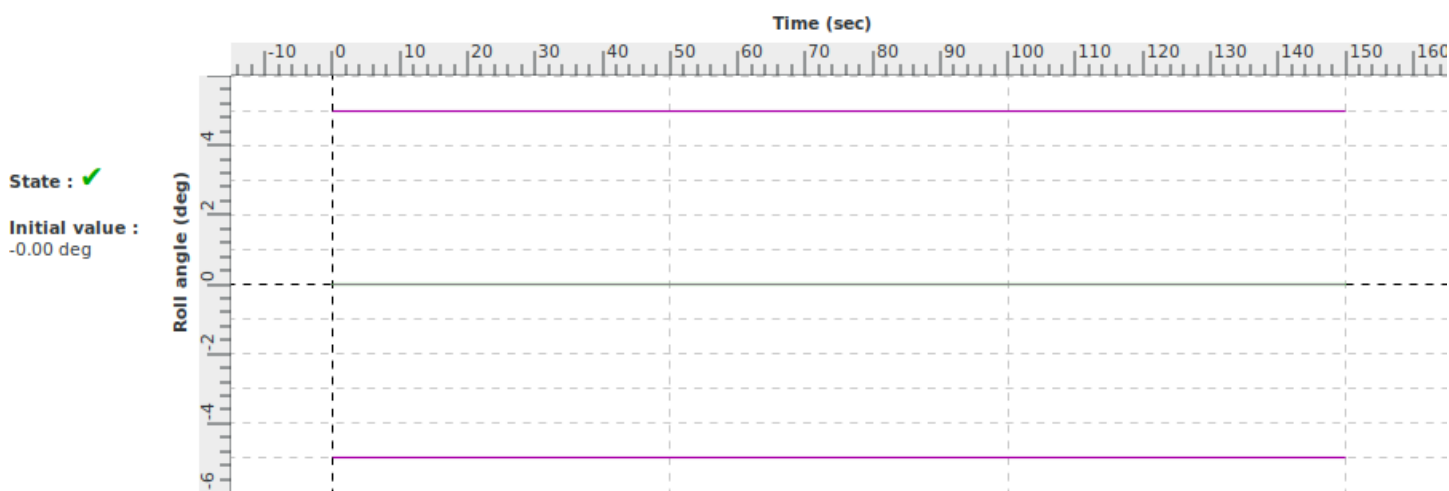
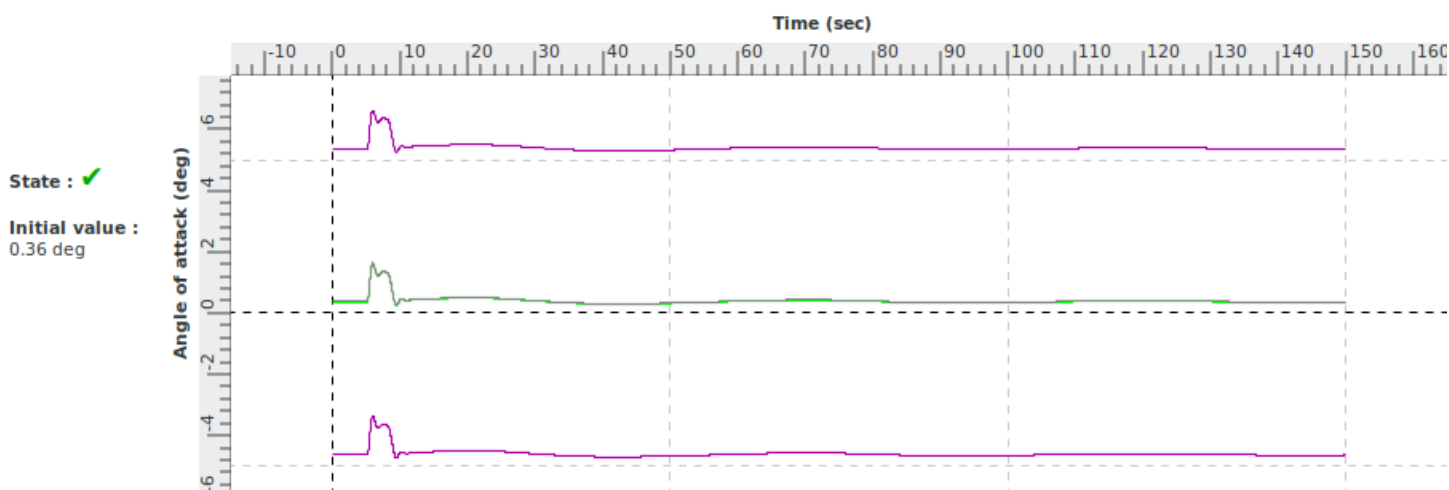
### Legend :

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blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Phugoid dynamics during cruise		
Id	2 c ix	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



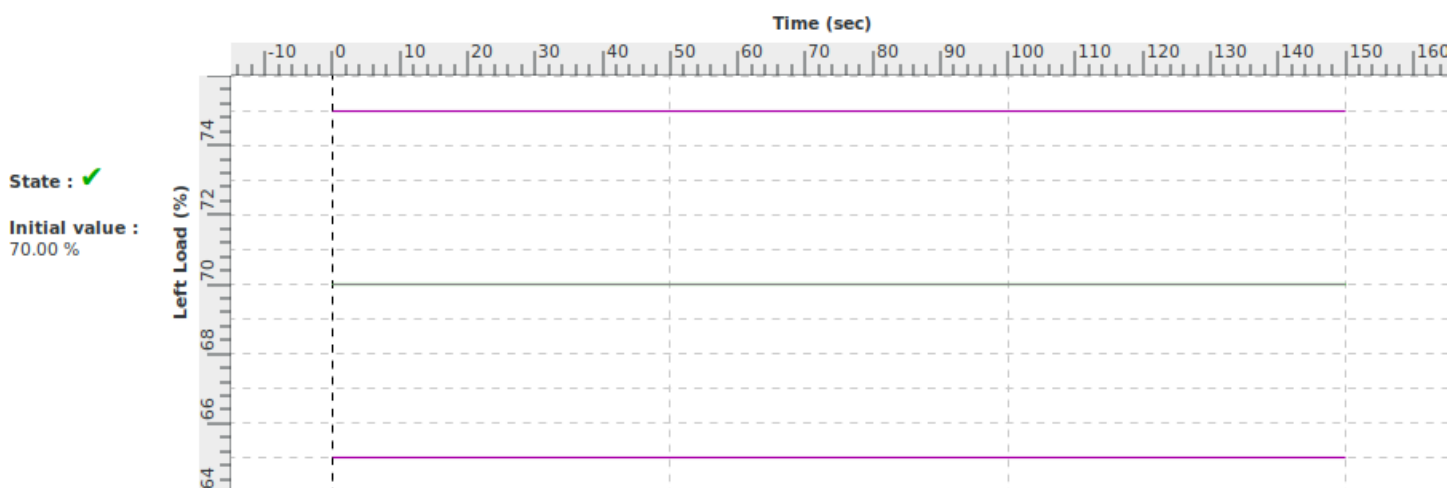
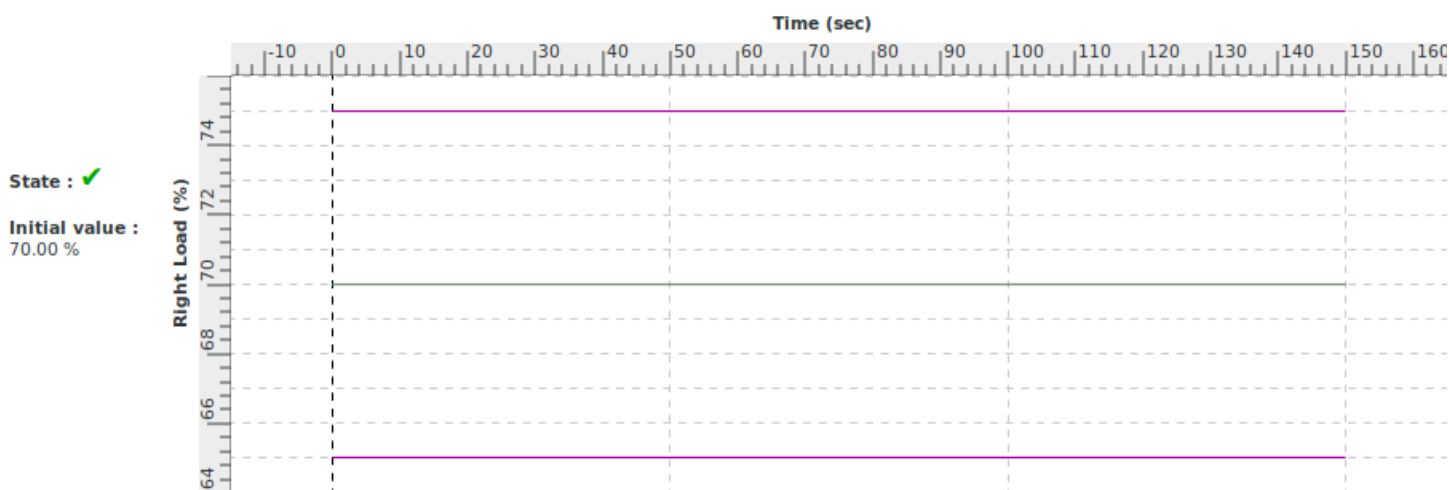
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master

Title	Phugoid dynamics during cruise		
Id	2 c ix	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

# VALIDATION TEST

<b>Title</b>	Short period dynamics during cruise		
<b>Id</b>	2 c x	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the simulator short period dynamic characteristics conform to the class of aeroplanes	<p>Increments :</p> <p>Pitch rate = 1 deg/sec</p> <p>Pitch angle = 5°</p> <p>Normal acceleration = 1.3 g</p>
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.c.x	<p>+/- 1.5 deg Pitch or +/- 2 deg/sec Pitch Rate</p> <p>+/- .1g Normal Acceleration</p>

<b>Demonstration procedure</b>	From steady initial cruise conditions, a pitch up control impulse is applied in order to excite the short period mode.
<b>Manual test procedure</b>	The pilot trims aeroplane at cruise. Then, applies the inputs on the stick of approximately 10 cm and releases the controls.
<b>Automatic test procedure</b>	2 c x

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

Title	Short period dynamics during cruise		
<b>Id</b>	2 c x	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Autopilot mode</b>	AUTO_SPEED
<p>Automatic Vertical Speed and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and VS. Roll Trim is computed to maintain 0° bank angle.</p>	

<b>Initial parameters</b>	CRUISE
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 6000 Vertical speed (ft/min) : 0 IAS (kt) : 139 (free) Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : 0 Pedal Position (%) : 0 Column Position (%) : 9 Wheel Position (%) : 0	Flaps lever position : 0 Gear lever position : 0 Left Load (%) : 70 Right Load (%) : 70 Left RPM : 2060 Right RPM : 2060

Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
0.0	deconnectionPA_att	0.0	disable QTG Autopilot in attitude axis
5.0	SetAttCmd	5.0	Send an impulse in the attitude govern
30.0	Stop_Test	0.0	Stop the test procedure

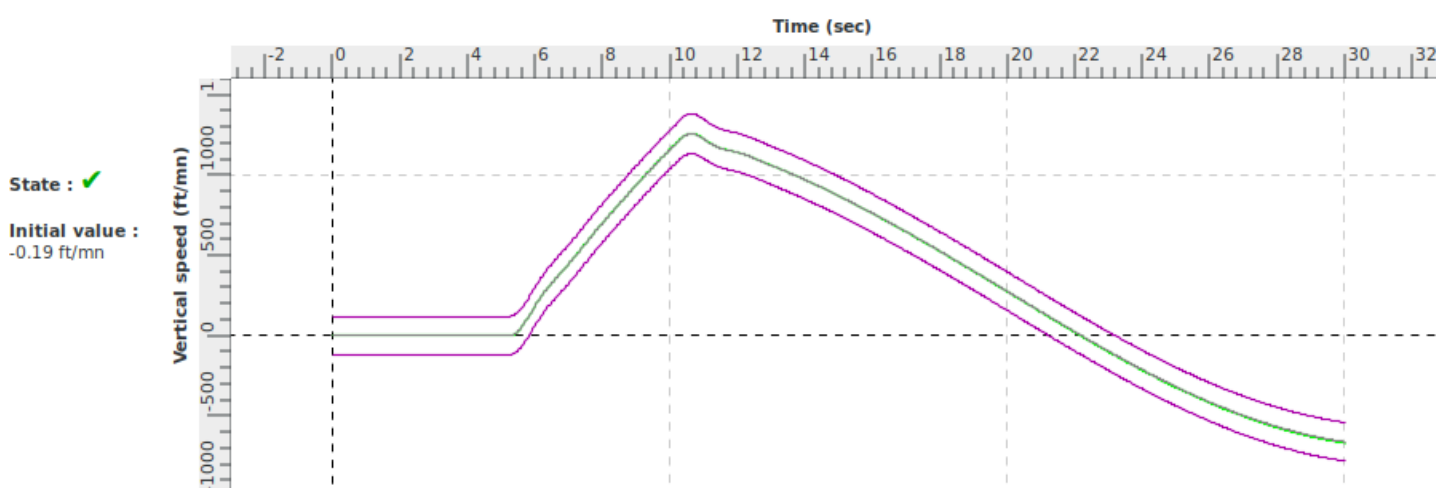
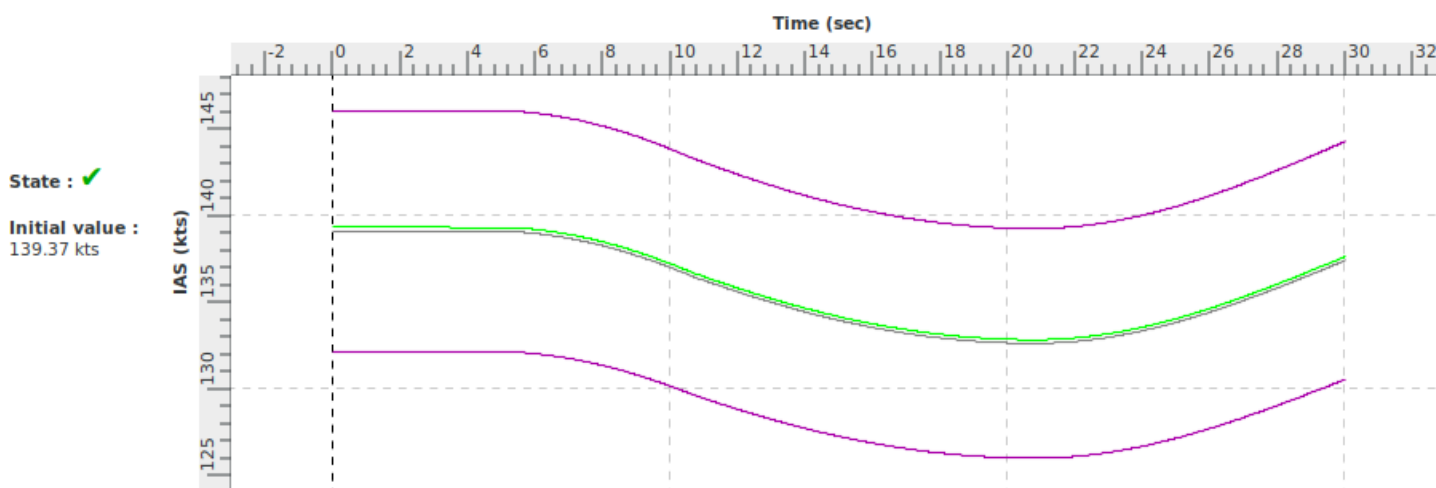
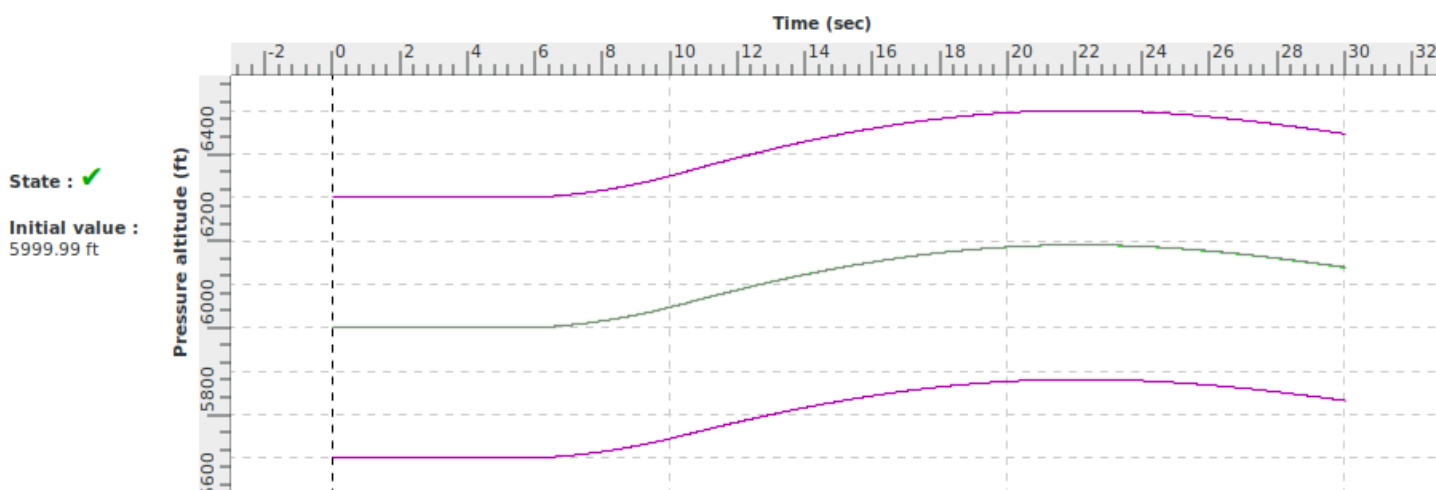
<b>Title</b>	Short period dynamics during cruise		
<b>Id</b>	2 c x	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

Log of Revision		
Rev. Nbr	Date	Reason for revision

Notes



Title	Short period dynamics during cruise		
Id	2 c x	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



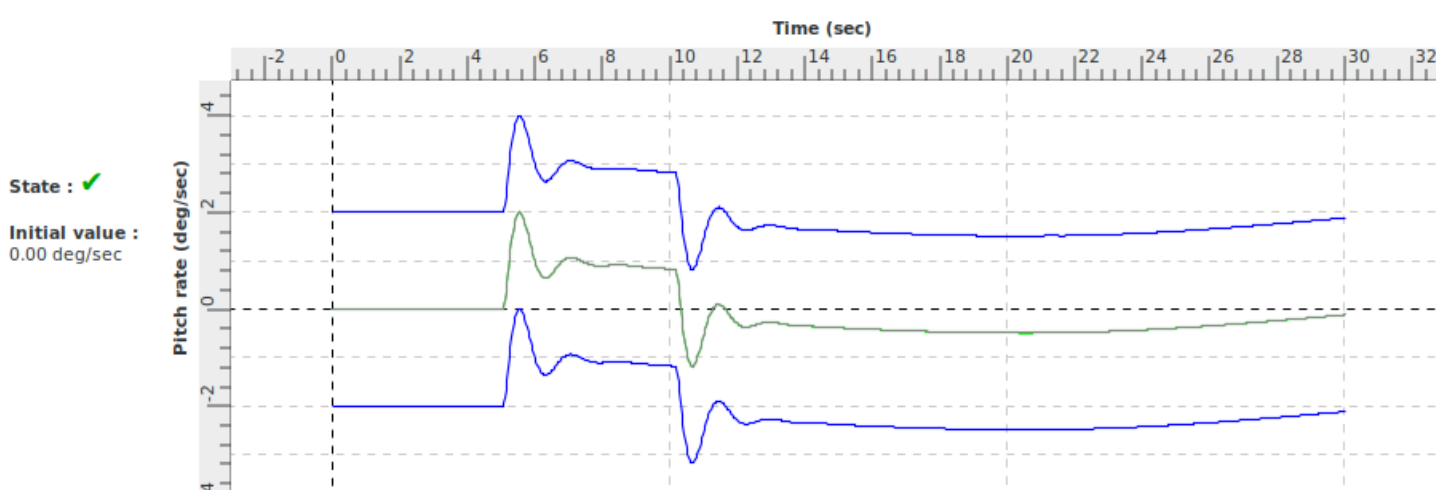
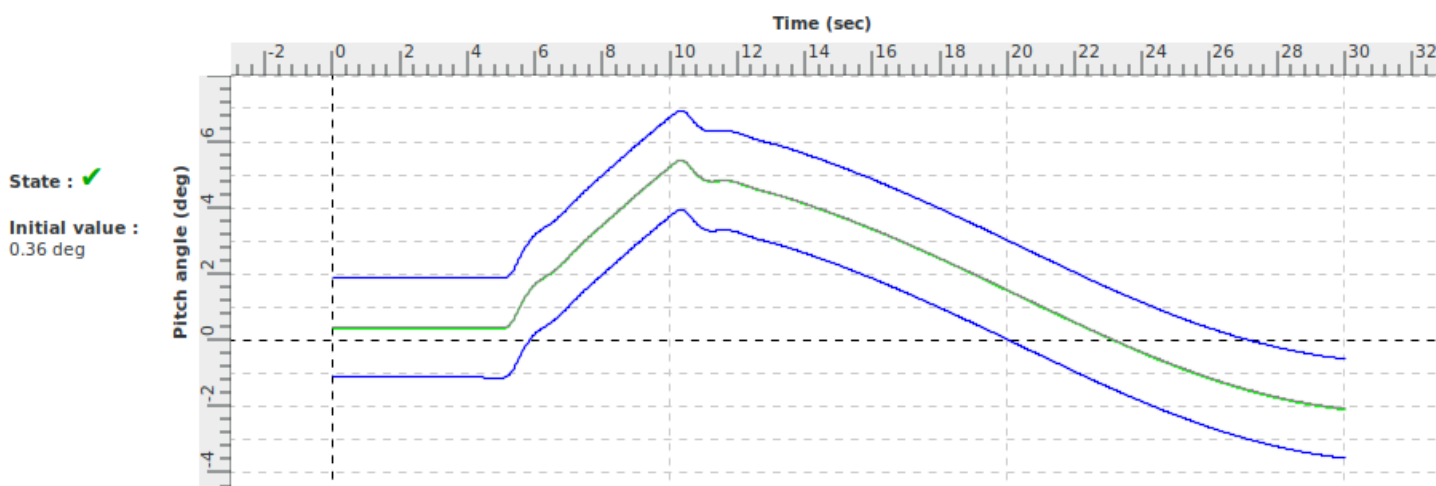
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master

Title	Short period dynamics during cruise		
Id	2 c x	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



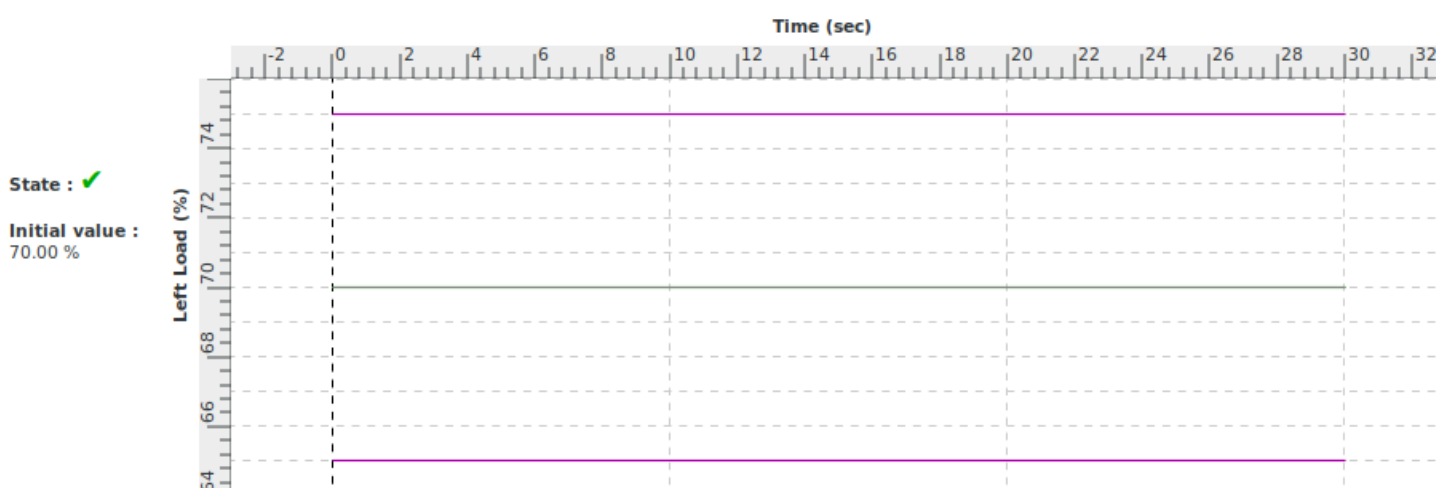
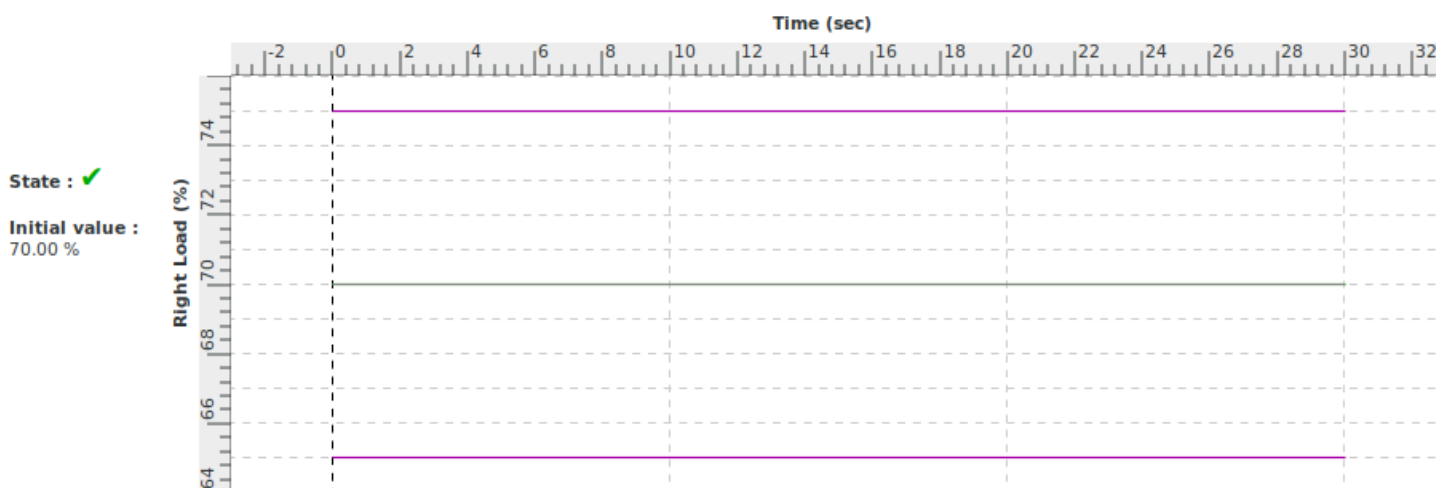
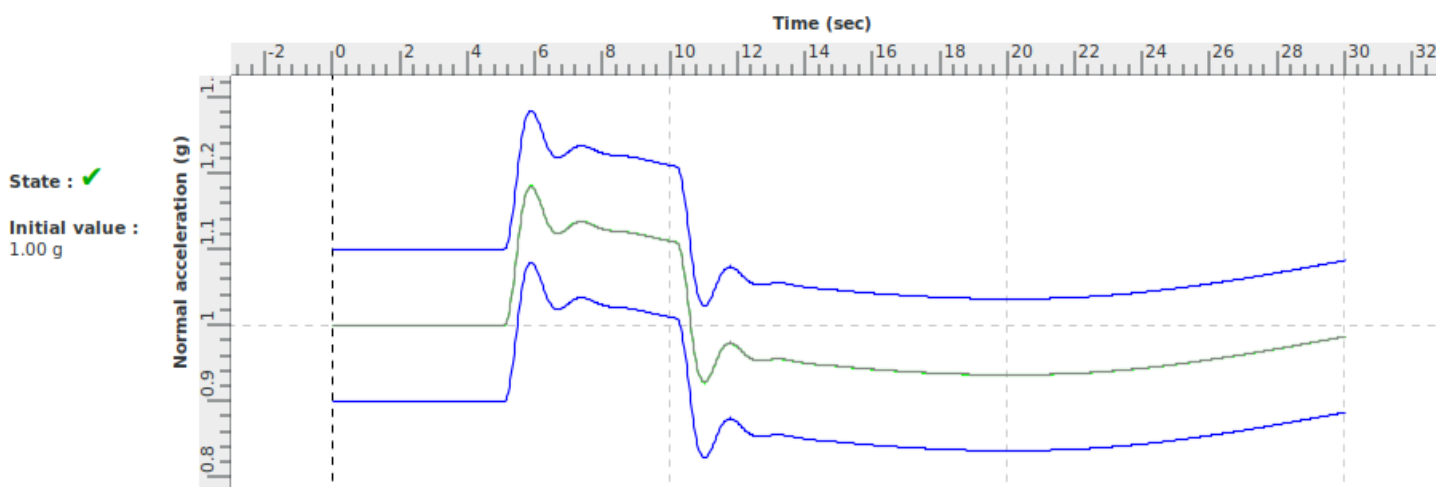
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Short period dynamics during cruise		
Id	2 c x	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsimg

grey : master

Title	Short period dynamics during cruise		
Id	2 c x	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



**Legend :**

green : results within tolerances    red : results out of tolerances    grey : master  
blue : tolerances    violet : tolerances Alsim

# VALIDATION TEST

<b>Title</b>	VMCA during take-off		
<b>Id</b>	2 d i auto	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	04/02/24	<b>Master Date</b>	11/06/22
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the VMCA is conform to the similar types of airplanes.	VMCA: 71 kts
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.d.i	Airspeed +/- 3 kts

<b>Demonstration procedure</b>	See Manual test procedure
<b>Manual test procedure</b>	During take-off climb (gear UP and flaps CLEAN), the pilot fails the left engine (reduce to idle). Then, the pilot decreases the speed by 1kt / second using full rudder control and lateral control until constant heading and bank below 5deg can no longer be maintained using ailerons and rudder control.
<b>Automatic test procedure</b>	2 d 1

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

Title	VMCA during take-off		
<b>Id</b>	2 d i auto	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	04/02/24	<b>Master Date</b>	11/06/22
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Autopilot mode</b>	AUTO_VMCA

<b>Initial parameters</b>	VMCA_AUTO
Gross weight (kg) : 1700	Flaps lever position : 0
Balance (%) : 100	Gear lever position : 0
Altitude (ft) : 6000	Left Load (%) : 0 (free)
Vertical speed (ft/min) : 0 (free)	Right Load (%) : 100 (free)
IAS (kt) : 80 (free)	Left RPM : 2060 (free)
Heading (°) : 0 (free)	Right RPM : 2060 (free)
Bank (°) : -5 (free)	
Attitude (°) : 10	
Pedal Position (%) : 0	
Column Position (%) : 43	
Wheel Position (%) : 0	

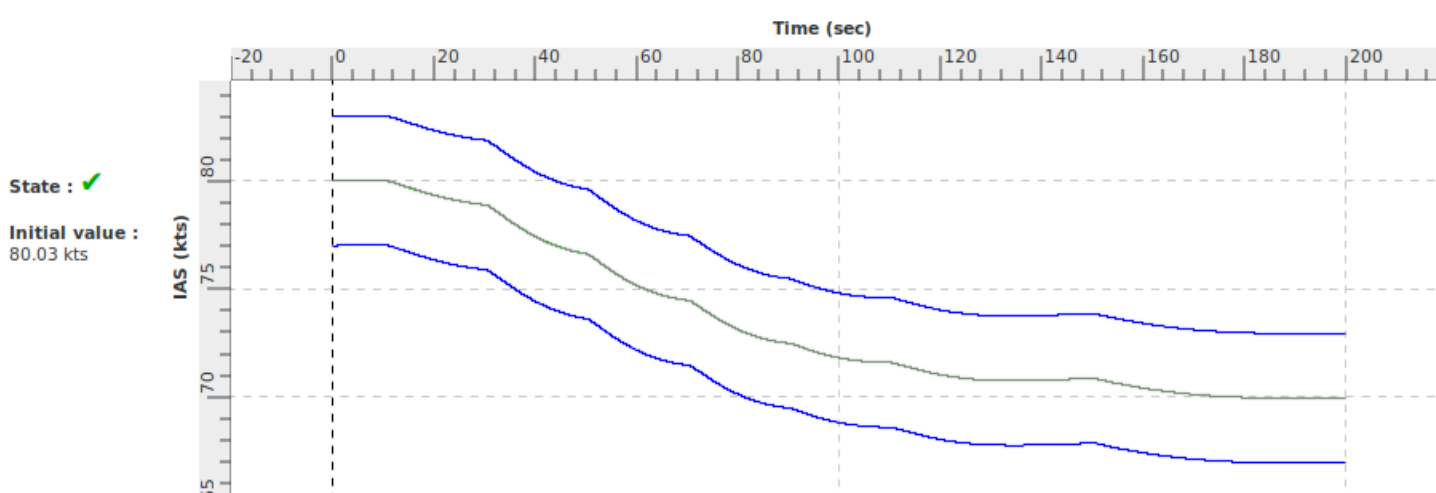
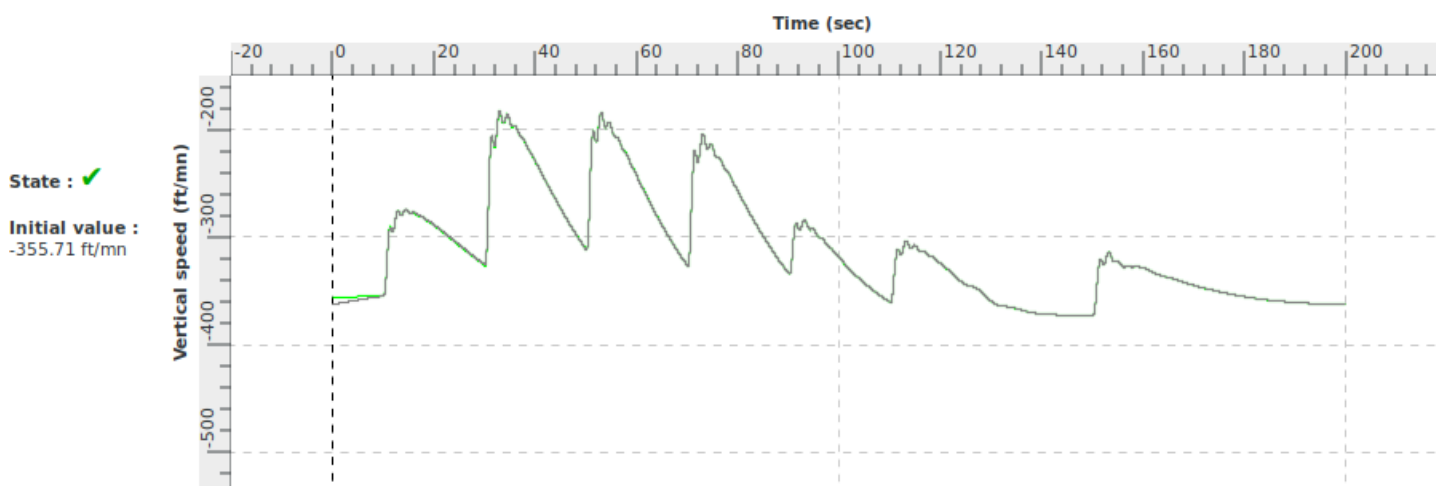
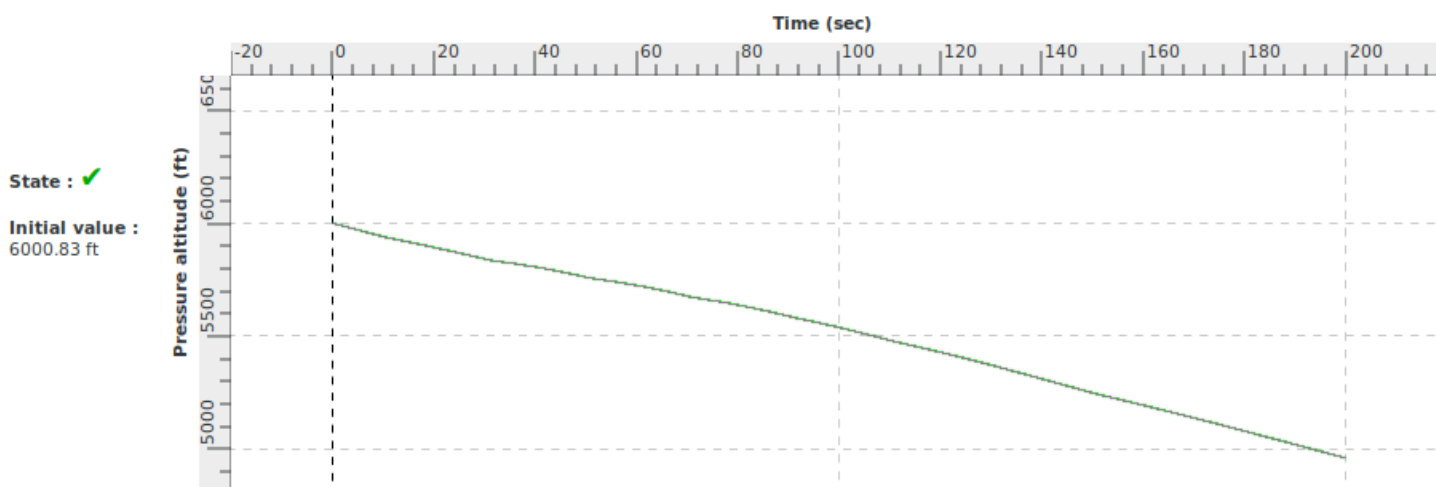
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
10.0	SetSpeed	79.0	Ask the QTG Autopilot to maintain the desired speed
30.0	SetSpeed	77.0	Ask the QTG Autopilot to maintain the desired speed
50.0	SetSpeed	75.0	Ask the QTG Autopilot to maintain the desired speed
70.0	SetSpeed	73.0	Ask the QTG Autopilot to maintain the desired speed
90.0	SetSpeed	72.0	Ask the QTG Autopilot to maintain the desired speed
110.0	SetSpeed	71.0	Ask the QTG Autopilot to maintain the desired speed
150.0	SetSpeed	70.0	Ask the QTG Autopilot to maintain the desired speed

<b>Title</b>	VMCA during take-off		
<b>Id</b>	2 d i auto	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	04/02/24	<b>Master Date</b>	11/06/22
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

Log of Revision		
Rev. Nbr	Date	Reason for revision
1.01	29/03/21	Addition of tolerance to IAS graph
1.02	10/06/22	Remastered following 2012-R1 software update. No impact on expected results

Notes

Title	VMCA during take-off		
Id	2 d i auto	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	04/02/24	Master Date	11/06/22
Result Load	2012.01	Master Load	2012.01



#### Legend :

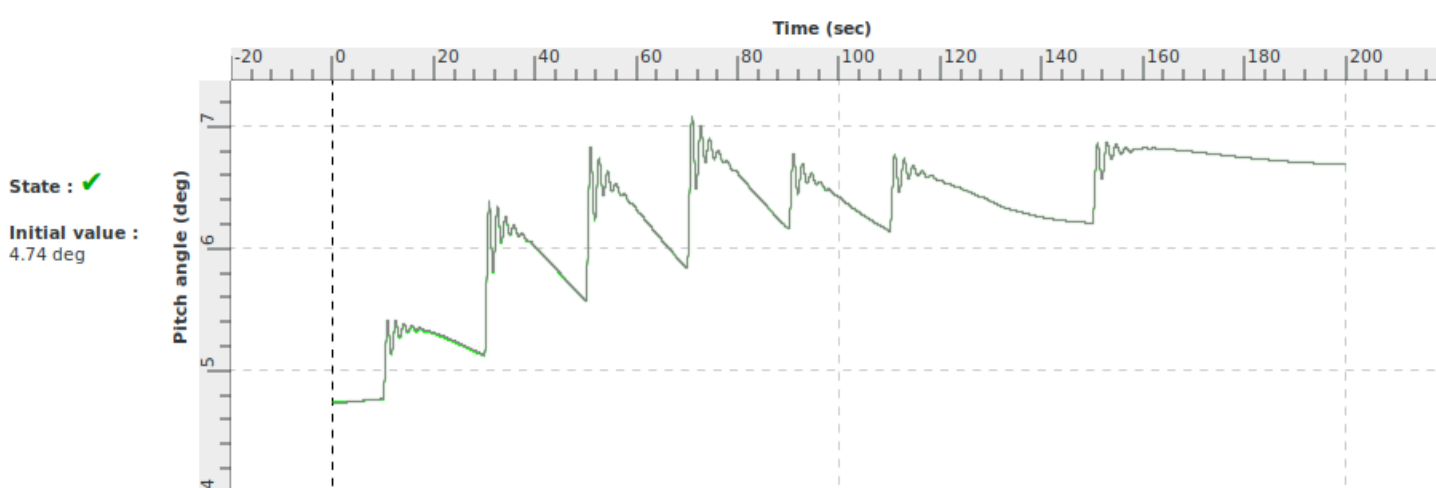
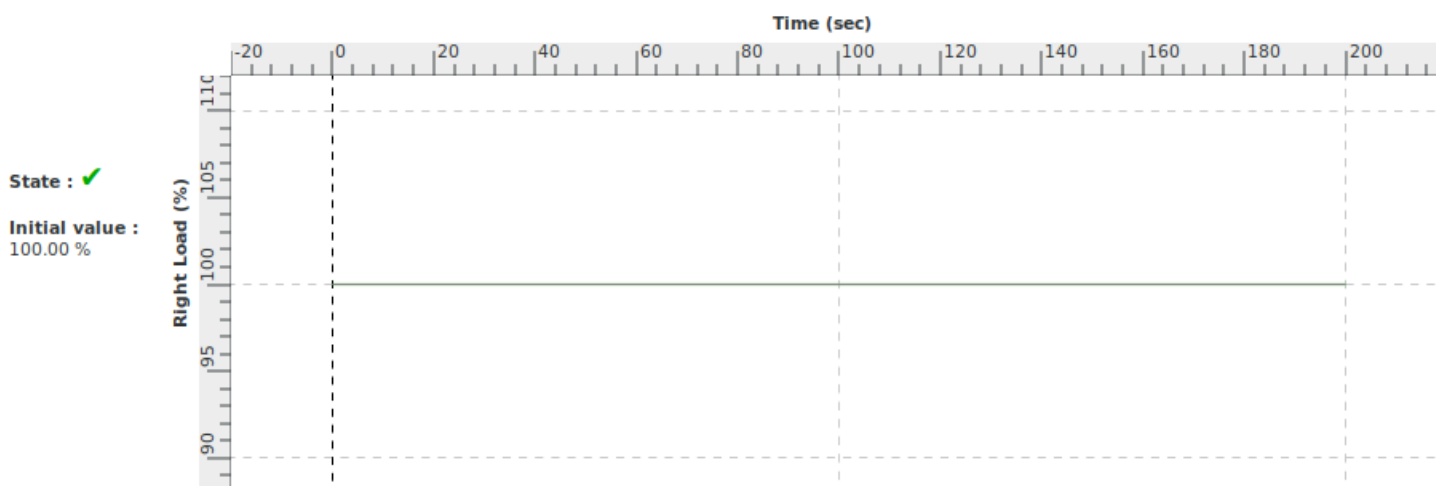
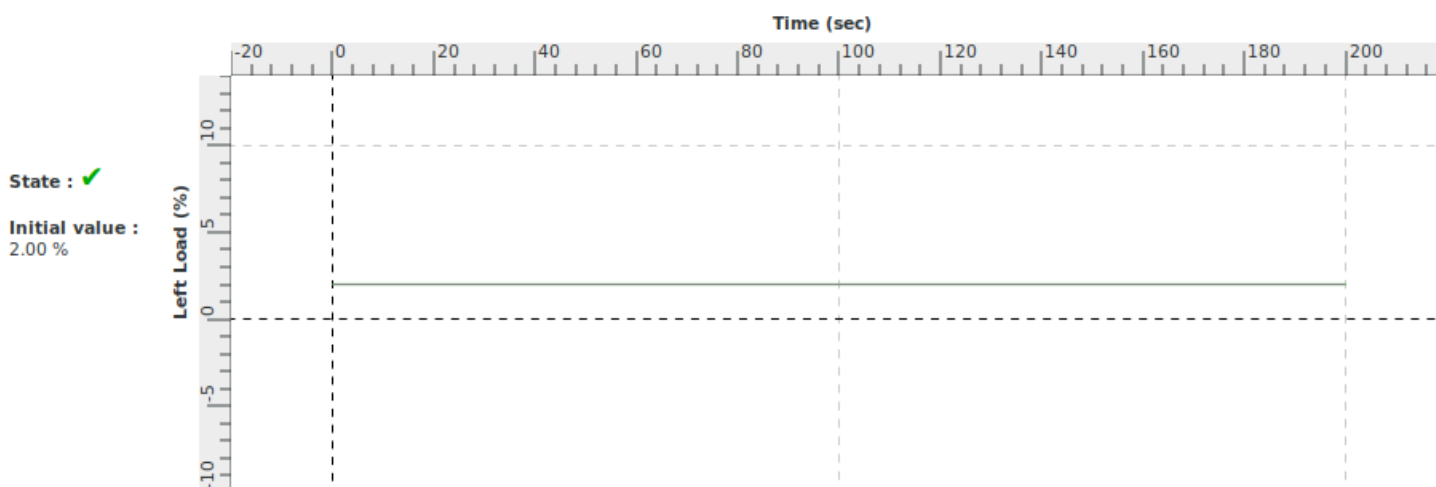
green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master



Title	VMCA during take-off		
Id	2 d i auto	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	04/02/24	Master Date	11/06/22
Result Load	2012.01	Master Load	2012.01



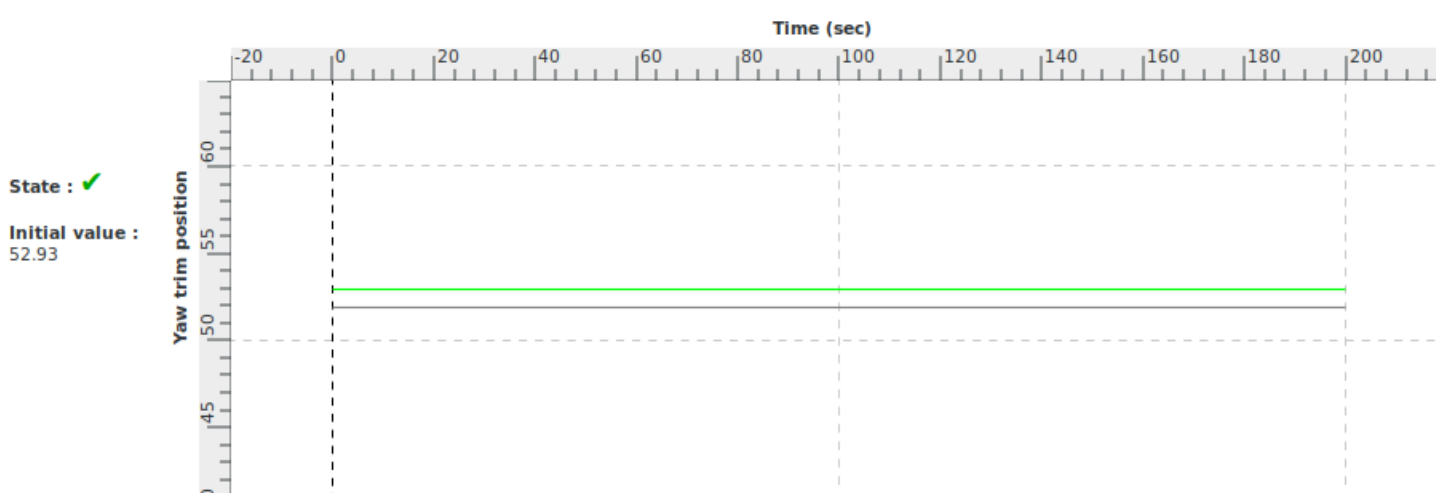
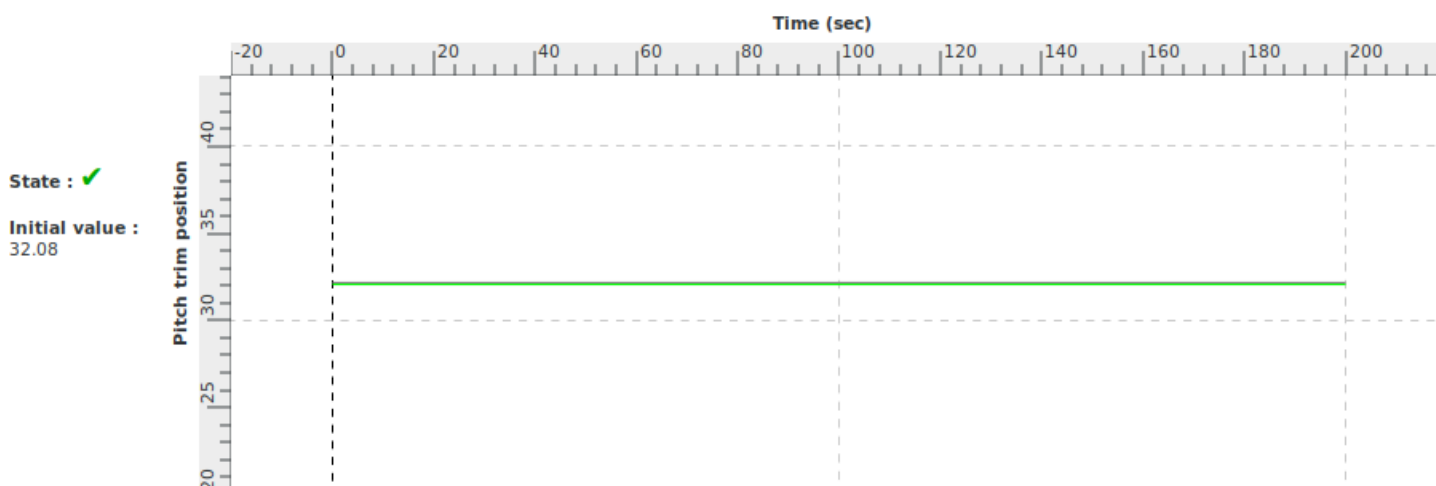
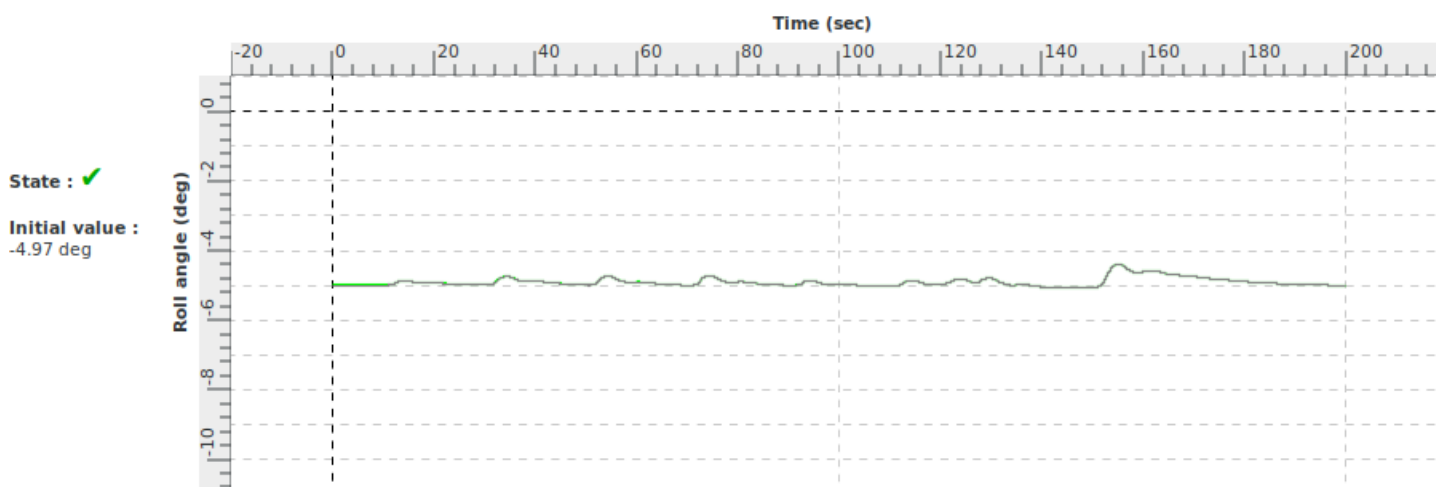
### Legend :

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red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	VMCA during take-off		
Id	2 d i auto	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	04/02/24	Master Date	11/06/22
Result Load	2012.01	Master Load	2012.01



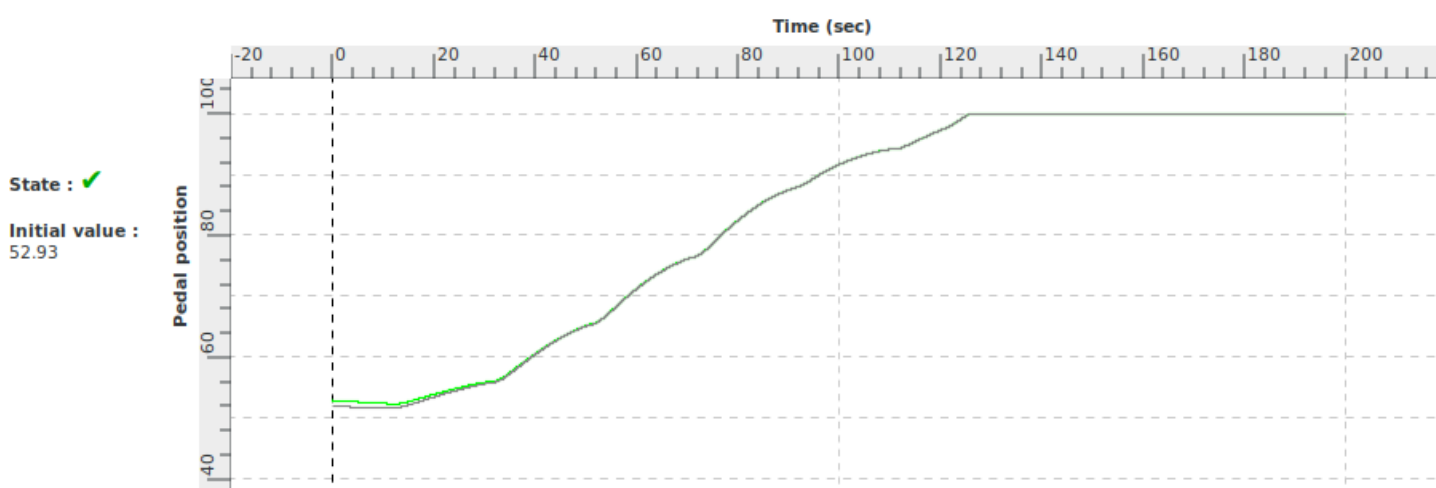
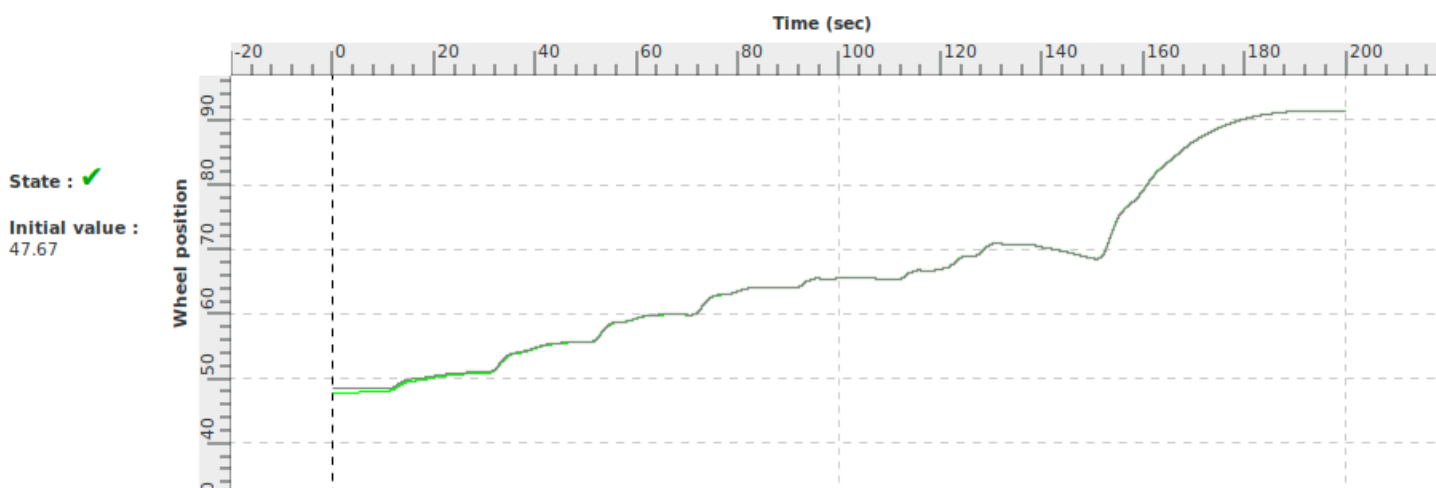
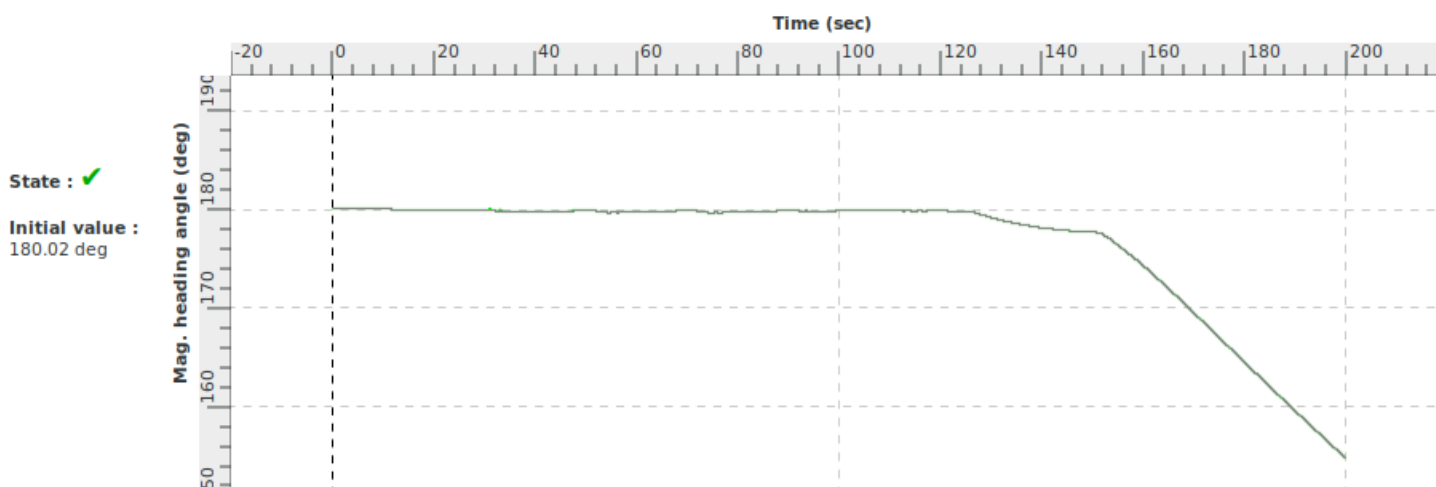
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violet : tolerances Alsim

grey : master

Title	VMCA during take-off		
Id	2 d i auto	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	04/02/24	Master Date	11/06/22
Result Load	2012.01	Master Load	2012.01



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

# VALIDATION TEST

<b>Title</b>	Roll response rate during cruise		
<b>Id</b>	2 d ii a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the simulator roll rate response to roll control input conforms to the class of aeroplanes	+/-15 deg/sec Roll rate 45 % Wheel deflection
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.d.ii.a	+/- 2°/s or +/-10% Roll Rate

<b>Demonstration procedure</b>	From steady cruise initial conditions, a wheel deflection step input of about 45% of maximum is applied for the two directions left then right.
<b>Manual test procedure</b>	In ISA conditions and cruise condition, the pilot trims the airplane to level flight. When cruise is stabilised, the pilot moves the wheel 45% of total travel keeping constant control deflection until about 30° of bank angle and the pilot slightly returns to null deflection. Then the pilot performs the same manoeuvre in the opposite direction using wheel deflection as required.
<b>Automatic test procedure</b>	2 d ii a

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

Title	Roll response rate during cruise		
<b>Id</b>	2 d ii a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Autopilot mode</b>	AUTO_SPEED
<p>Automatic Vertical Speed and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and VS. Roll Trim is computed to maintain 0° bank angle.</p>	

<b>Initial parameters</b>	CRUISE
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 6000 Vertical speed (ft/min) : 0 IAS (kt) : 139 (free) Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : 0 Pedal Position (%) : 0 Column Position (%) : 9 Wheel Position (%) : 0	Flaps lever position : 0 Gear lever position : 0 Left Load (%) : 70 Right Load (%) : 70 Left RPM : 2060 Right RPM : 2060

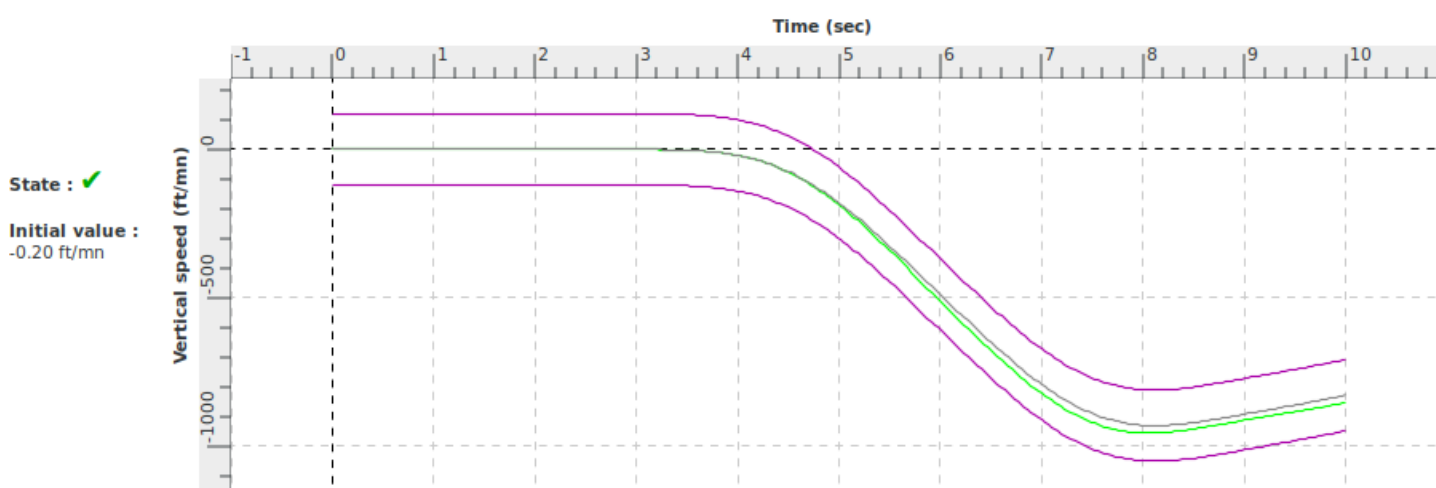
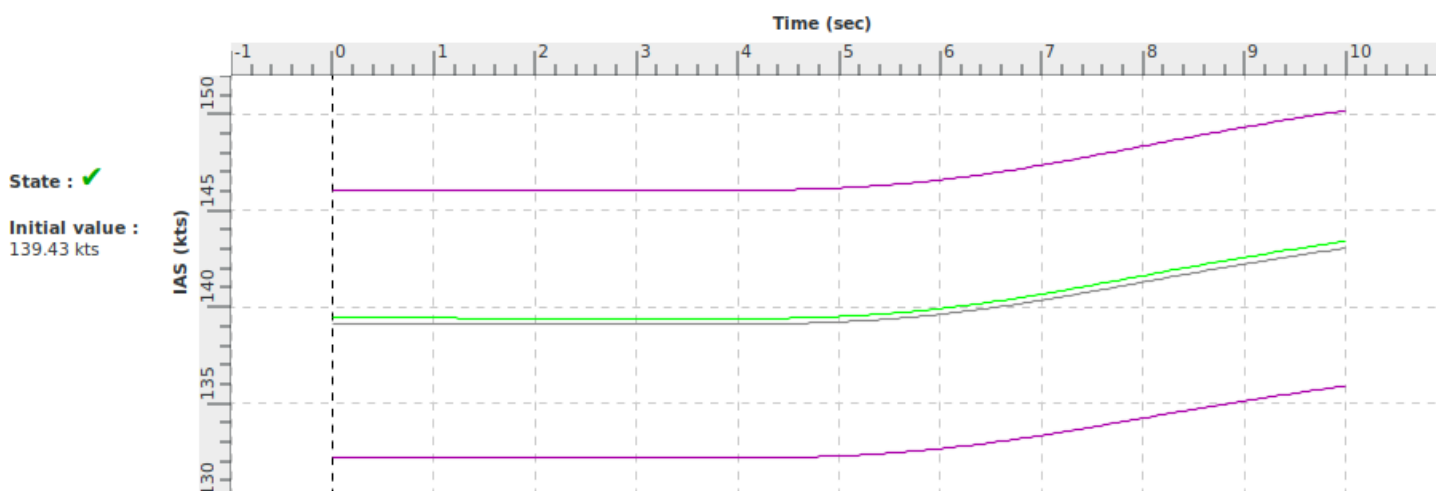
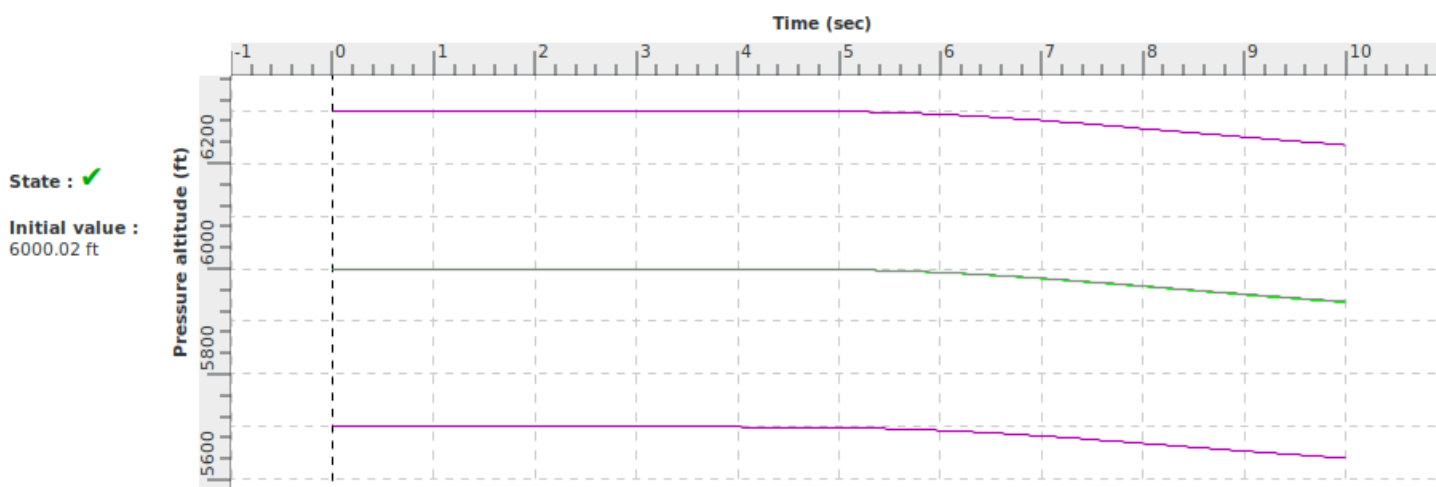
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
0.0	deconnectionPA_att	0.0	disable QTG Autopilot in attitude axis
0.0	deconnectionPA_rudder	0.0	disable QTG Autopilot in yaw axis
1.0	SetRollCmdPalier	0.0	Send a step in the roll govern
2.0	SetRollCmdPalier	45.0	Send a step in the roll govern
4.0	SetRollCmdPalier	0.0	Send a step in the roll govern
6.0	SetRollCmdPalier	-45.0	Send a step in the roll govern
8.0	SetRollCmdPalier	0.0	Send a step in the roll govern

<b>Title</b>	Roll response rate during cruise		
<b>Id</b>	2 d ii a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

Log of Revision		
Rev. Nbr	Date	Reason for revision

Notes

Title	Roll response rate during cruise		
Id	2 d ii a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	14/06/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



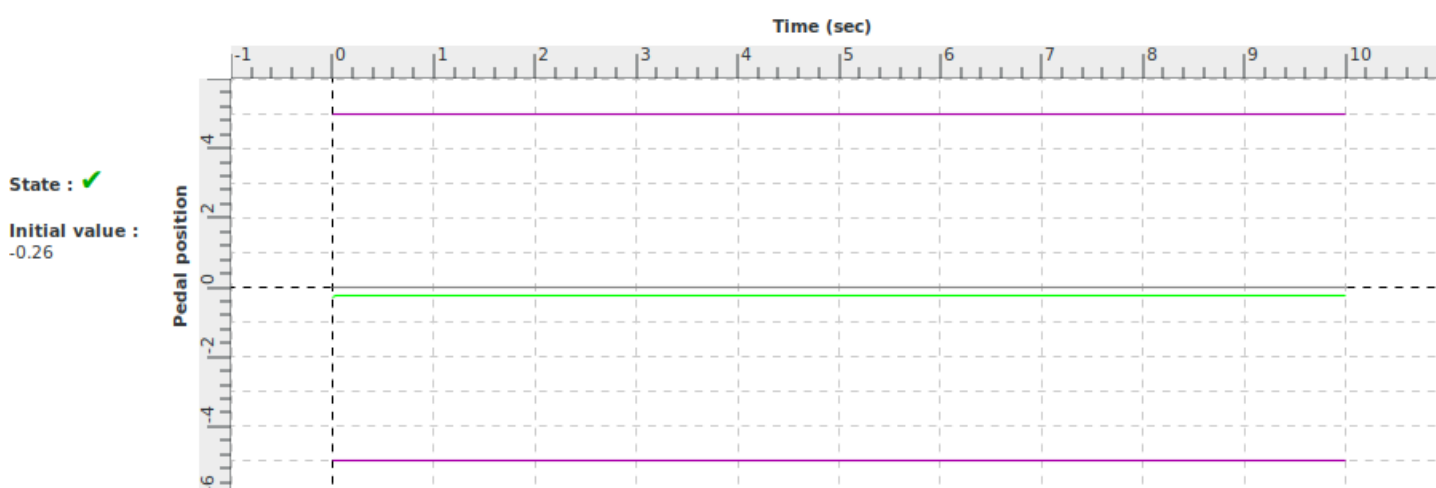
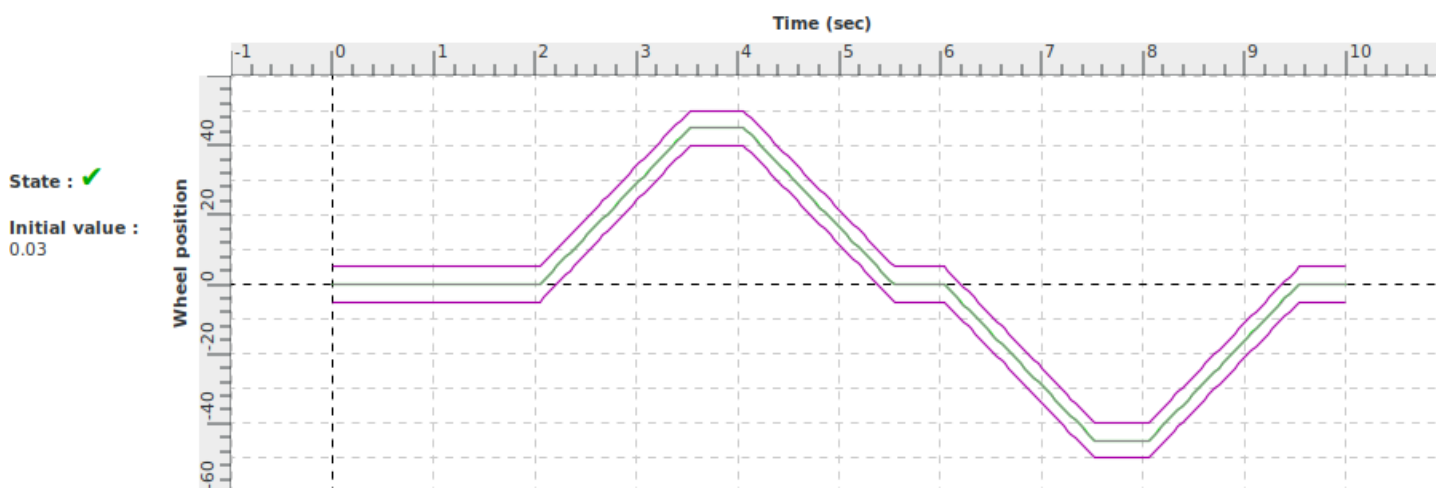
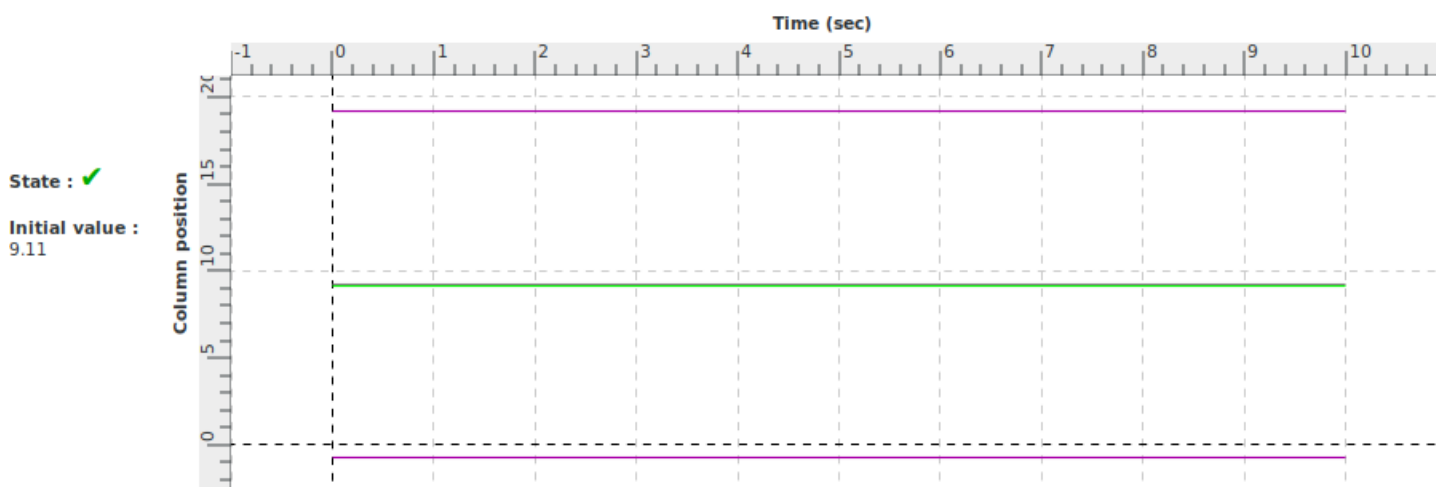
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master

Title	Roll response rate during cruise		
Id	2 d ii a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	14/06/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

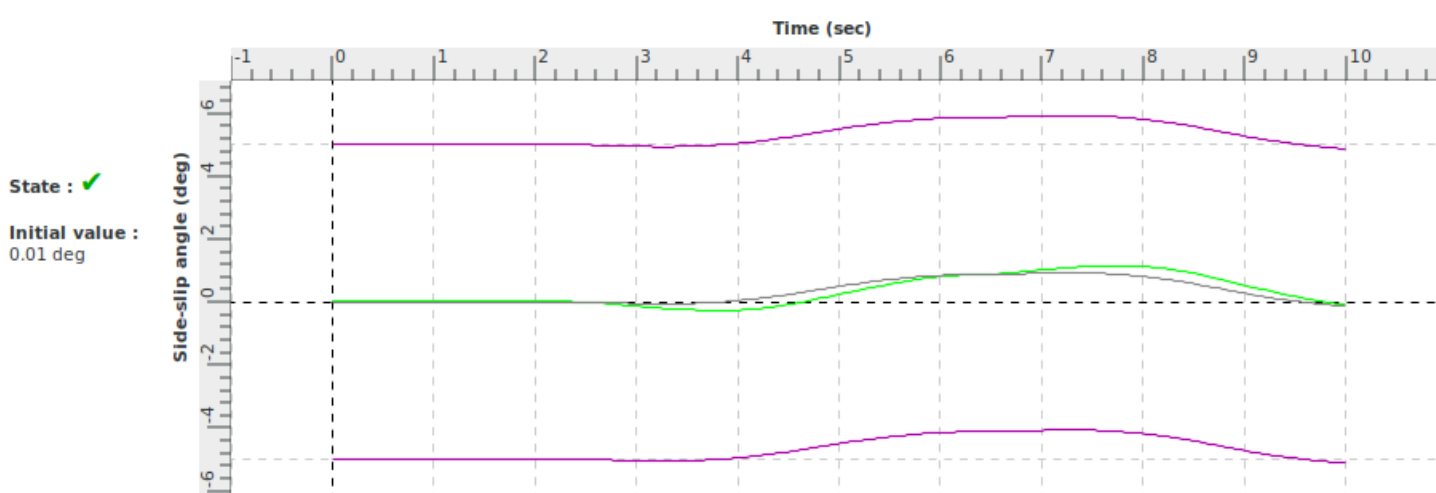
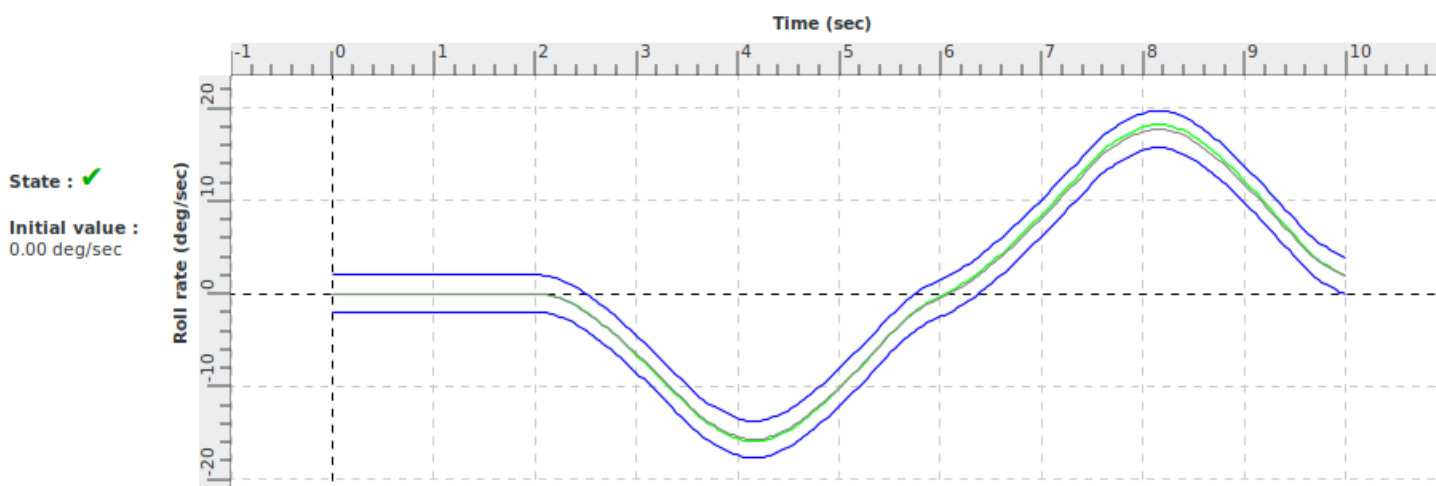
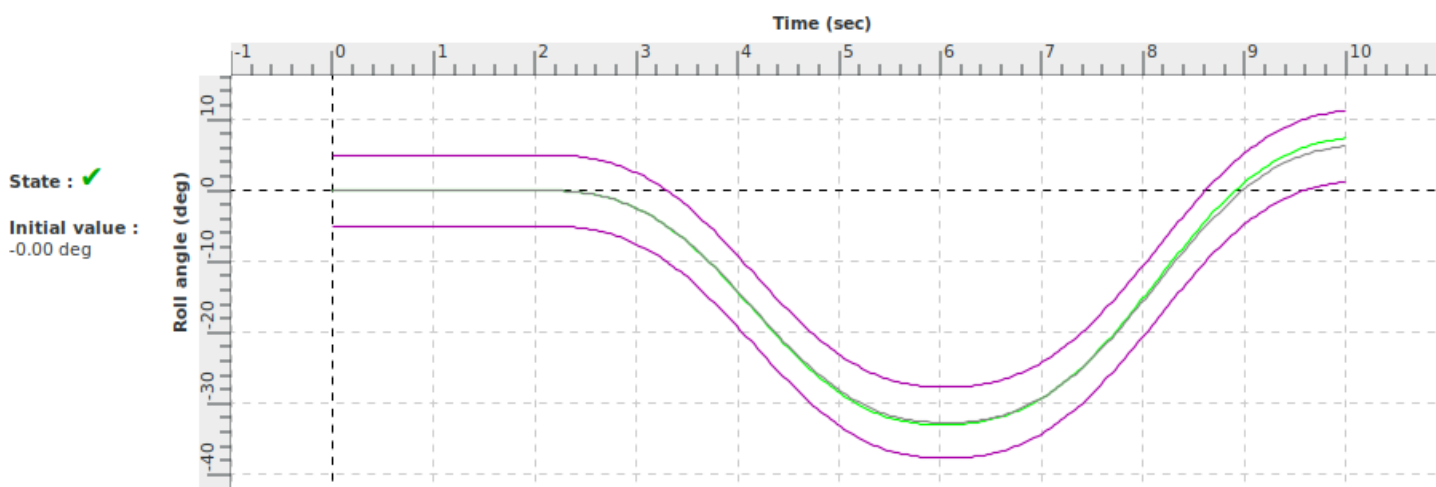
green : results within tolerances  
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red : results out of tolerances  
violet : tolerances Alsिम

grey : master



Title	Roll response rate during cruise		
Id	2 d ii a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	14/06/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



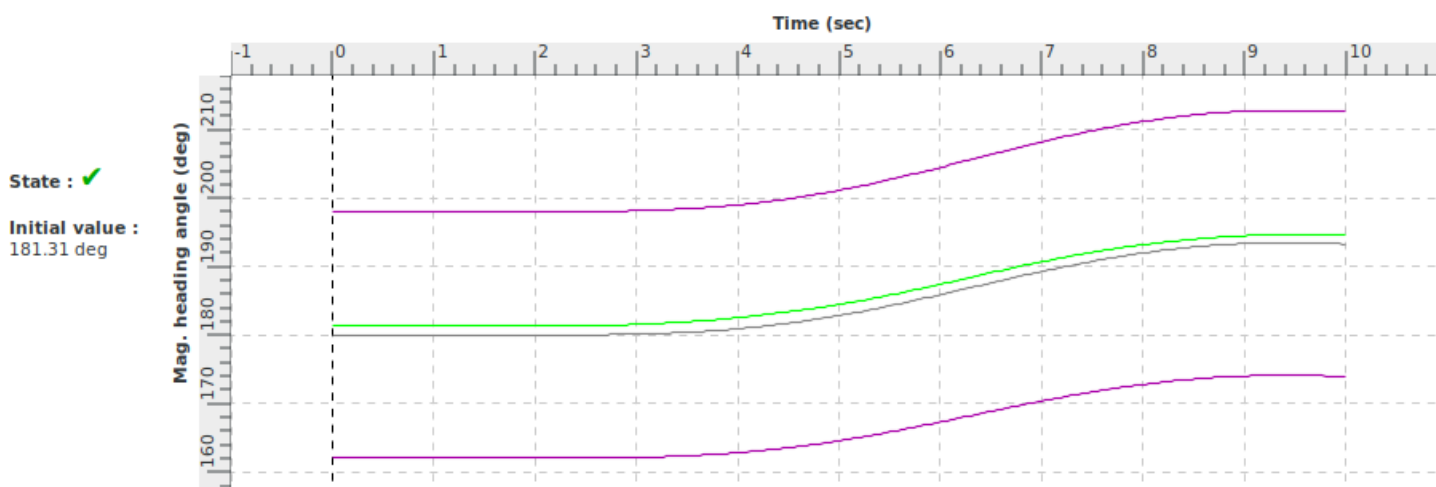
### Legend :

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blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Roll response rate during cruise		
Id	2 d ii a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	14/06/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

# VALIDATION TEST

<b>Title</b>	Roll response rate during approach		
<b>Id</b>	2 d ii b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the simulator roll rate response to roll control input conforms to the class of aeroplanes	+/-5 deg/sec Roll rate 20 % Wheel deflection
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.d.ii.b	+/- 2°/s or +/-10% Roll Rate

<b>Demonstration procedure</b>	From steady approach initial conditions, a wheel deflection step input of about 20% of maximum is applied for the two directions left then right.
<b>Manual test procedure</b>	In ISA conditions and approach condition, the pilot trims the airplane for approach. When approach is stabilised, the pilot moves the wheel 20% of total travel keeping constant control deflection until about 10° of bank angle and the pilot slightly returns to null deflection. Then the pilot performs the same manoeuvre in the opposite direction using wheel deflection as required.
<b>Automatic test procedure</b>	2 d ii b

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

Title	Roll response rate during approach		
<b>Id</b>	2 d ii b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Autopilot mode</b>	AUTO_VZ
<p>Automatic IAS (airspeed) and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and IAS. Roll Trim is computed to maintain 0° bank angle.</p>	

<b>Initial parameters</b>	HOLD_FLAPS_APP_GEAR
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 3000 Vertical speed (ft/min) : 0 (free) IAS (kt) : 106 Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : -1 Pedal Position (%) : 0 Column Position (%) : 32 Wheel Position (%) : 0	Flaps lever position : 1 Gear lever position : 1 Left Load (%) : 70 Right Load (%) : 70 Left RPM : 2060 Right RPM : 2060

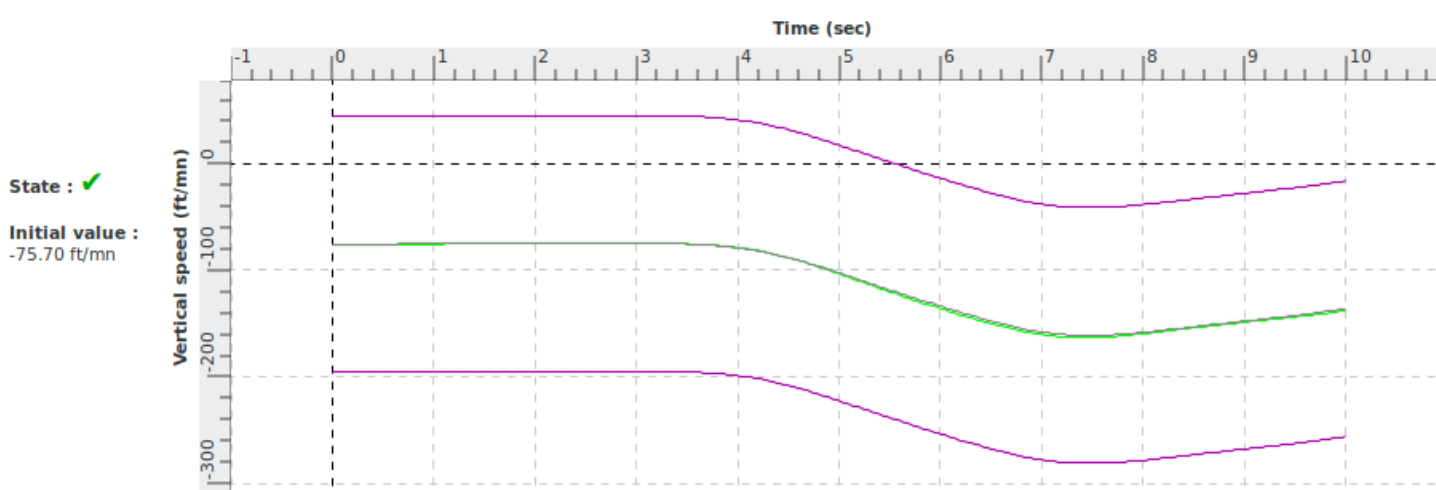
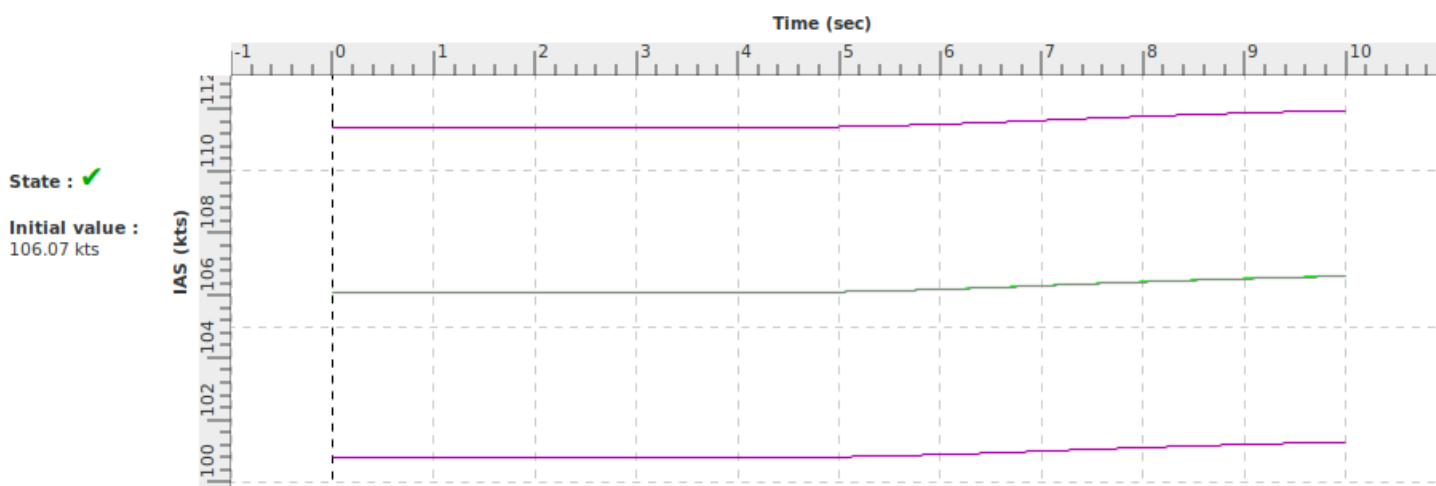
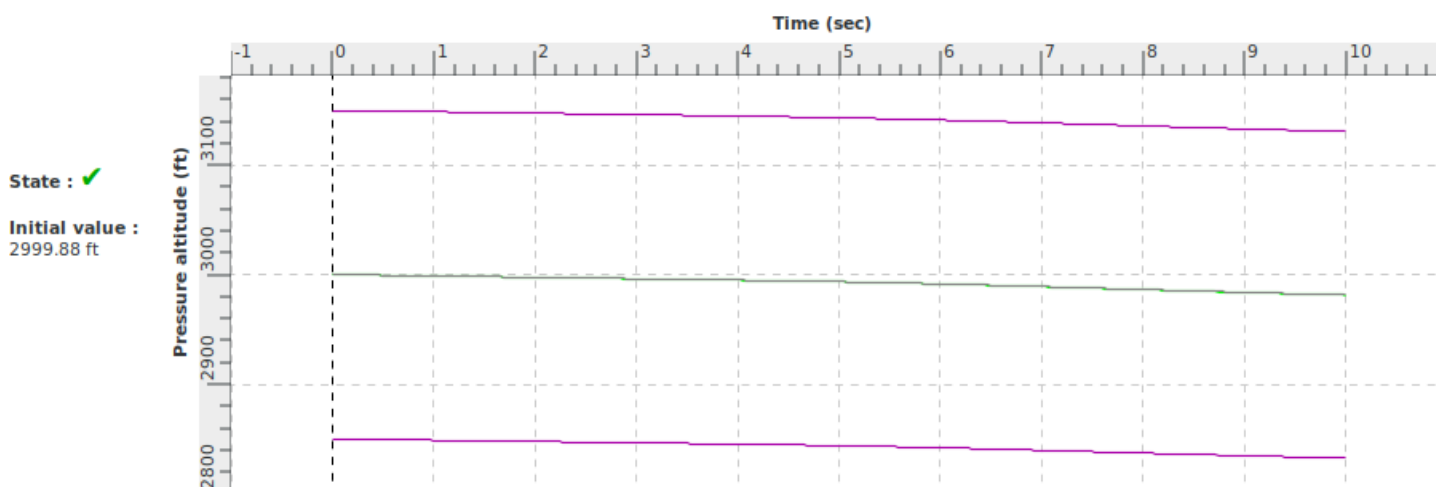
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
0.0	deconnectionPA_att	0.0	disable QTG Autopilot in attitude axis
0.0	deconnectionPA_rudder	0.0	disable QTG Autopilot in yaw axis
1.0	SetRollCmdPalier	0.0	Send a step in the roll govern
2.0	SetRollCmdPalier	20.0	Send a step in the roll govern
4.0	SetRollCmdPalier	0.0	Send a step in the roll govern
6.0	SetRollCmdPalier	-20.0	Send a step in the roll govern
8.0	SetRollCmdPalier	0.0	Send a step in the roll govern

<b>Title</b>	Roll response rate during approach		
<b>Id</b>	2 d ii b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

Log of Revision		
Rev. Nbr	Date	Reason for revision

Notes

Title	Roll response rate during approach		
Id	2 d ii b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



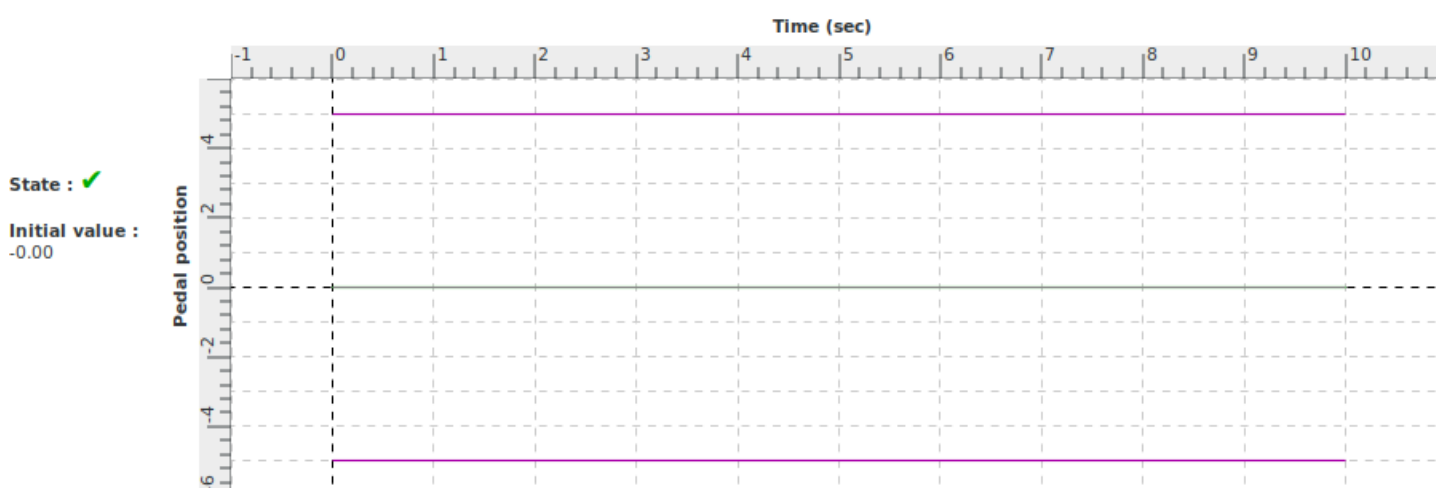
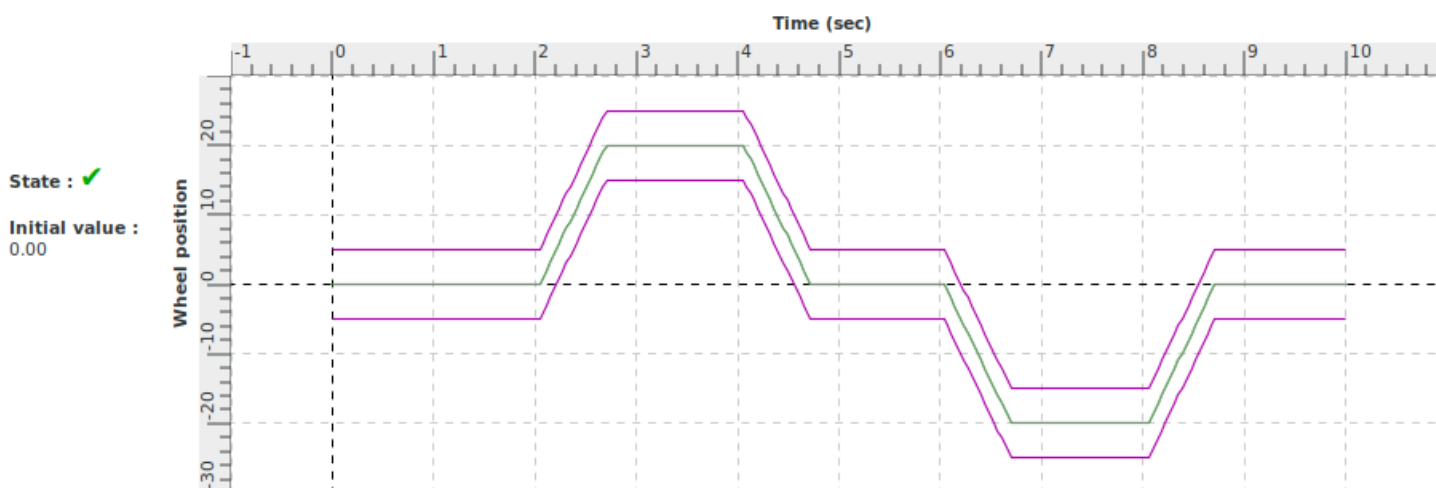
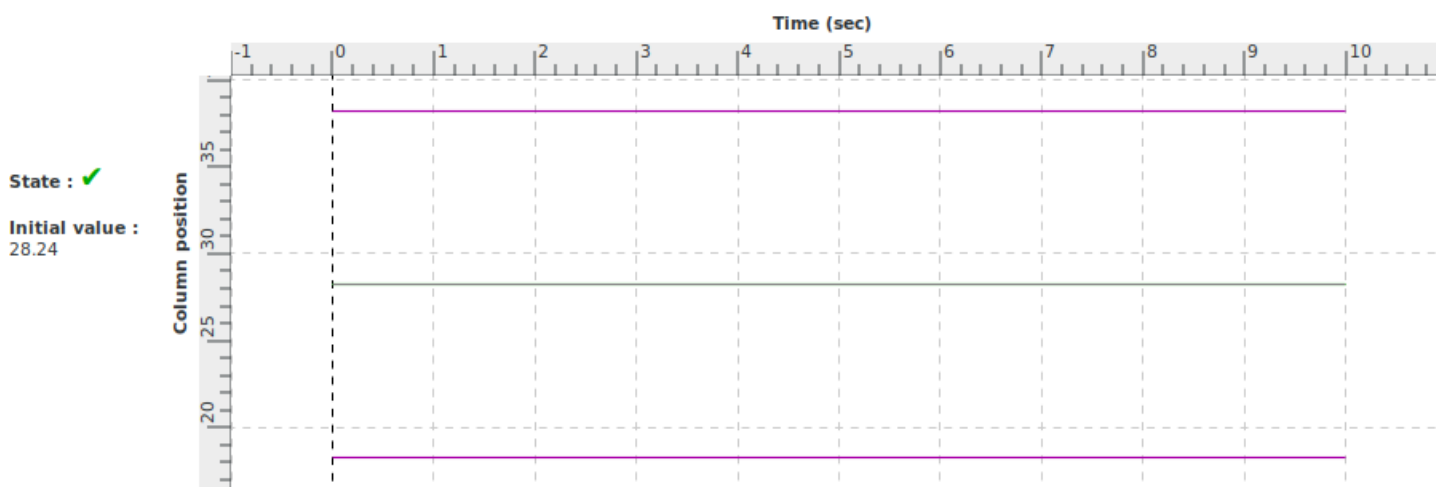
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsimg

grey : master

Title	Roll response rate during approach		
Id	2 d ii b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



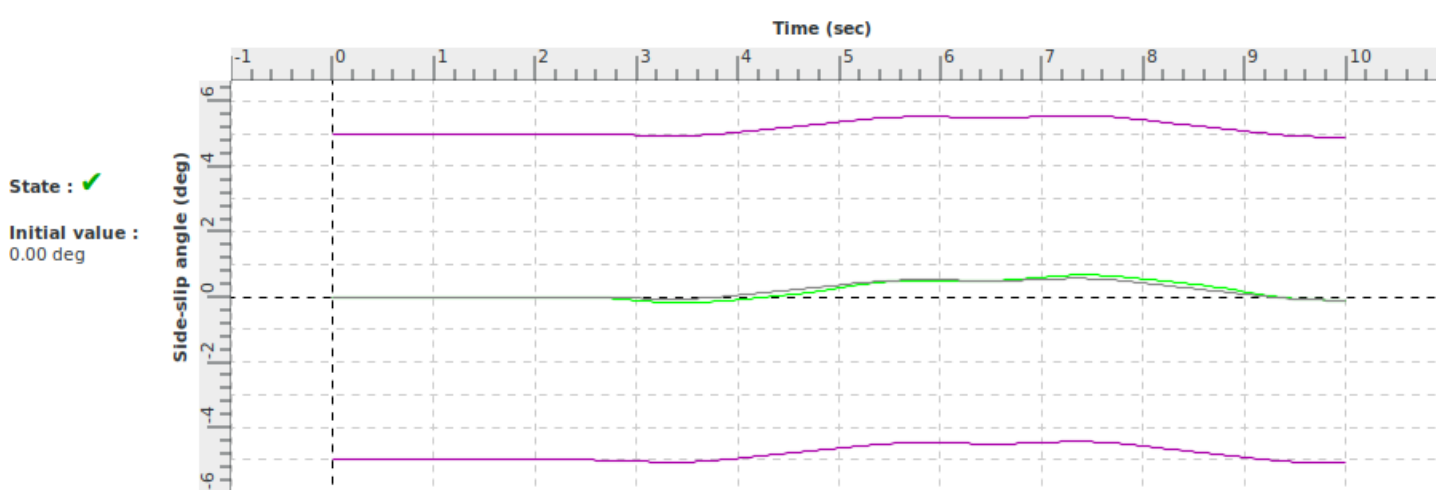
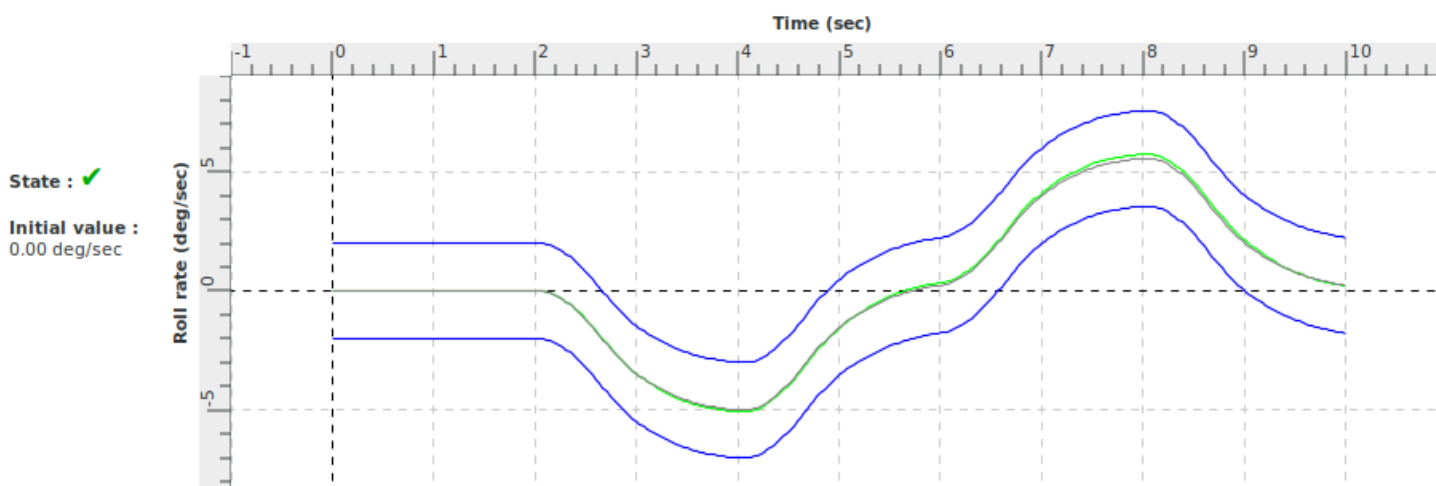
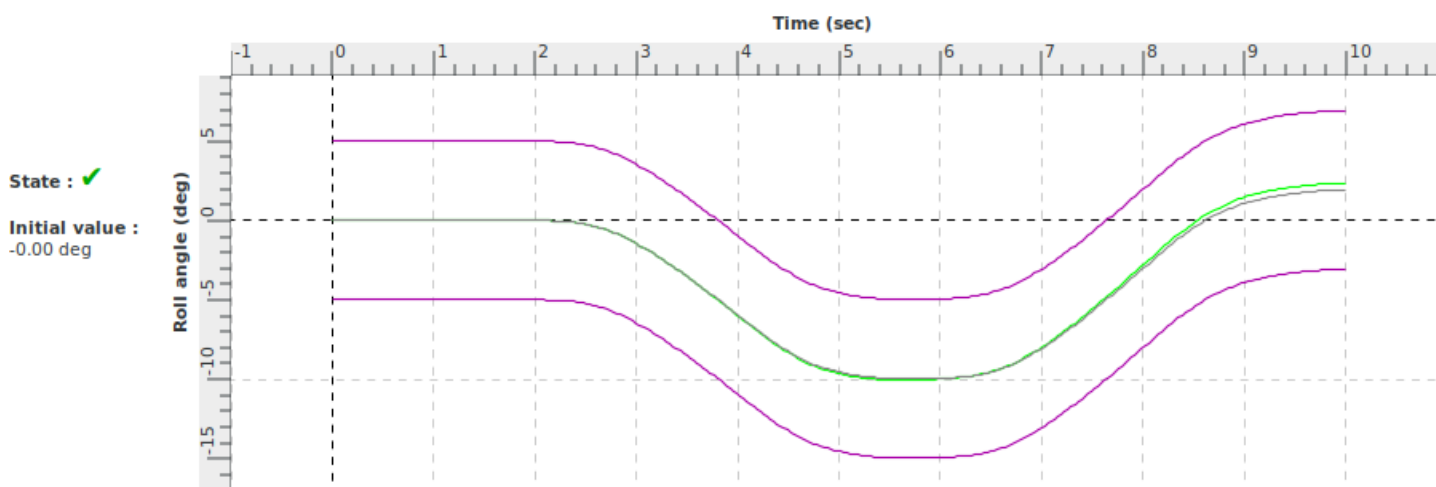
### Legend :

green : results within tolerances  
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red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Roll response rate during approach		
Id	2 d ii b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

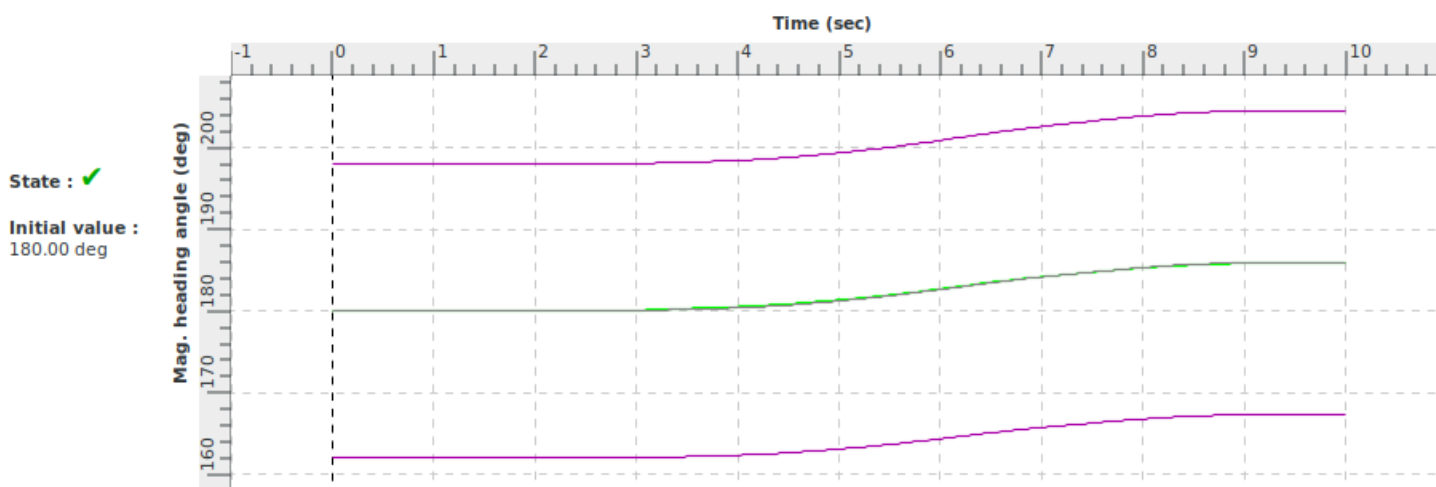
green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsimsim

grey : master



Title	Roll response rate during approach		
Id	2 d ii b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

## VALIDATION TEST

<b>Title</b>	Roll overshoot or response to step input of cockpit roll controller during approach		
<b>Id</b>	2 d iii	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the simulation of roll characteristics during approach after a step roll control input conforms to the class of aeroplanes	Max Bank Angle: -15°
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.d.iii	+/- 2° or +/-10% Bank

<b>Demonstration procedure</b>	From steady approach initial conditions, a wheel deflection step of about 30% of maximum is applied for right direction to reach a bank angle of approximatively 15°. Then the wheel is abruptly return to neutral.
<b>Manual test procedure</b>	In ISA conditions and approach condition, the pilot trims the airplane. When approach is stabilised, the pilot applies impulse on the wheel 30% of total travel on each side.
<b>Automatic test procedure</b>	2 d iii

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

<b>Title</b>	Roll overshoot or response to step input of cockpit roll controller during approach		
<b>Id</b>	2 d iii	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Autopilot mode</b>	AUTO_VZ
Automatic IAS (airspeed) and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and IAS. Roll Trim is computed to maintain 0° bank angle.	

<b>Initial parameters</b>	HOLD_FLAPS_APP_GEAR
Gross weight (kg) : 1900	Flaps lever position : 1
Balance (%) : 50	Gear lever position : 1
Altitude (ft) : 3000	Left Load (%) : 70
Vertical speed (ft/min) : 0 (free)	Right Load (%) : 70
IAS (kt) : 106	Left RPM : 2060
Heading (°) : 0 (free)	Right RPM : 2060
Bank (°) : 0	
Attitude (°) : -1	
Pedal Position (%) : 0	
Column Position (%) : 32	
Wheel Position (%) : 0	

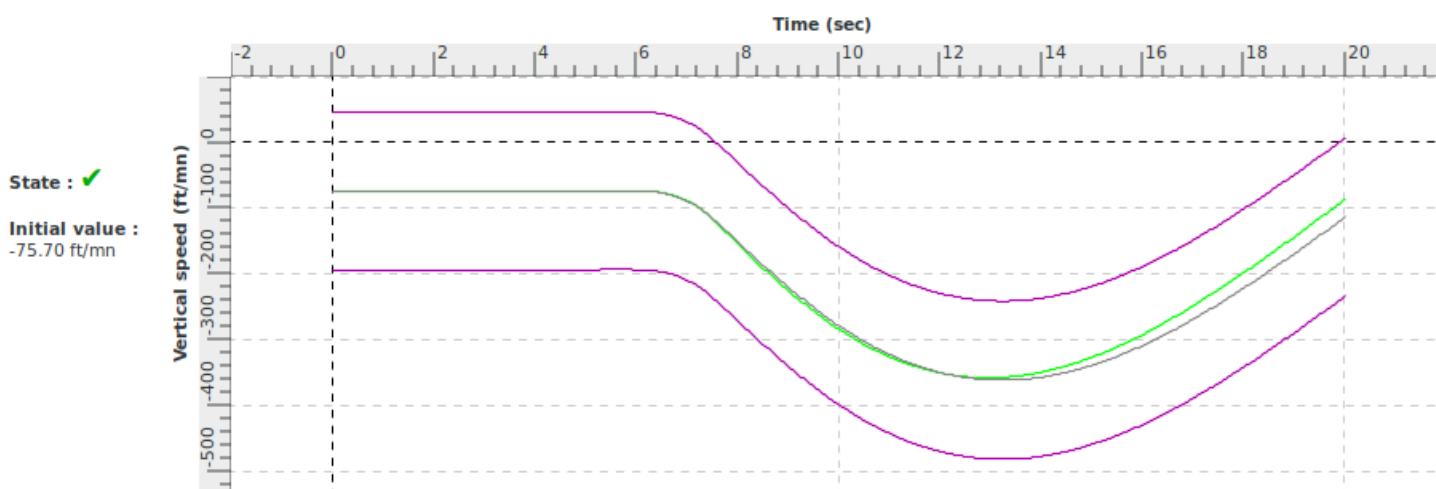
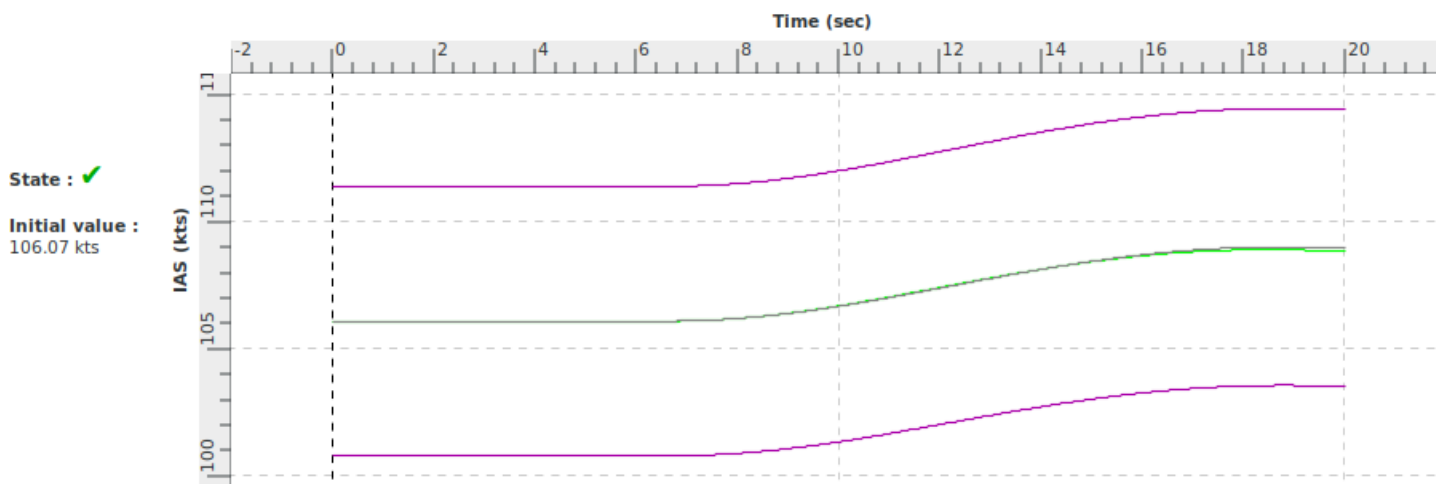
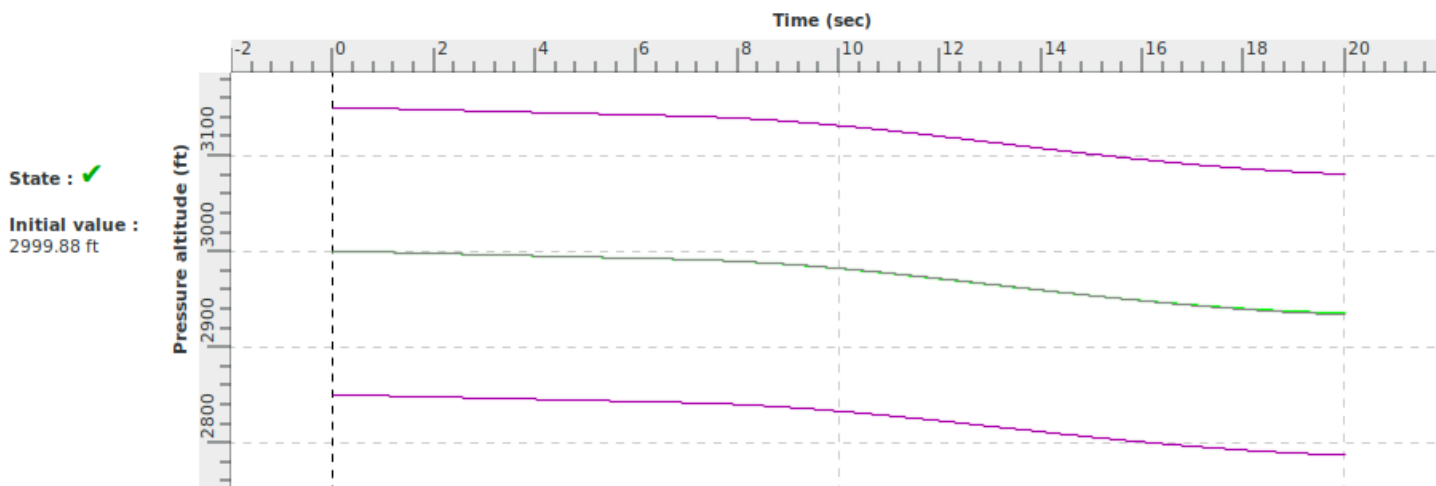
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
0.0	deconnectionPA_rudder	0.0	disable QTG Autopilot in yaw axis
0.0	deconnectionPA_att	0.0	disable QTG Autopilot in attitude axis
5.0	SetRollCmdPalier	30.0	Send a step in the roll govern
7.0	SetRollCmdPalier	0.0	Send a step in the roll govern
20.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Roll overshoot or response to step input of cockpit roll controller during approach		
<b>Id</b>	2 d iii	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

Log of Revision		
Rev. Nbr	Date	Reason for revision

## Notes

Title	Roll overshoot or response to step input of cockpit roll controller during approach		
Id	2 d iii	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



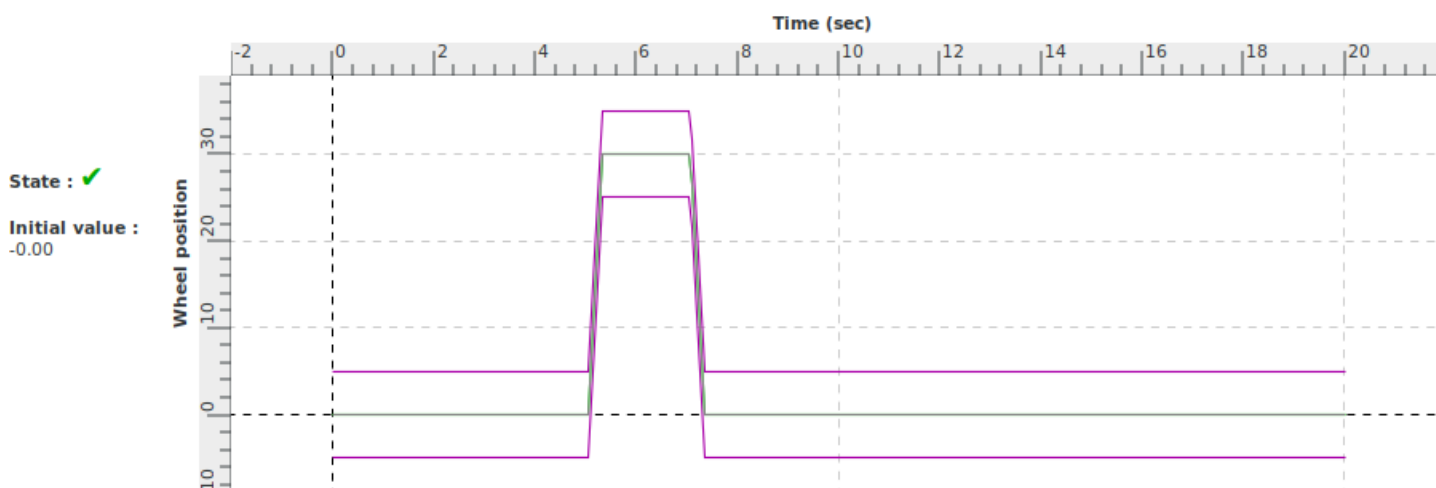
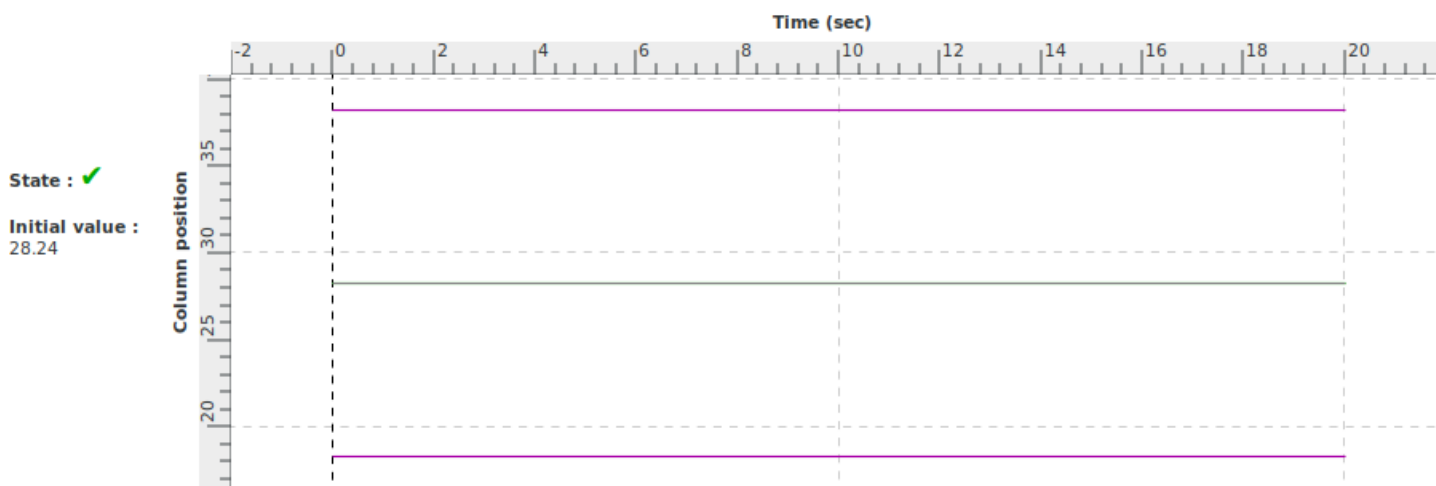
#### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Roll overshoot or response to step input of cockpit roll controller during approach		
Id	2 d iii	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



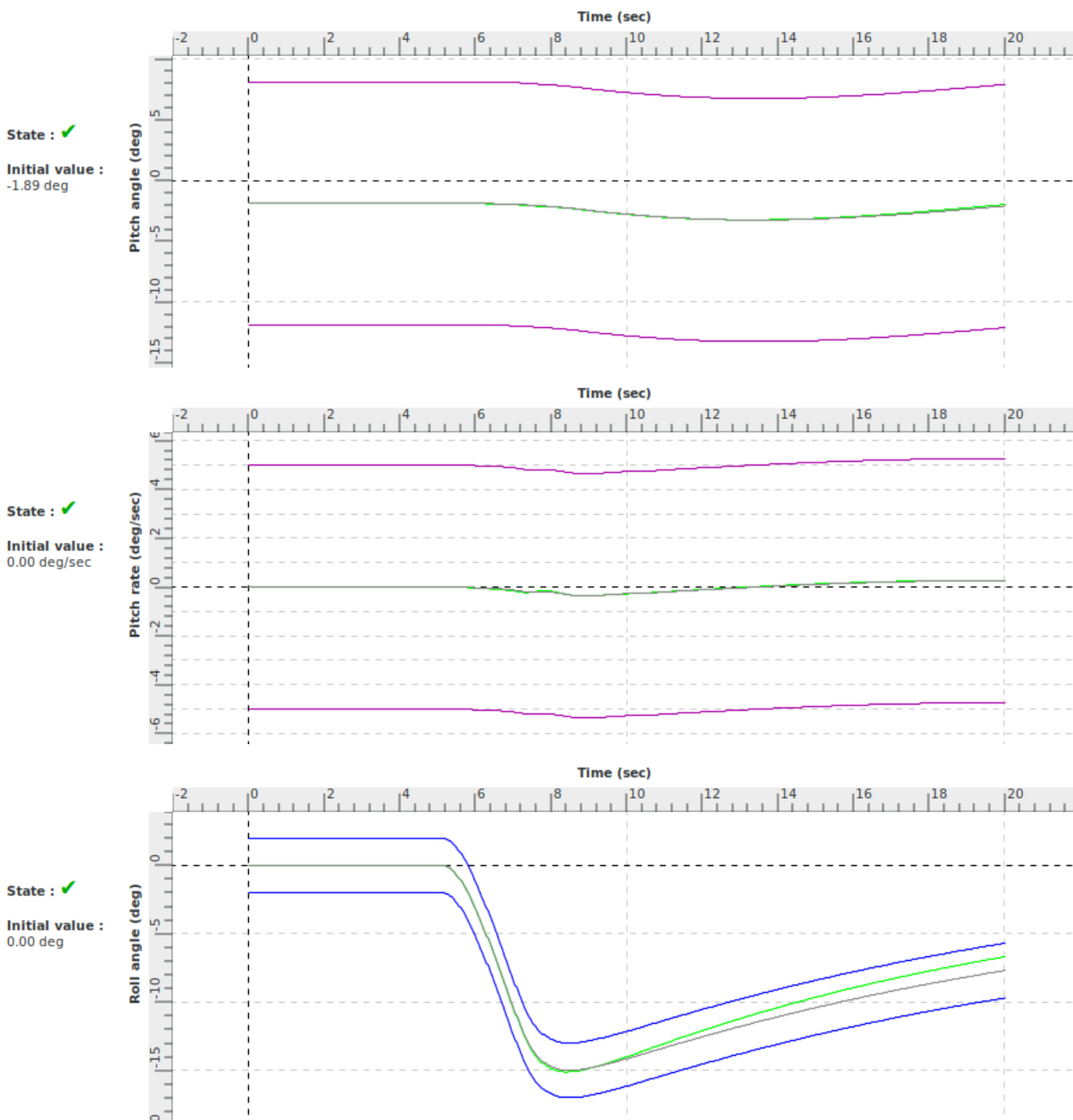
### Legend :

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red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Roll overshoot or response to step input of cockpit roll controller during approach		
Id	2 d iii	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



#### Legend :

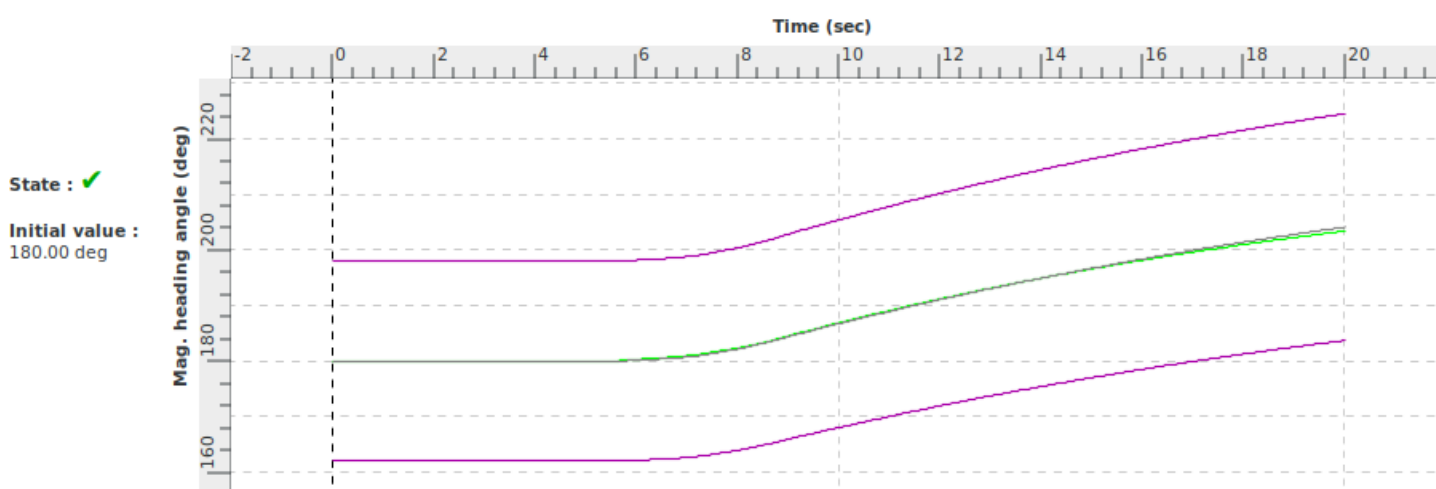
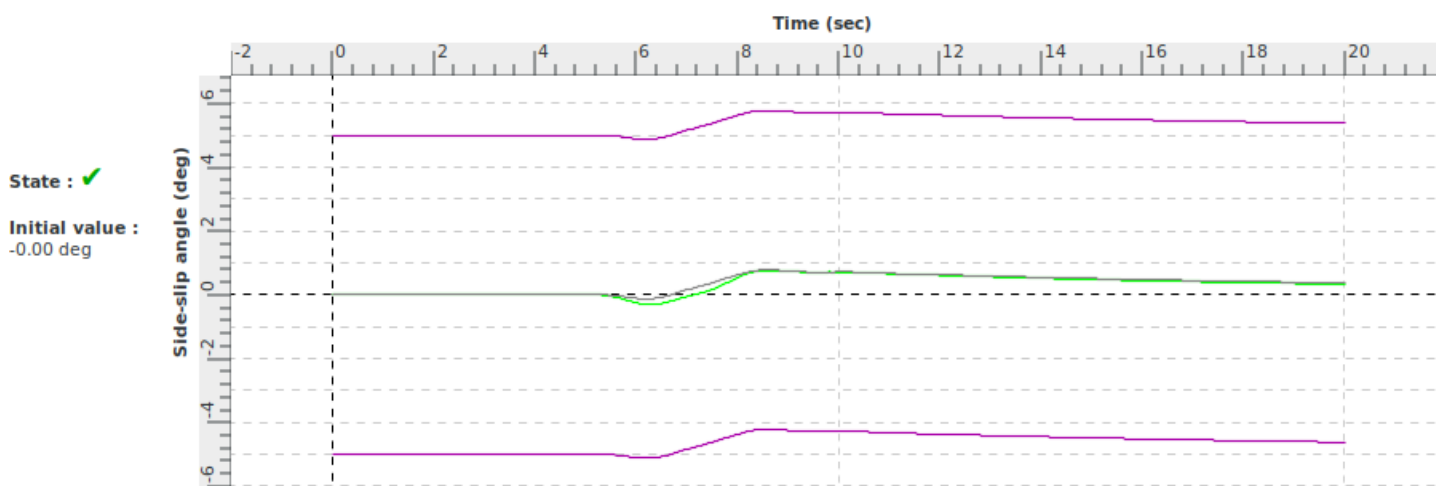
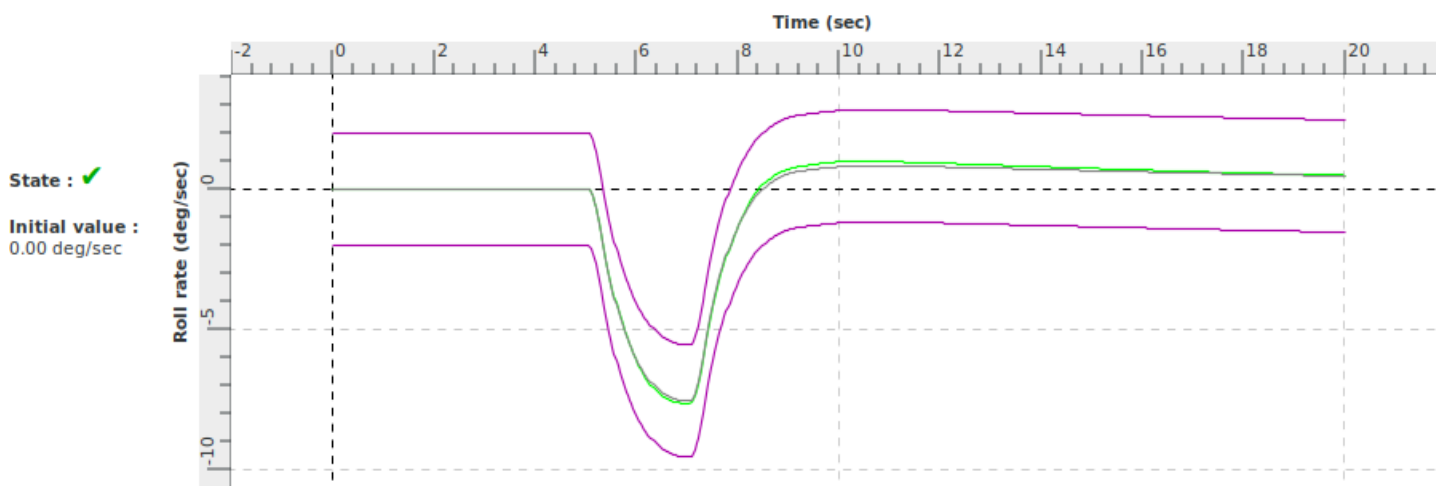
green : results within tolerances  
blue : tolerances

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violet : tolerances Alsim

grey : master



Title	Roll overshoot or response to step input of cockpit roll controller during approach		
Id	2 d iii	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

# VALIDATION TEST

<b>Title</b>	Left spiral stability during cruise		
<b>Id</b>	2 d iv 1 a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	04/02/24	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the simulation of the dynamic lateral/directional characteristics in the spiral mode during cruise conform to the class of aeroplanes	Max Roll Rate of return = -1°/s Delta Roll angle from max to 20 sec after = -15 deg
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.d.iv.1.a	Correct trend and +/- 2 deg or +/- 10 % Bank in 20 seconds

<b>Demonstration procedure</b>	From steady cruise initial conditions, a wheel deflection is applied in order to establish a steady left turn of about 25° afterwards the wheel is released to neutral.
<b>Manual test procedure</b>	In ISA conditions and cruise condition, the pilot trims the airplane to symmetrical wing level flight . Smooth roll until about 25° of the bank angle is initiated and roll control slowly returned to neutral and controls released.
<b>Automatic test procedure</b>	2 d iv 1 a

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

Title	Left spiral stability during cruise		
<b>Id</b>	2 d iv 1 a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	04/02/24	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Autopilot mode</b>	AUTO_VZ
<p>Automatic IAS (airspeed) and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and IAS. Roll Trim is computed to maintain 0° bank angle.</p>	

<b>Initial parameters</b>	CRUISE
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 6000 Vertical speed (ft/min) : 0 (free) IAS (kt) : 139 Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : 0 Pedal Position (%) : 0 Column Position (%) : 9 Wheel Position (%) : 0	Flaps lever position : 0 Gear lever position : 0 Left Load (%) : 70 Right Load (%) : 70 Left RPM : 2060 Right RPM : 2060

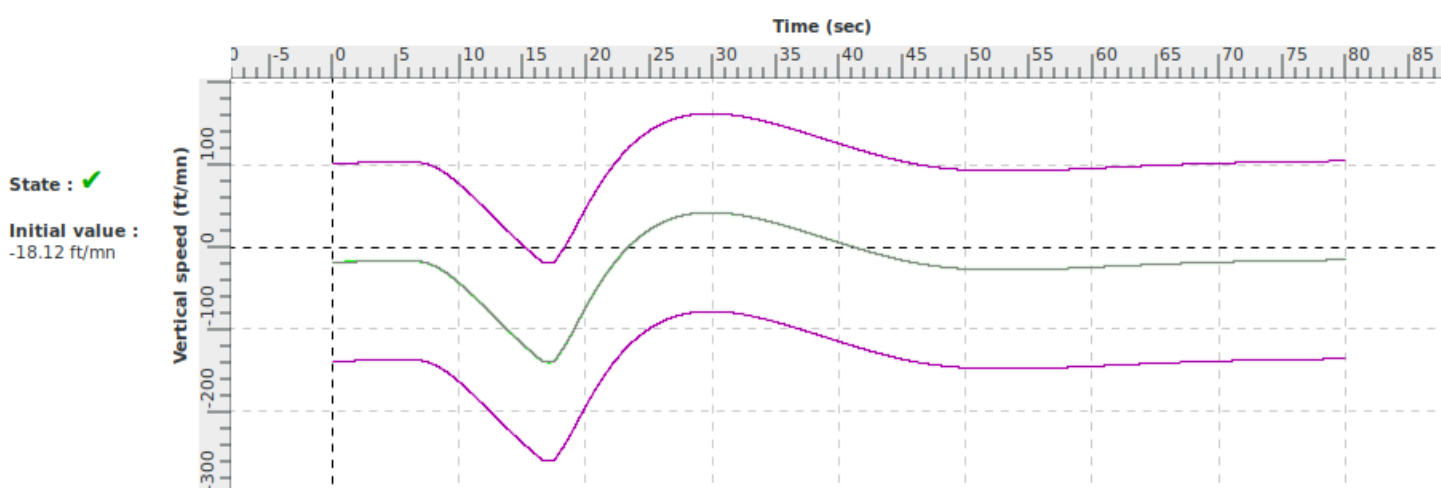
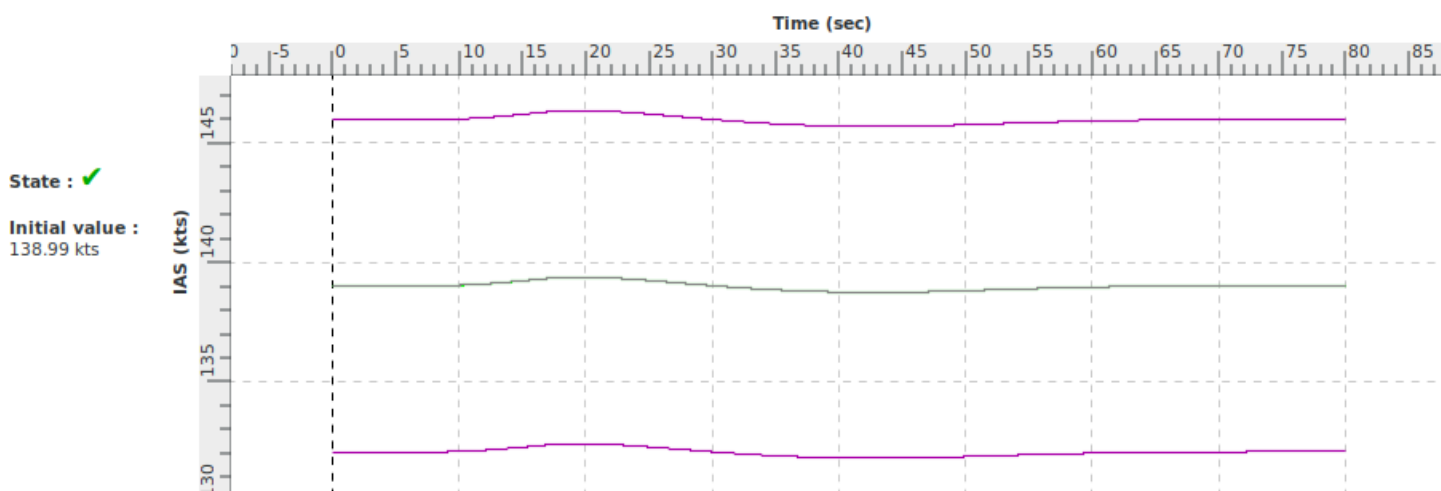
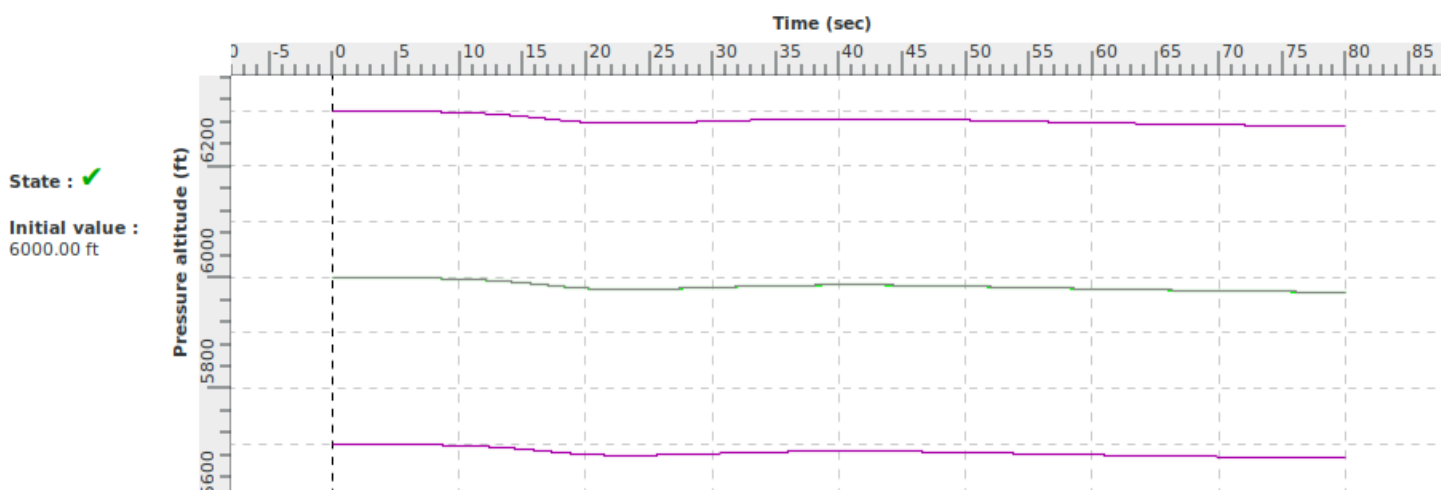
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
1.0	SetRudderCmdPalier	0.0	Send a step in the rudder govern
5.0	SetRollCmdPalier	-7.0	Send a step in the roll govern
16.0	SetRollCmdPalier	0.0	Send a step in the roll govern
80.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Left spiral stability during cruise		
<b>Id</b>	2 d iv 1 a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	04/02/24	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

Log of Revision		
Rev. Nbr	Date	Reason for revision
1.02	27/07/21	2012-R1 Master. Expected results unchanged.

Notes

Title	Left spiral stability during cruise		
Id	2 d iv 1 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	04/02/24	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



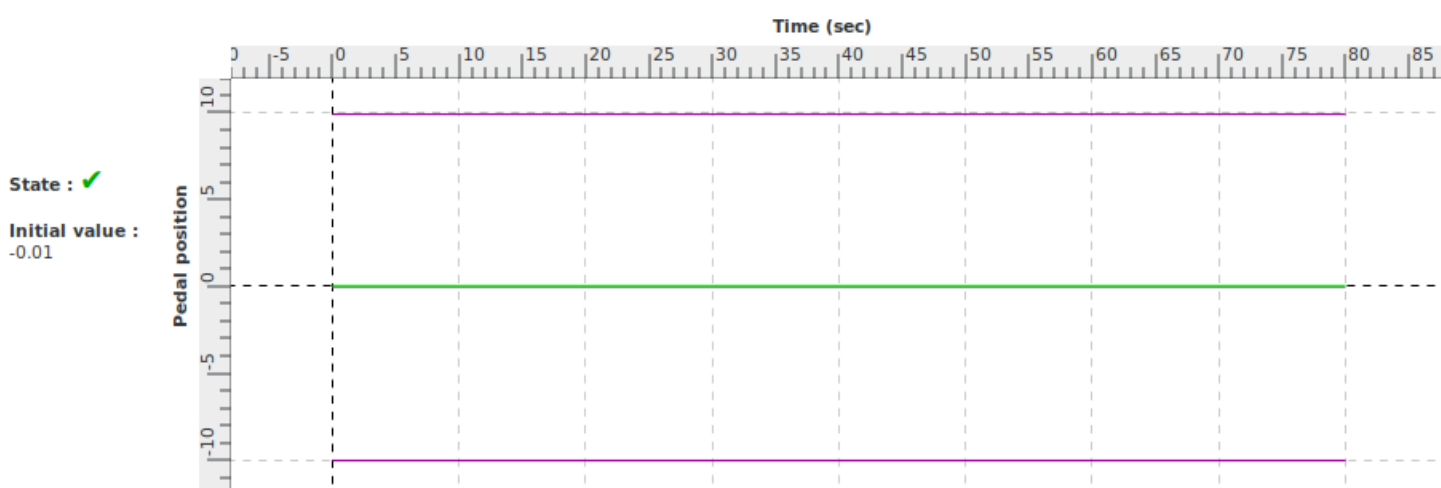
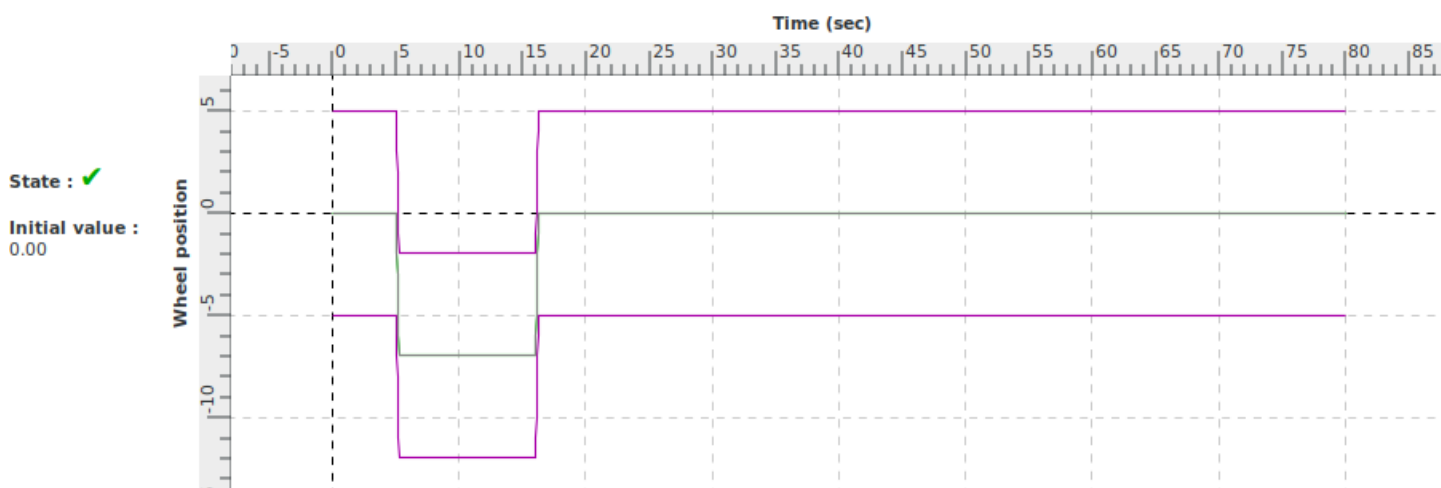
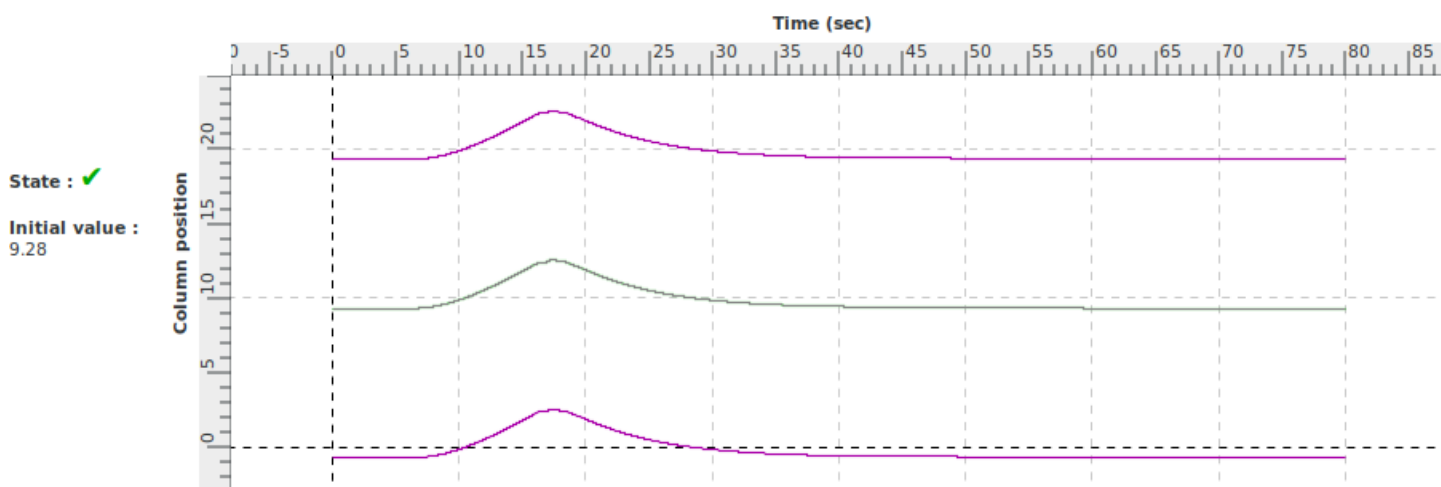
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsimg

grey : master

Title	Left spiral stability during cruise		
Id	2 d iv 1 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	04/02/24	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



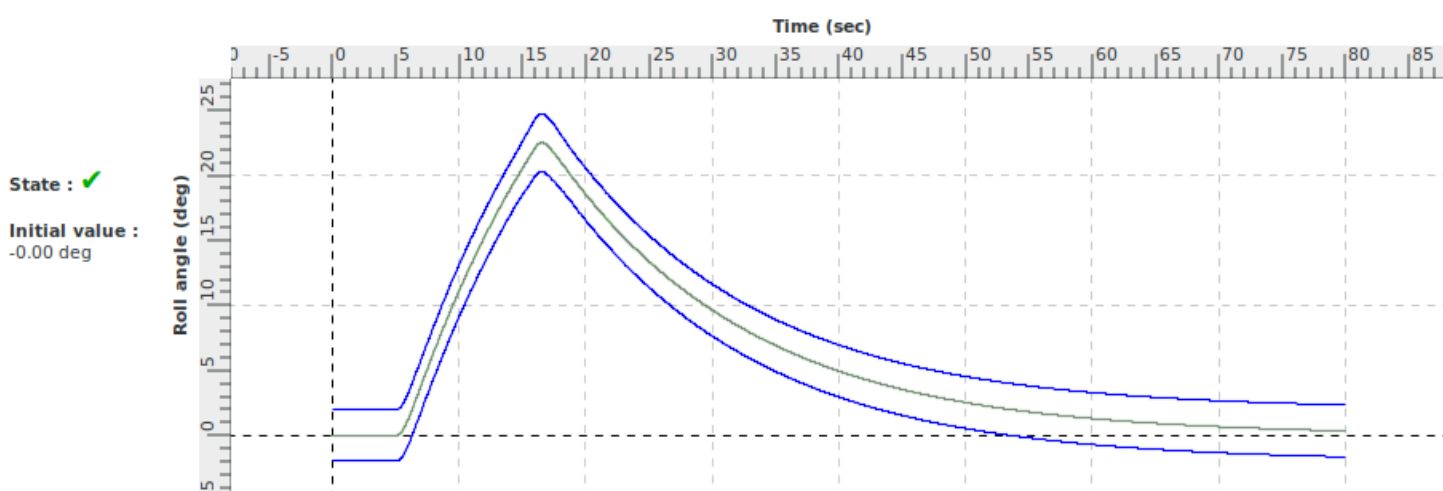
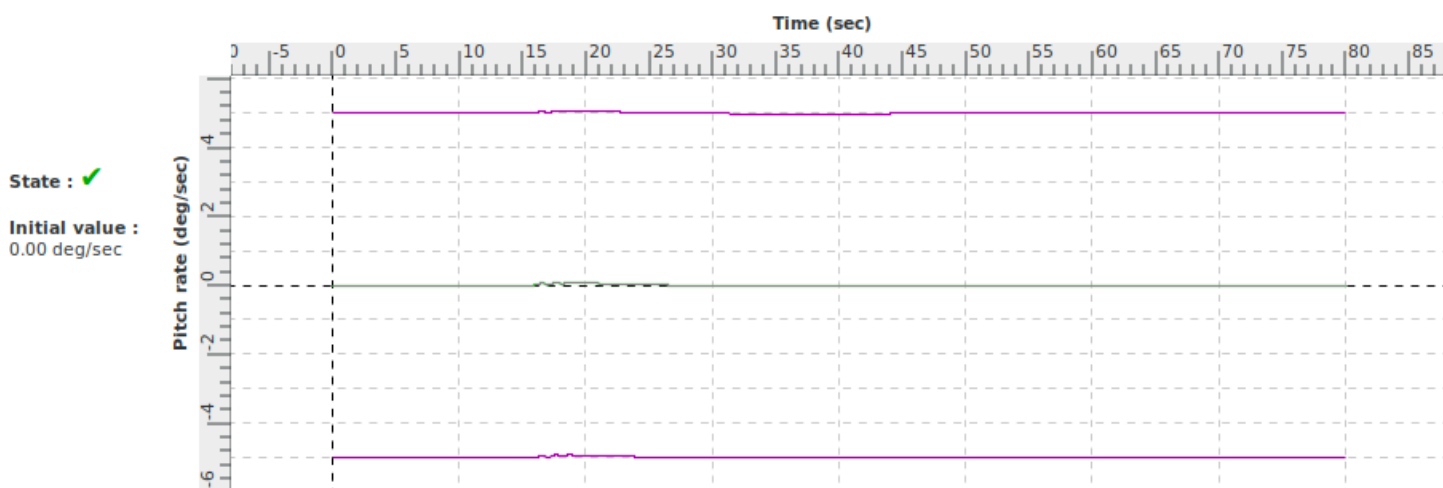
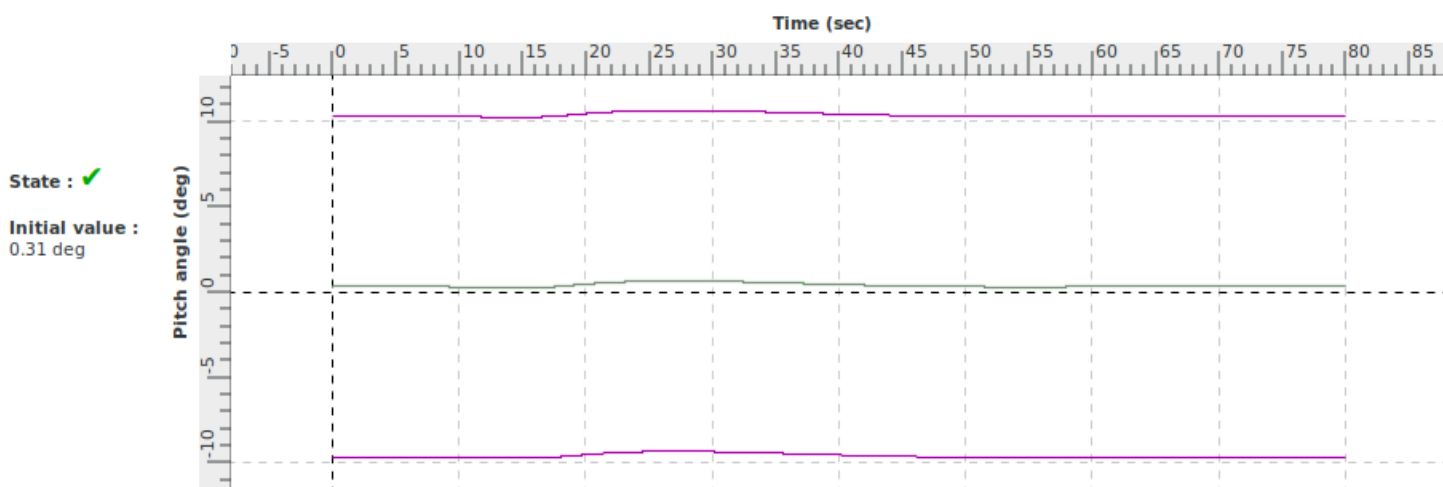
### Legend :

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red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Left spiral stability during cruise		
Id	2 d iv 1 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	04/02/24	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



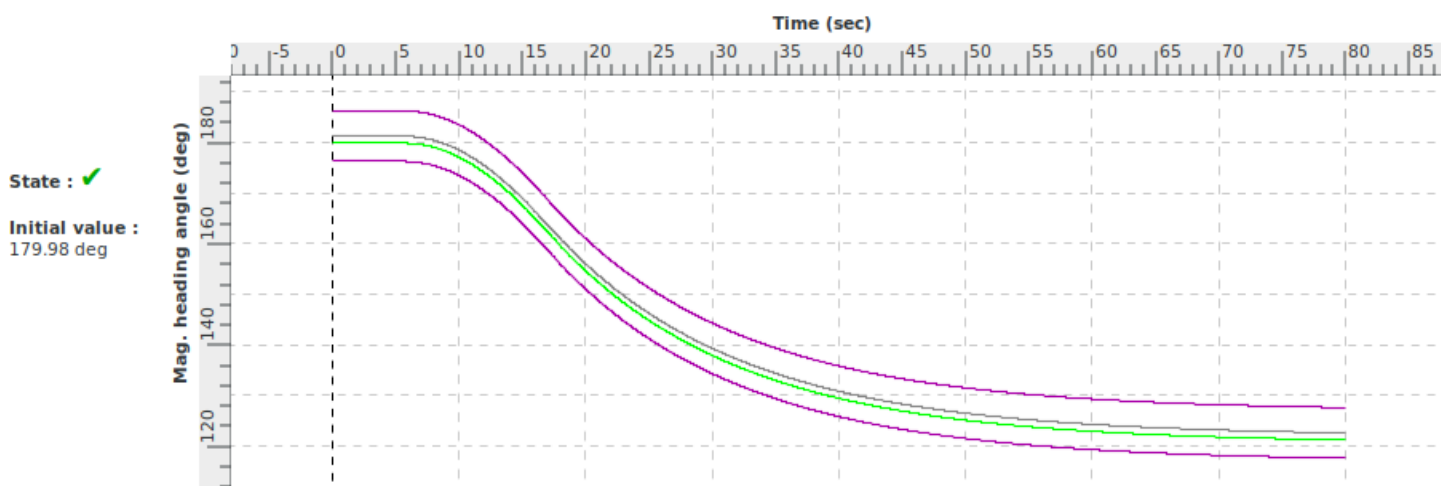
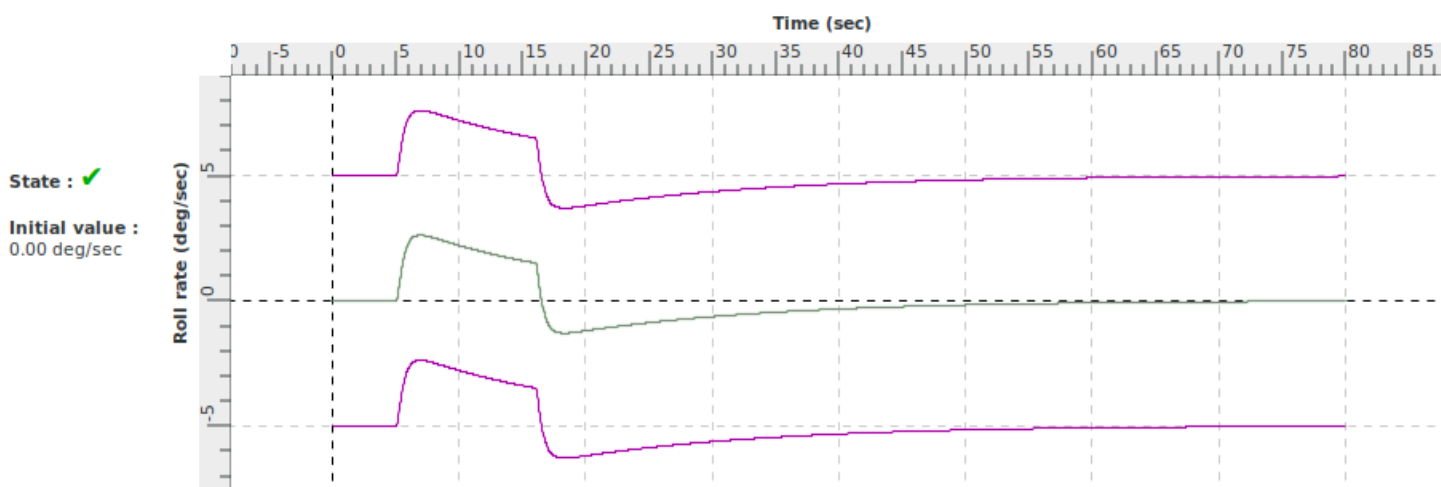
### Legend :

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violet : tolerances Alsim

grey : master

Title	Left spiral stability during cruise		
Id	2 d iv 1 a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	04/02/24	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master



# VALIDATION TEST

<b>Title</b>	Right spiral stability during cruise		
<b>Id</b>	2 d iv 1 b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the simulation of the dynamic lateral/directional characteristics in the spiral mode during cruise conform to the class of aeroplanes	Max Roll Rate of return = 1 °/s Delta Roll angle from max to 20 sec after = +15 deg
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.d.iv.1.b	Correct trend and +/- 2 deg or +/- 10 % Bank in 20 seconds

<b>Demonstration procedure</b>	From steady cruise initial conditions, a wheel deflection is applied in order to establish a steady right turn of about 25 ° afterwards the wheel is released to neutral.
<b>Manual test procedure</b>	In ISA conditions and cruise condition, the pilot trims the airplane to symmetrical wing level flight . Smooth roll until about 25° of the bank angle is initiated and roll control slowly returned to neutral and controls released.
<b>Automatic test procedure</b>	2 d iv 1 b

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

Title	Right spiral stability during cruise		
<b>Id</b>	2 d iv 1 b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Autopilot mode</b>	AUTO_VZ
<p>Automatic IAS (airspeed) and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and IAS. Roll Trim is computed to maintain 0° bank angle.</p>	

<b>Initial parameters</b>	CRUISE
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 6000 Vertical speed (ft/min) : 0 (free) IAS (kt) : 139 Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : 0 Pedal Position (%) : 0 Column Position (%) : 9 Wheel Position (%) : 0	Flaps lever position : 0 Gear lever position : 0 Left Load (%) : 70 Right Load (%) : 70 Left RPM : 2060 Right RPM : 2060

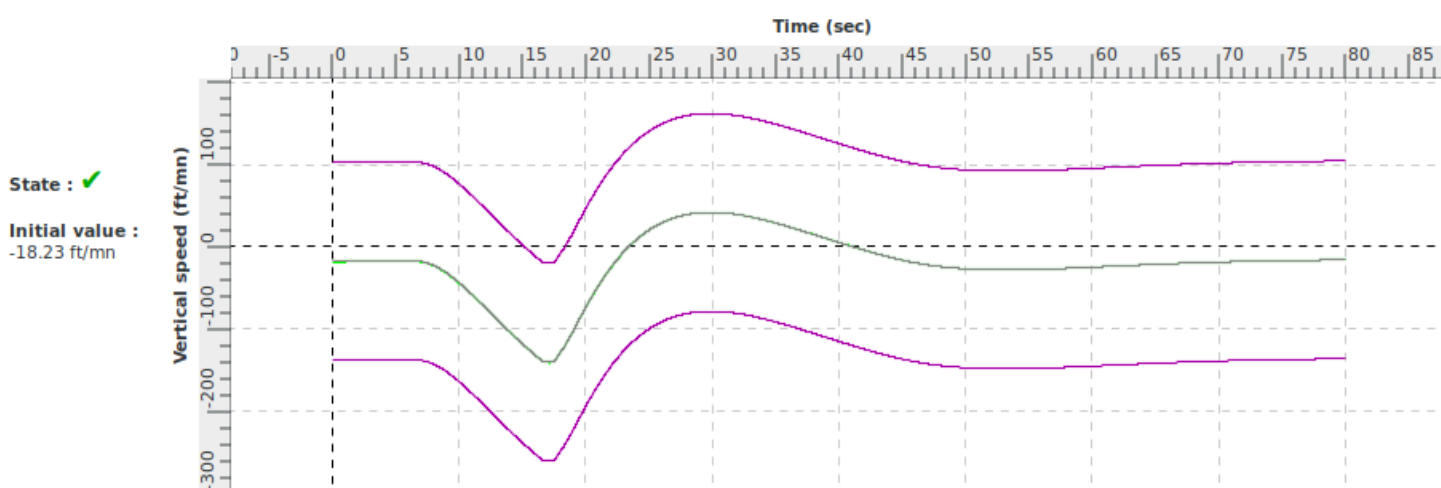
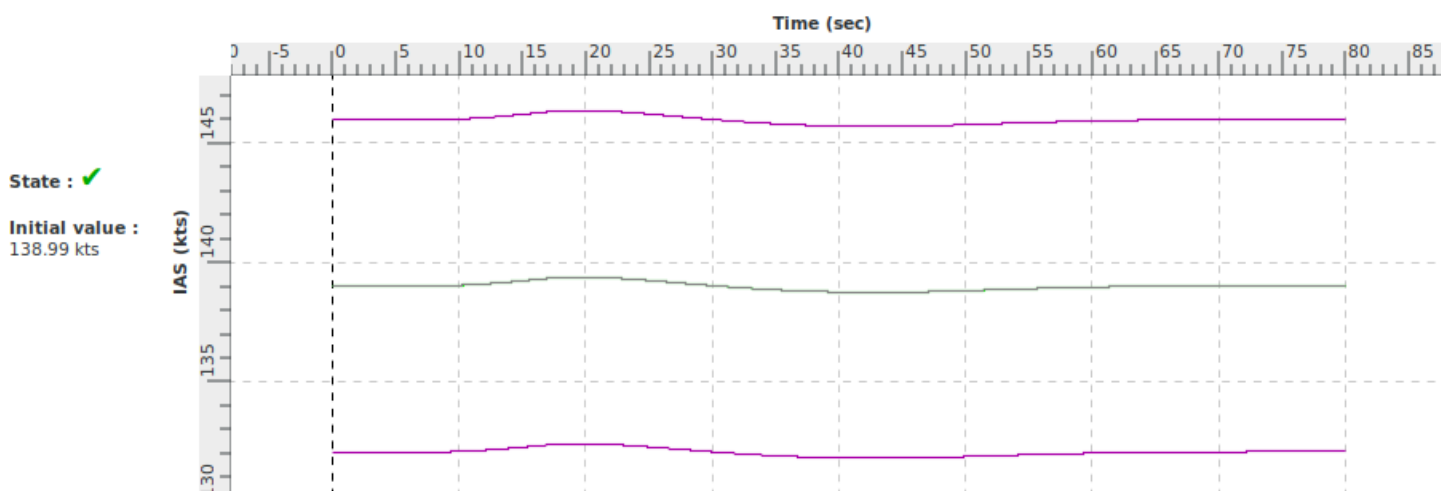
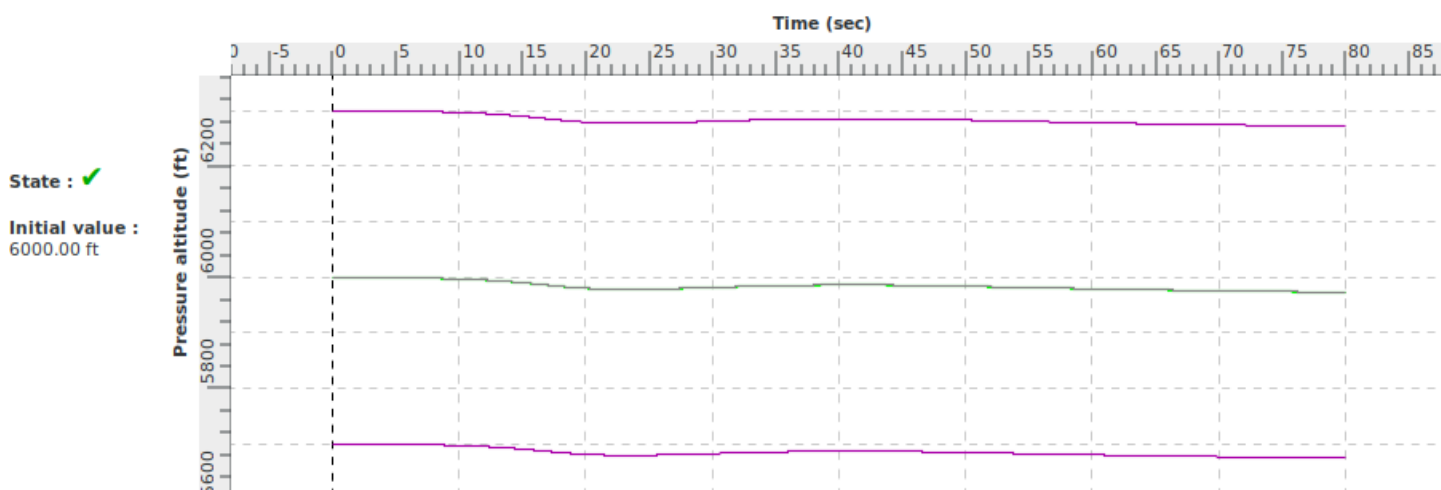
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
1.0	SetRudderCmdPalier	0.0	Send a step in the rudder govern
5.0	SetRollCmdPalier	7.0	Send a step in the roll govern
16.0	SetRollCmdPalier	0.0	Send a step in the roll govern
80.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Right spiral stability during cruise		
<b>Id</b>	2 d iv 1 b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

Log of Revision		
Rev. Nbr	Date	Reason for revision
1.02	27/07/21	2012-R1 Master. Expected results unchanged.

Notes

Title	Right spiral stability during cruise		
Id	2 d iv 1 b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	14/06/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



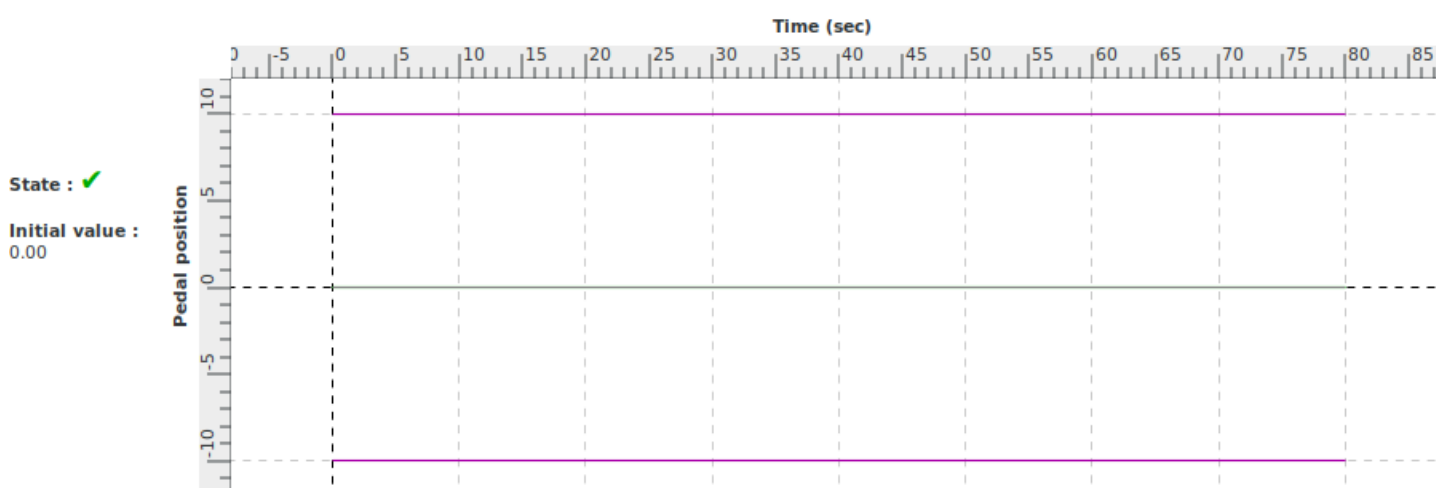
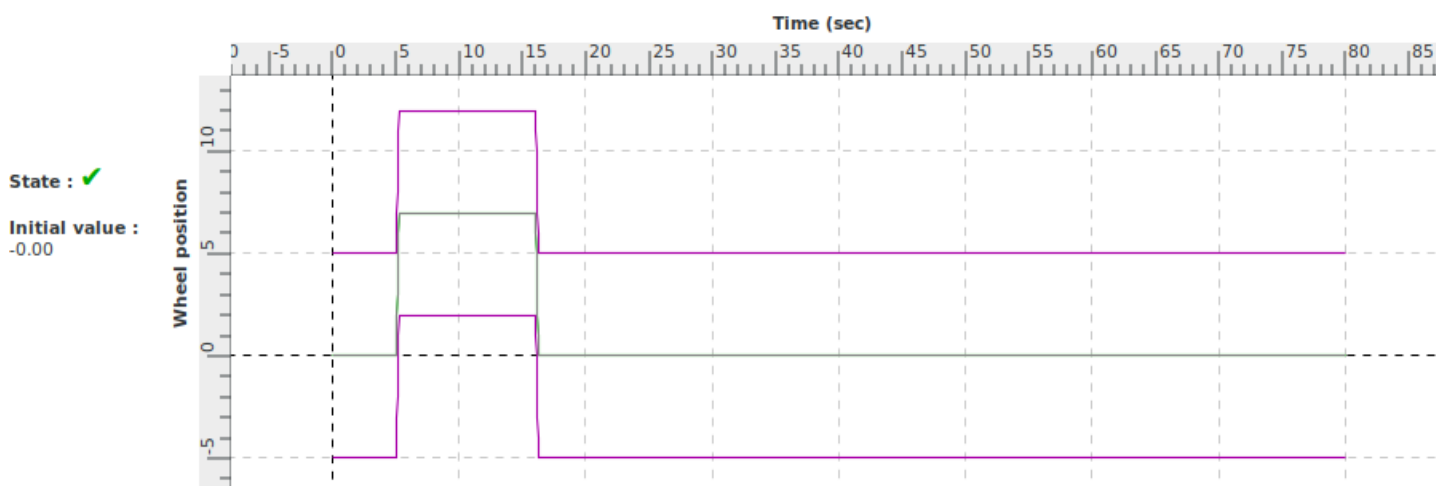
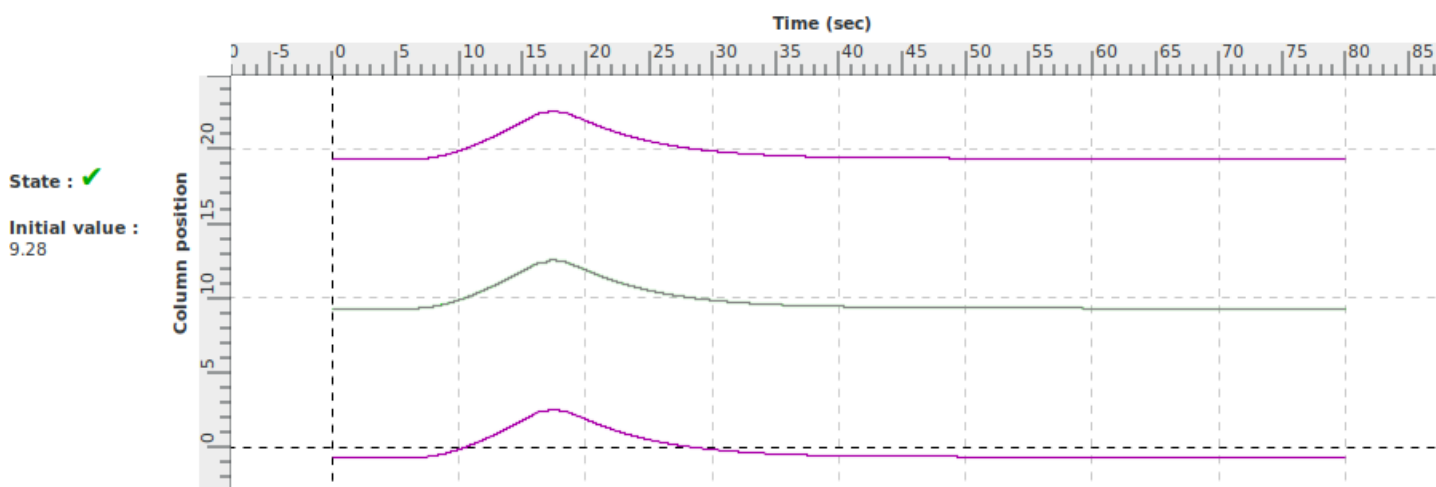
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master

Title	Right spiral stability during cruise		
Id	2 d iv 1 b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	14/06/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



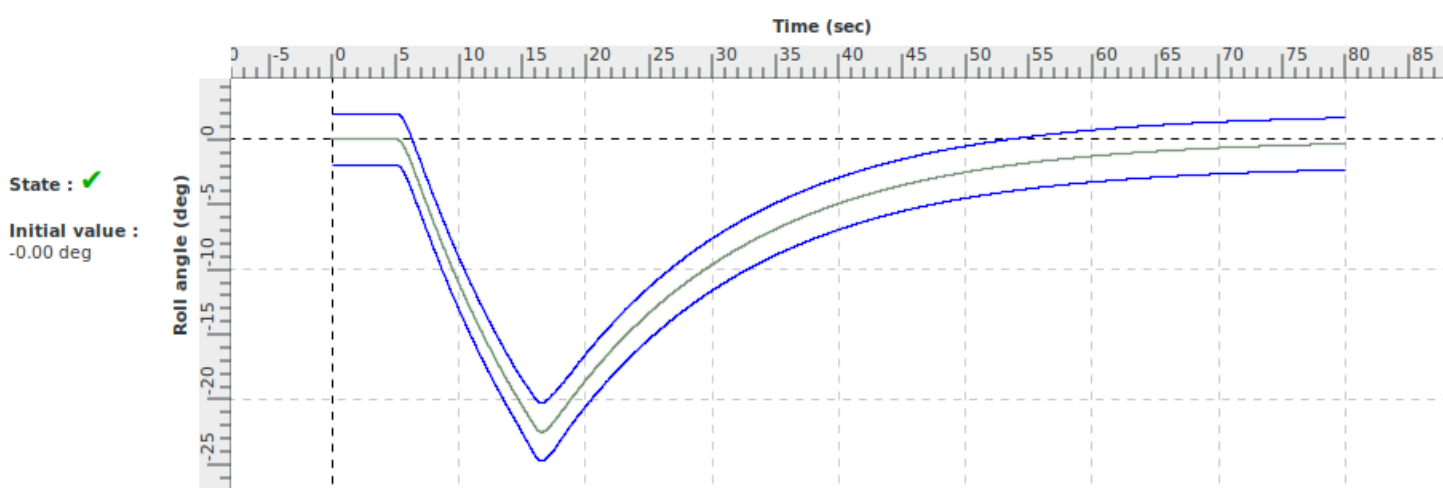
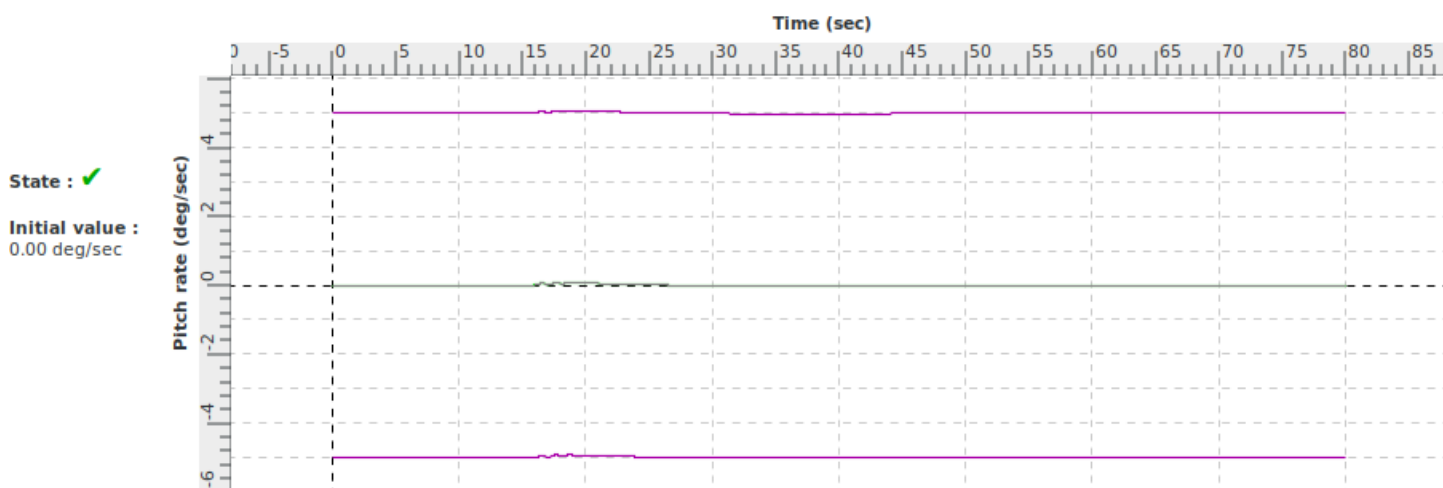
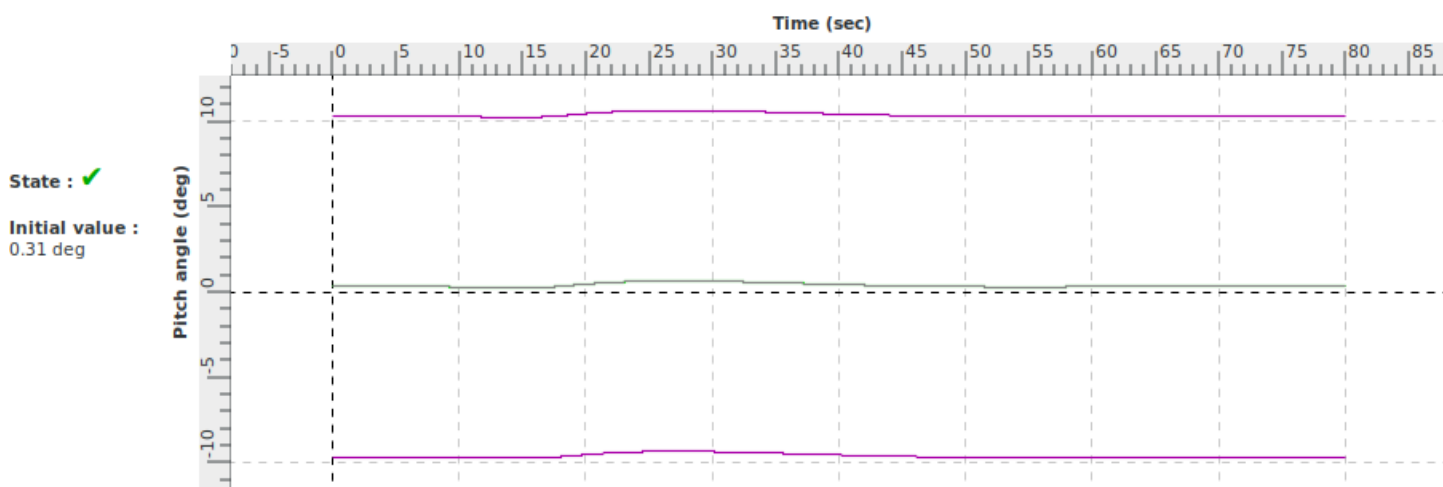
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Right spiral stability during cruise		
Id	2 d iv 1 b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	14/06/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



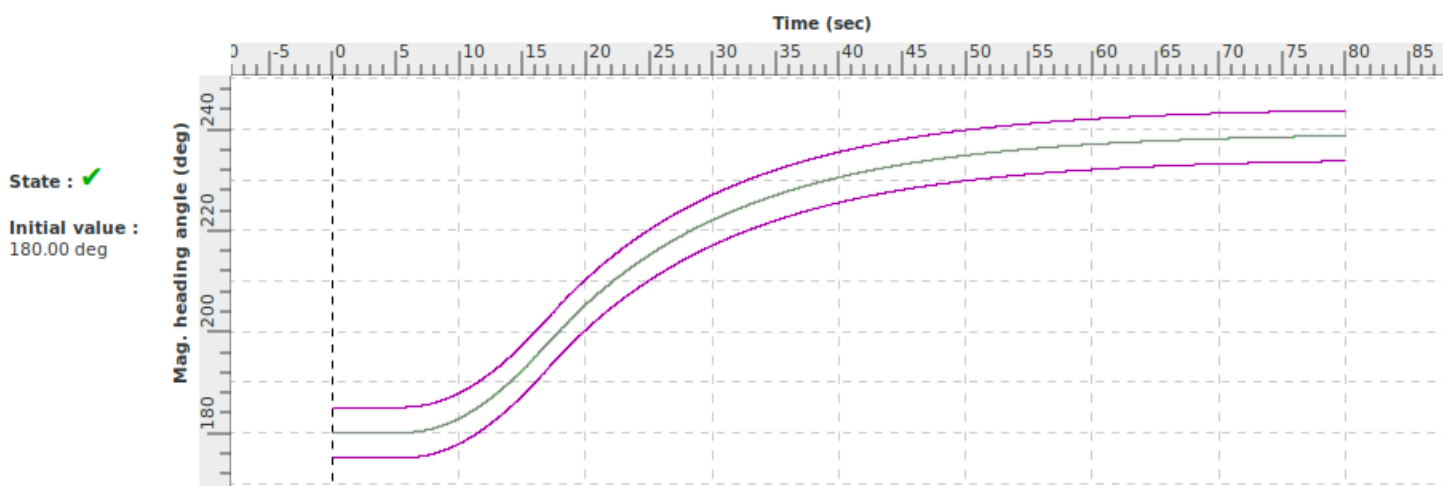
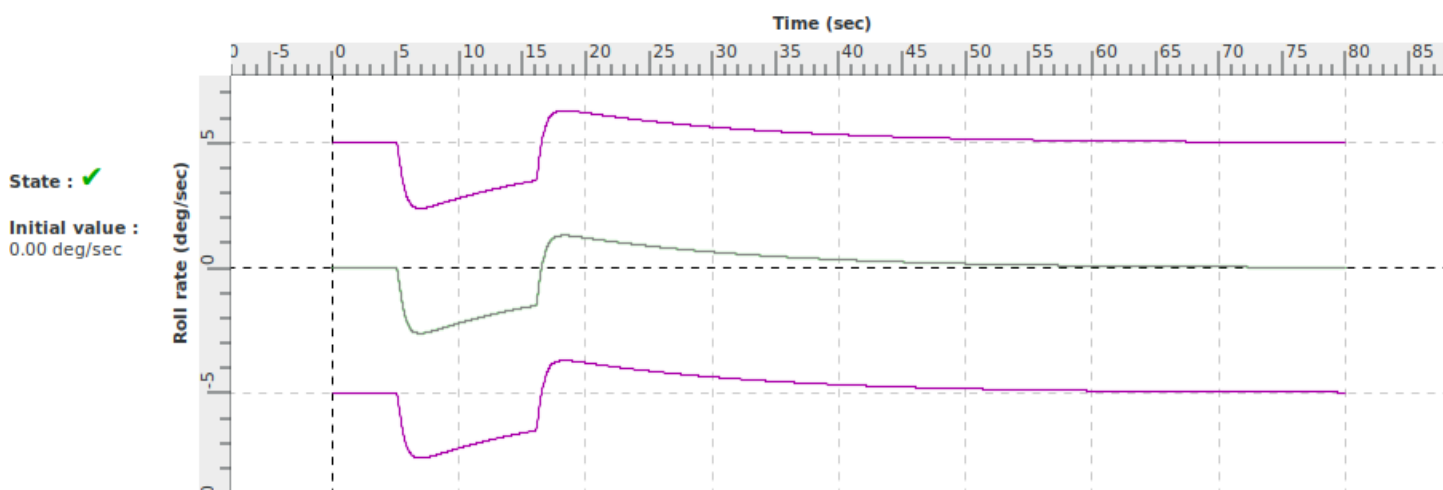
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Right spiral stability during cruise		
Id	2 d iv 1 b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	14/06/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

# VALIDATION TEST

<b>Title</b>	Engine inoperative trim second segment climb		
<b>Id</b>	2 d v a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the simulation of the effects of directional trim during an engine inoperative manoeuvre conforms to the class of aeroplanes	Sideslip angle = 0 deg Rudder control = 25 %
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.d.v.a	+/-1° Rudder angle (equivalent 3% of pedal position) +/-2° Sideslip angle

<b>Demonstration procedure</b>	The aeroplane is established in steady one engine inoperative second segment climb phase. The pilot trims the aeroplane for the engine out condition.  Tolerance: 60° is representative of the maximum rudder deflection observed on this class of aeroplane i.e 1° of rudder deflection corresponds to 3.3% of pedal position.
<b>Manual test procedure</b>	See the aircraft configuration described next page. In ISA conditions and one engine inoperative climb configuration, the pilot trims the aeroplane for the engine out condition with the relevant propeller feathered.
<b>Automatic test procedure</b>	2 d v a

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>



<b>Title</b>	Engine inoperative trim second segment climb		
<b>Id</b>	2 d v a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Autopilot mode</b>	AUTO_HEADING
Automatic AUTO_HEADING mode : Heading is maintained constant through roll and yaw trim and Vertical Speed through pitch trim.	

<b>Initial parameters</b>	CLIMB N-1
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 3000 Vertical speed (ft/min) : 230 IAS (kt) : 85 (free) Heading (°) : 0 Bank (°) : 0 (free) Attitude (°) : 9 Pedal Position (%) : 25 Column Position (%) : 60 Wheel Position (%) : -5	Flaps lever position : 0 Gear lever position : 0 Left Load (%) : 0 Right Load (%) : 92 Left RPM : 0 Right RPM : 2090

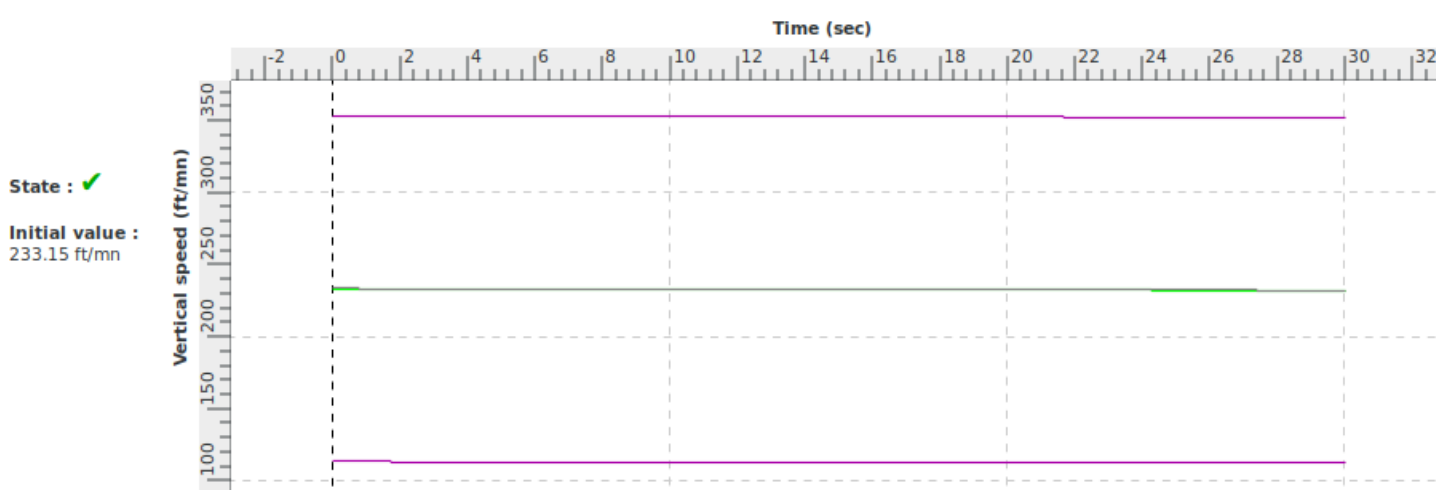
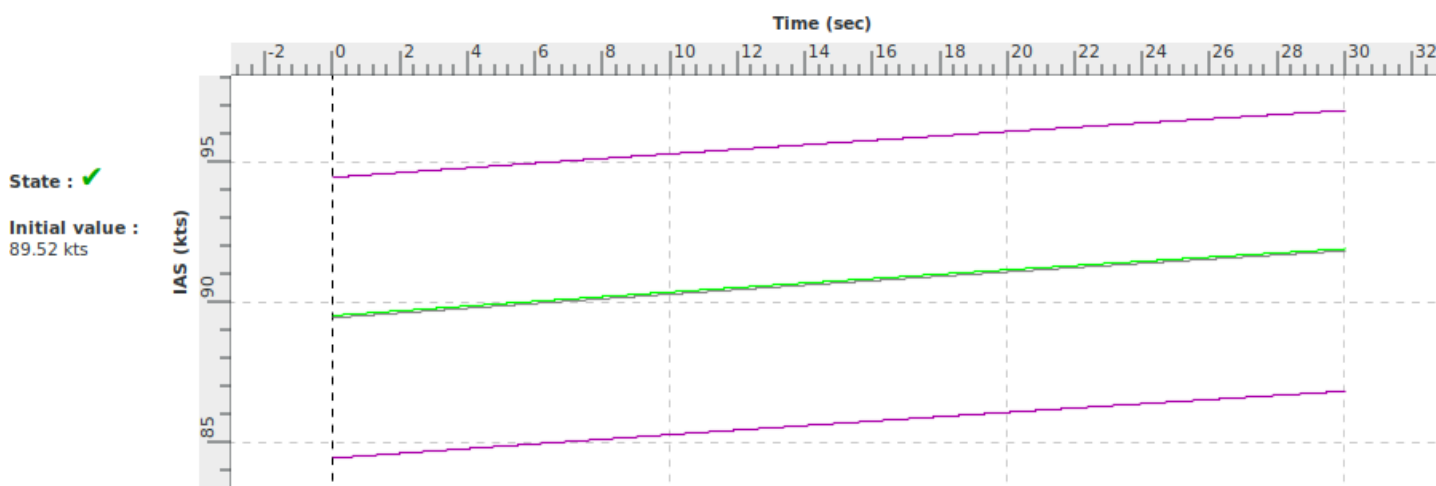
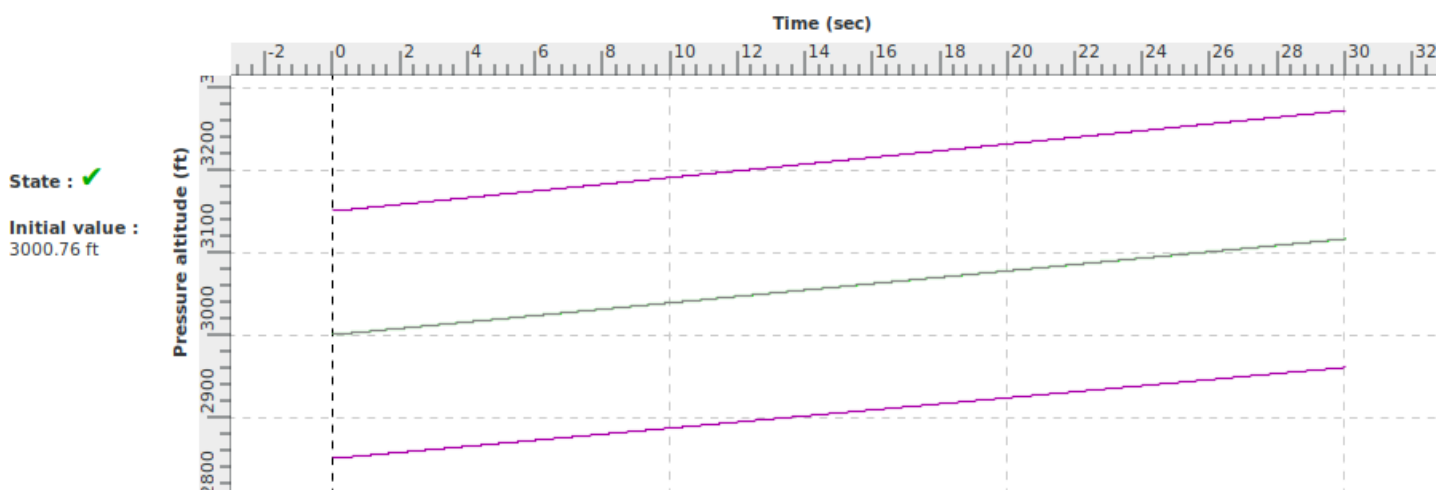
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
30.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Engine inoperative trim second segment climb		
<b>Id</b>	2 d v a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

Log of Revision		
Rev. Nbr	Date	Reason for revision
1.01	29/03/21	1909 Master. Change of pedal input. New expected results
1.02	27/07/21	2012-R1 Master. Expected results unchanged.

Notes

Title	Engine inoperative trim second segment climb		
Id	2 d v a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	22/08/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



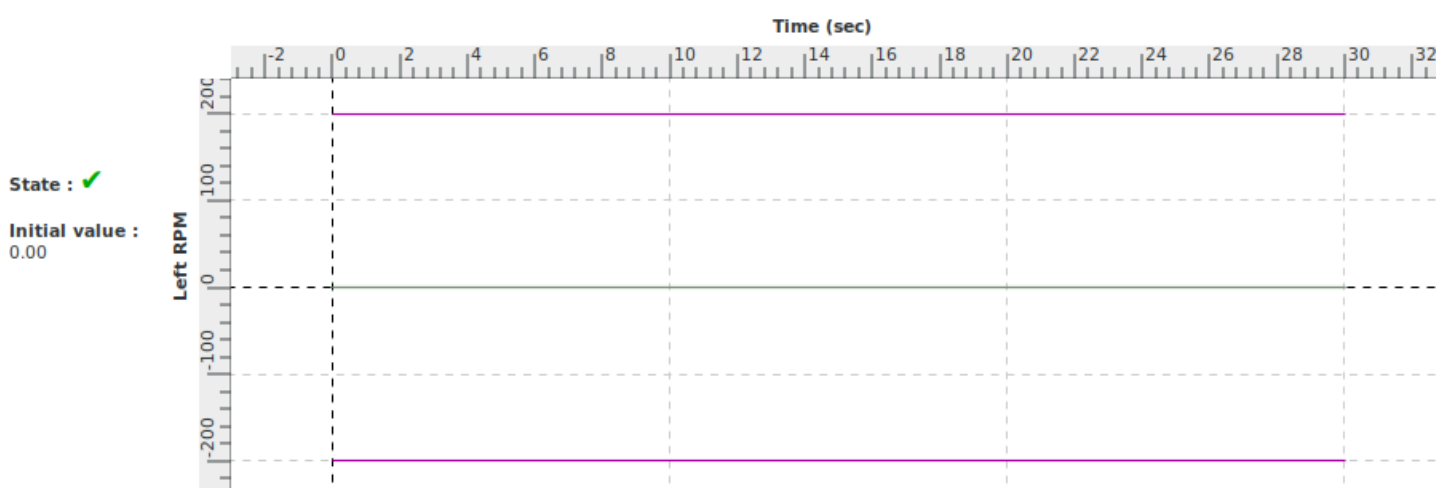
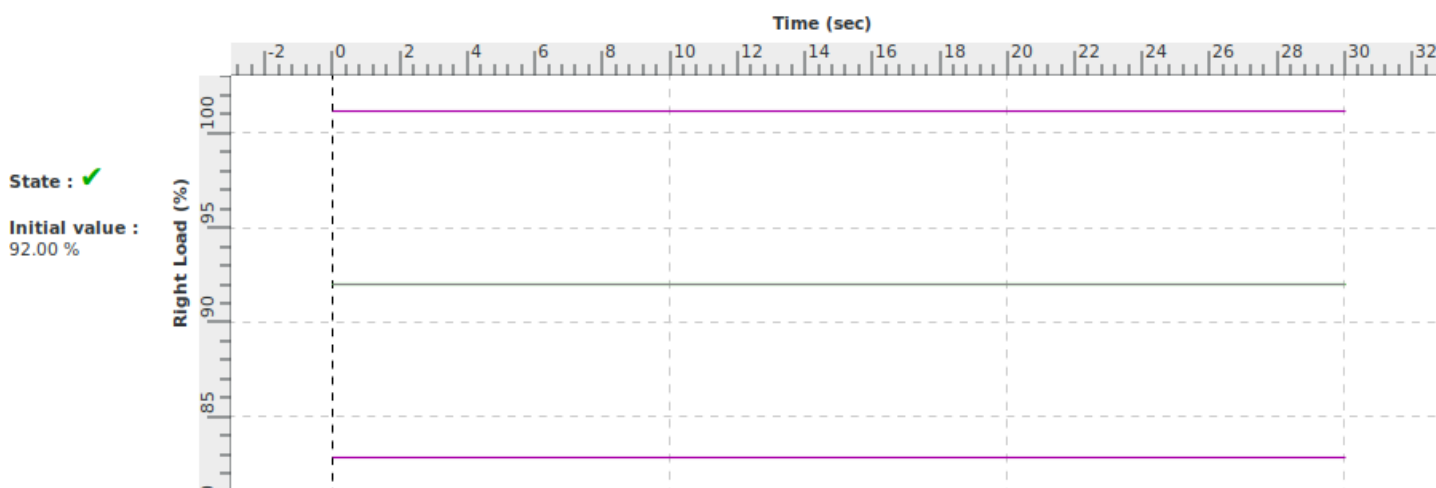
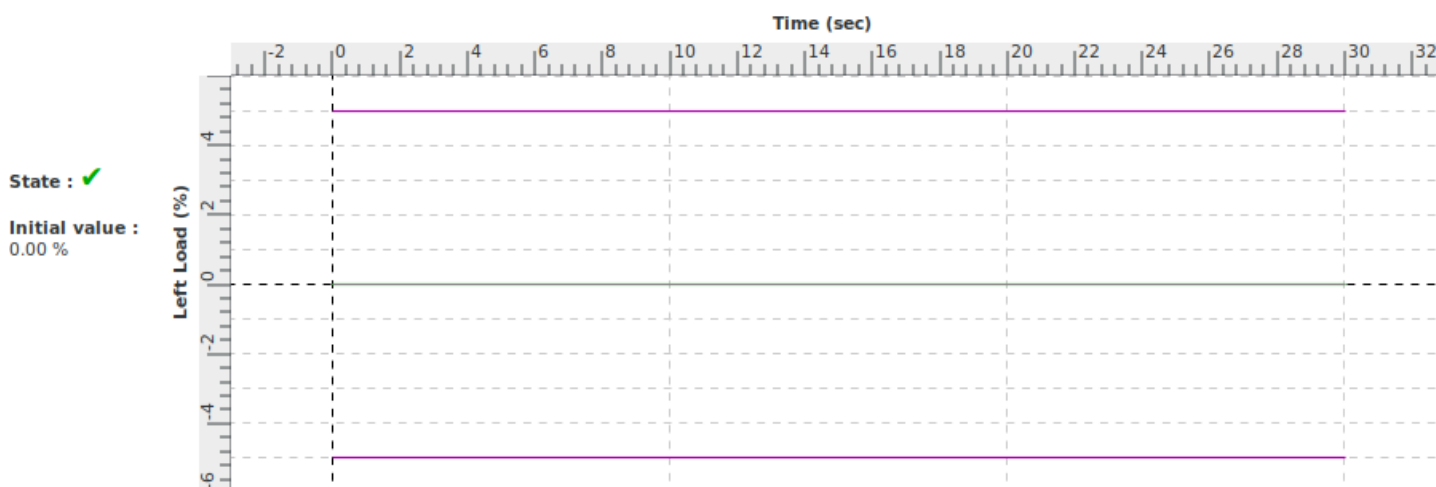
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master

Title	Engine inoperative trim second segment climb		
Id	2 d v a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	22/08/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



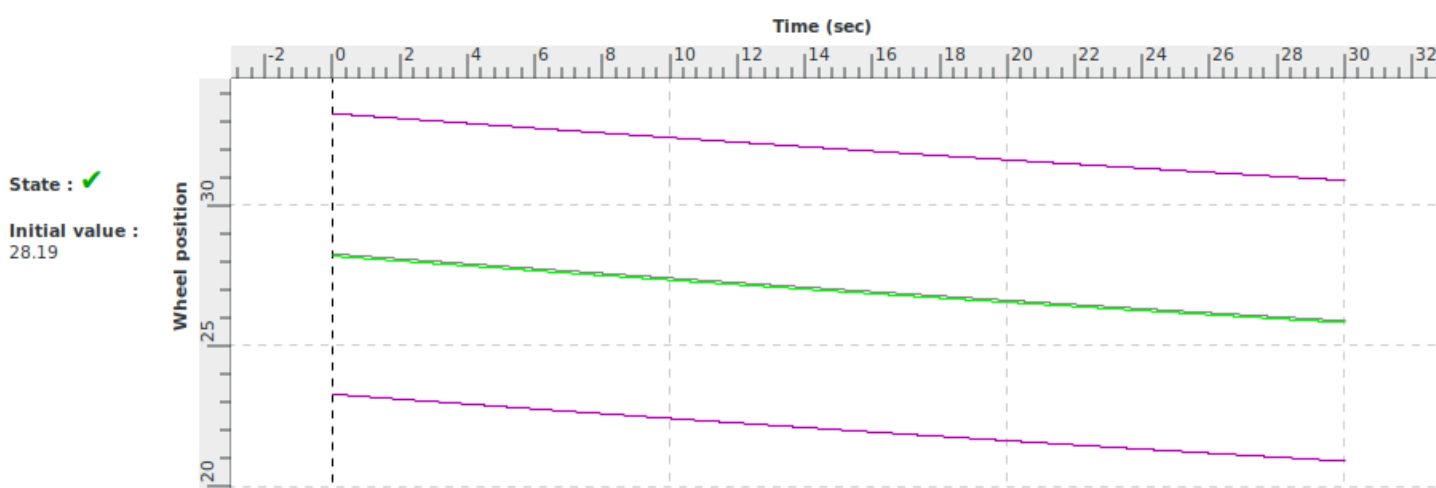
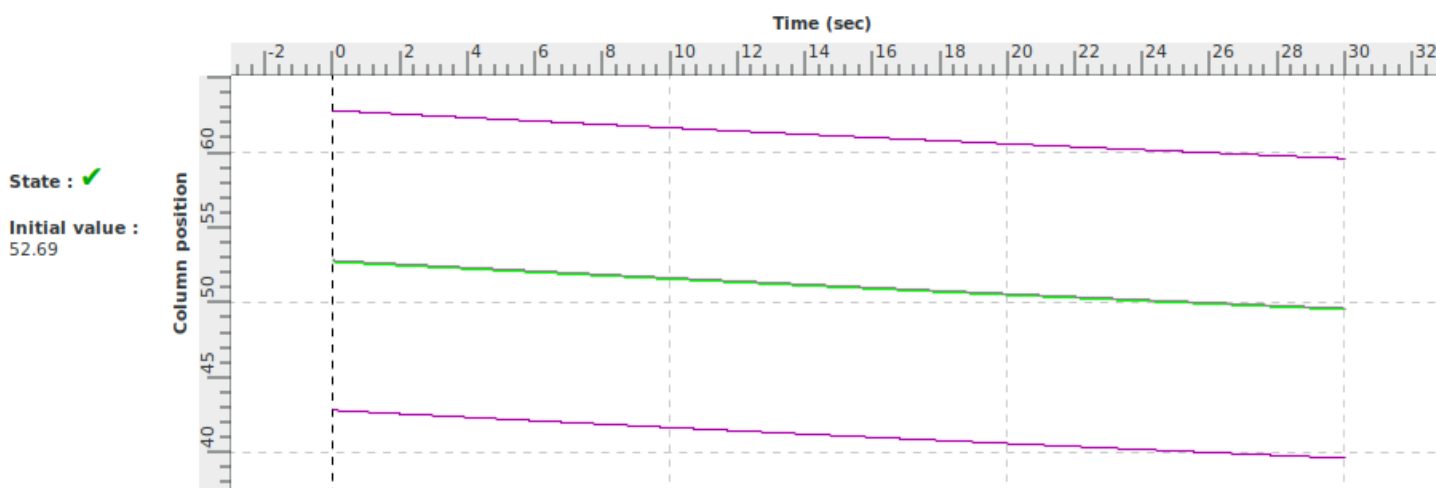
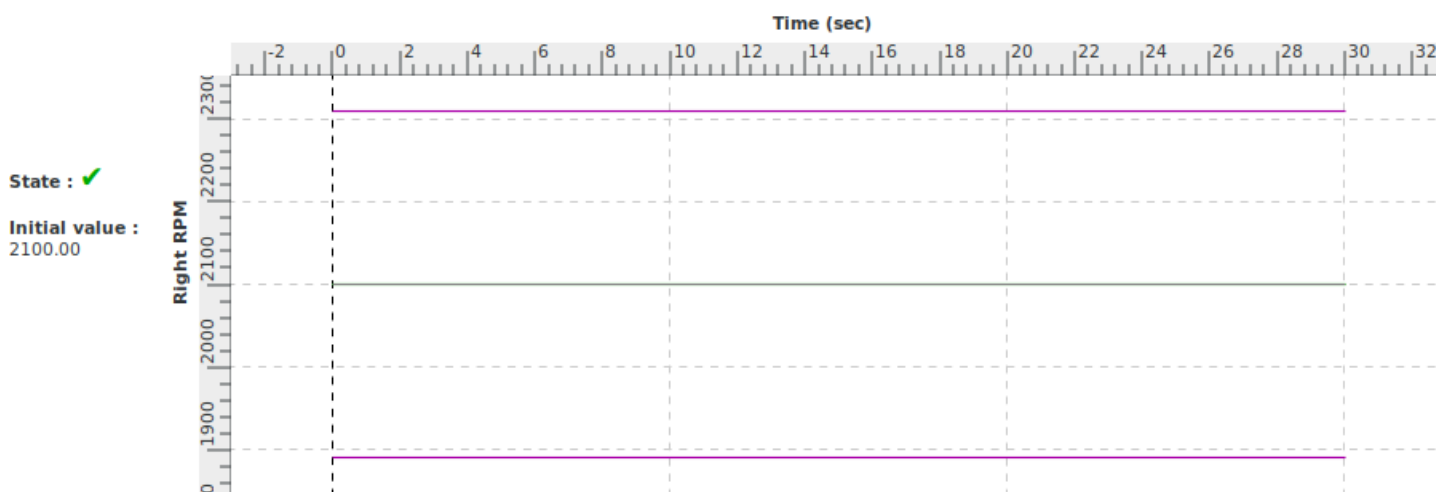
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Engine inoperative trim second segment climb		
Id	2 d v a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	22/08/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



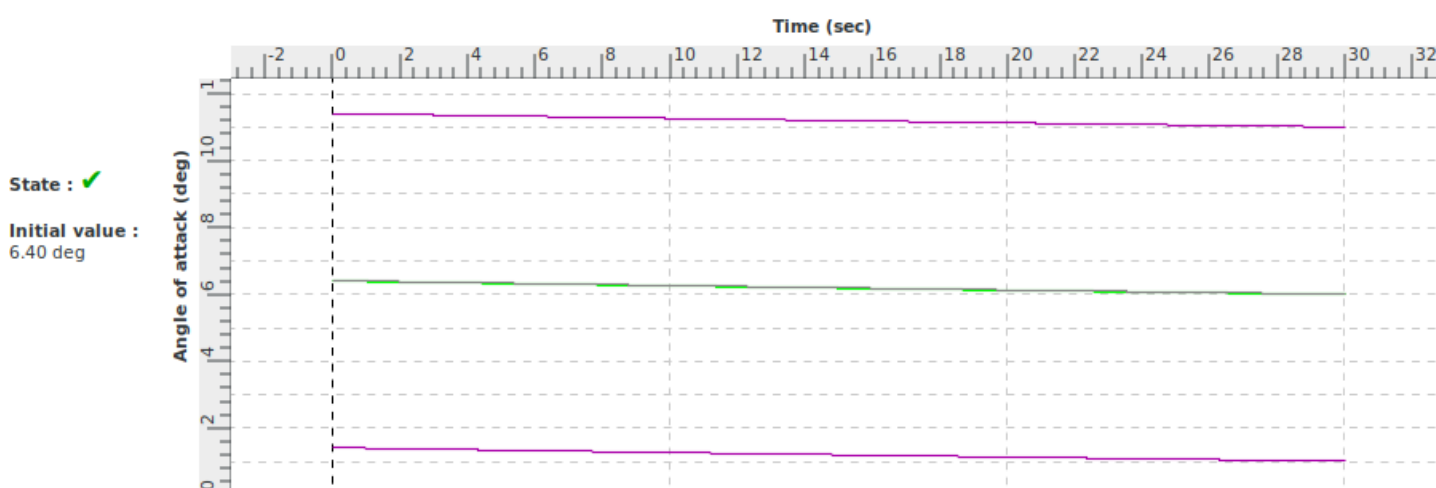
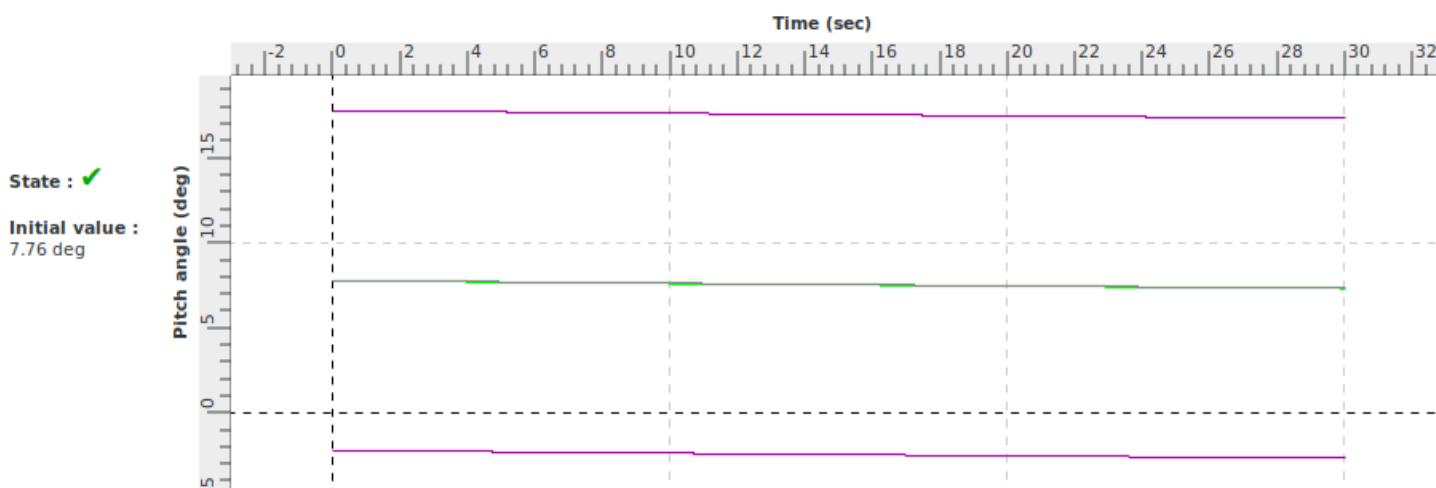
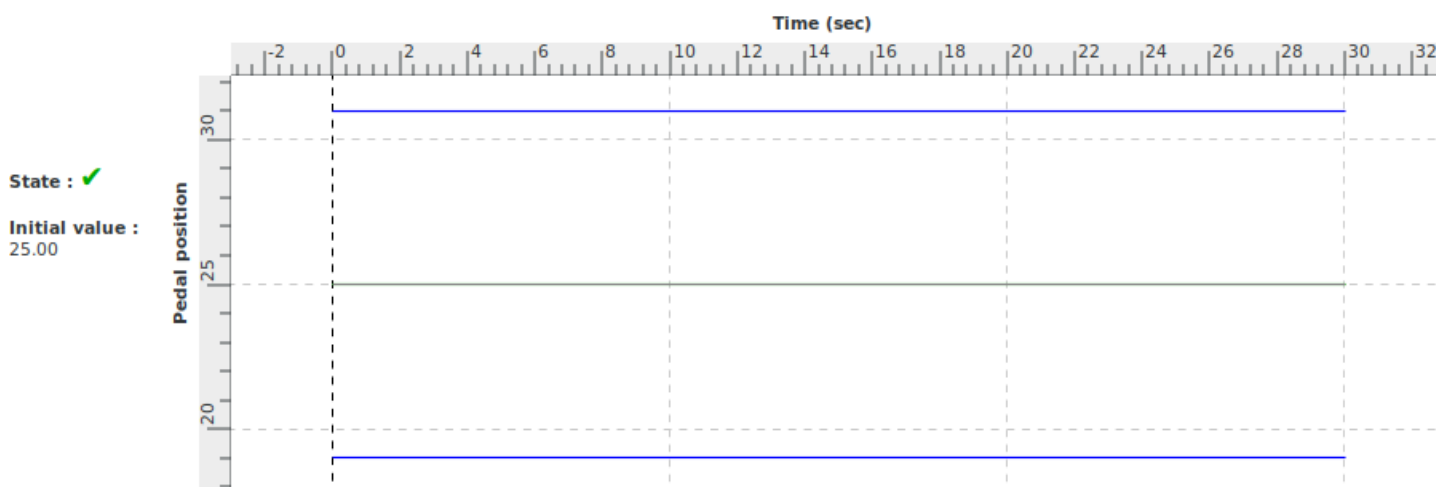
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Engine inoperative trim second segment climb		
Id	2 d v a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	22/08/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



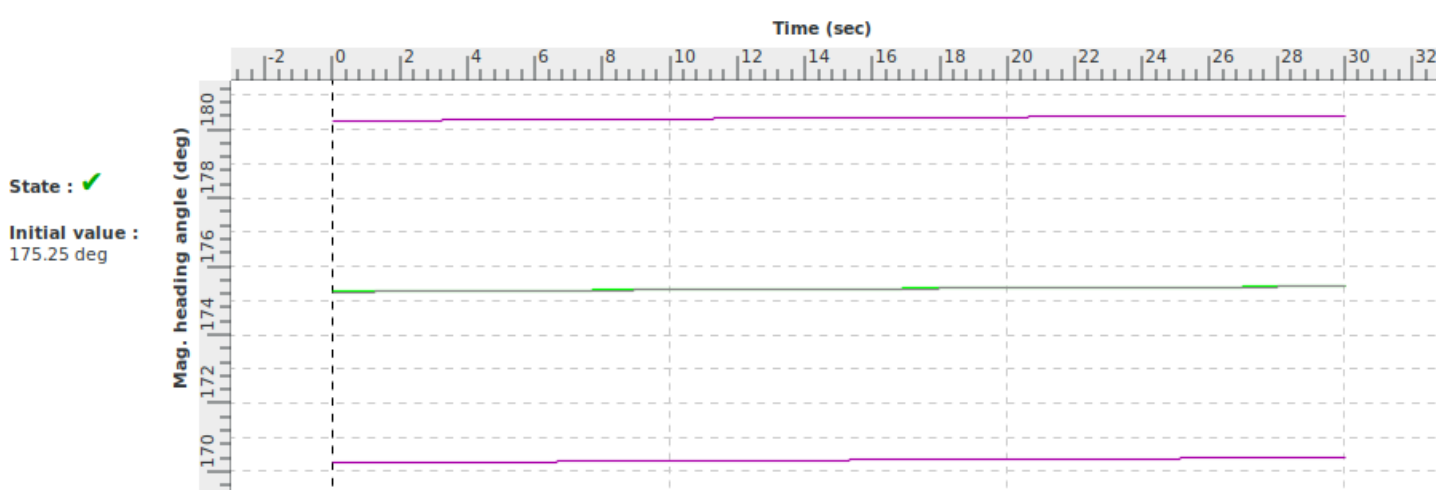
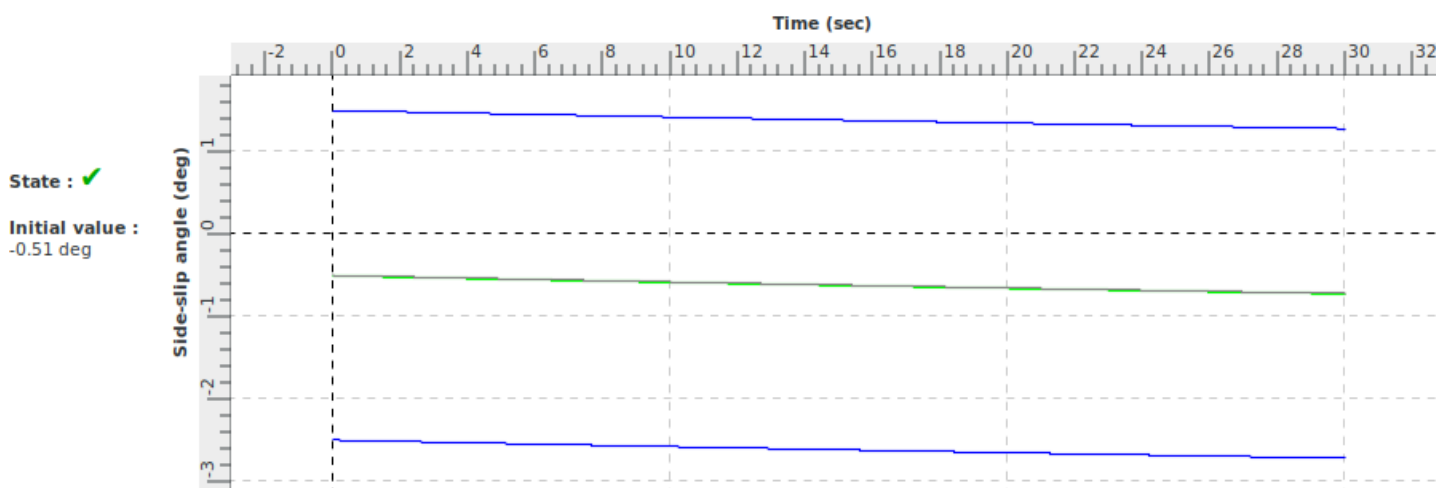
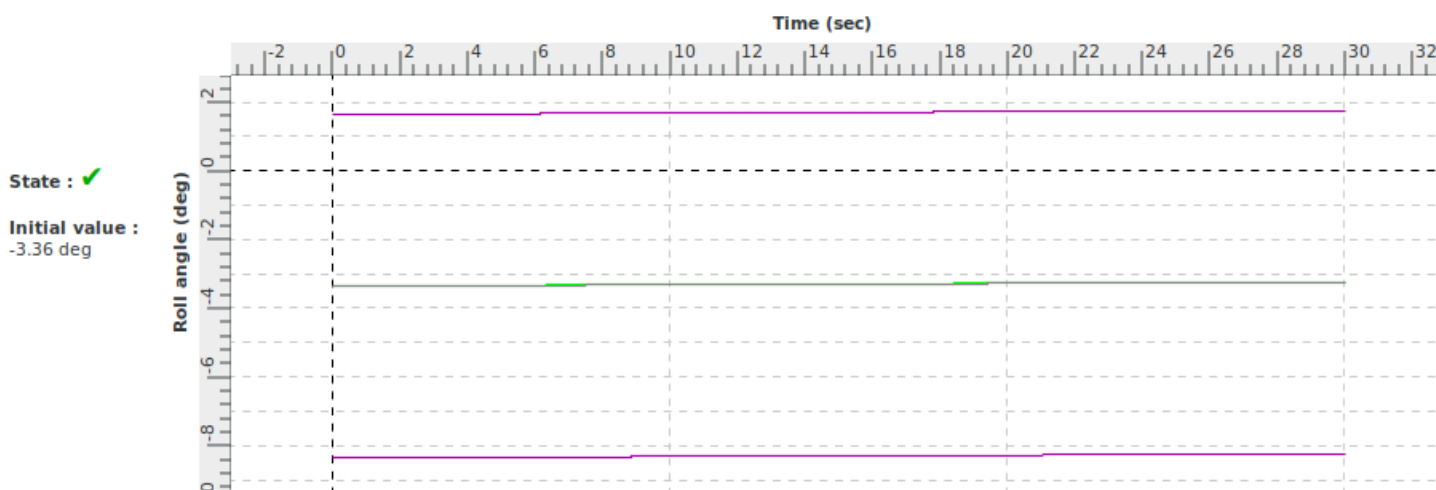
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Engine inoperative trim second segment climb		
Id	2 d v a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	22/08/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

# VALIDATION TEST

<b>Title</b>	Engine inoperative trim during approach		
<b>Id</b>	2 d v b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the simulation of the effects of directional trim during an engine inoperative manoeuvre conforms to the class of aeroplanes	Sideslip angle = 0 deg Rudder control = 23 %
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.d.v.b	+/-1° Rudder angle (equivalent 3% of pedal position) +/-2° Sideslip angle

<b>Demonstration procedure</b>	From steady one engine inoperative approach initial conditions, the pilot trims the aeroplane for the engine out condition.  Tolerance: 60° is representative of the maximum rudder deflection observed on this class of aeroplane i.e 1° of rudder deflection corresponds to 3.3% of pedal position.
<b>Manual test procedure</b>	See the aircraft configuration described next page.&&In ISA conditions and one engine inoperative approach configuration, the pilot trims the aeroplane for the engine out condition with the relevant propeller feathered.
<b>Automatic test procedure</b>	2 d v b

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>



<b>Title</b>	Engine inoperative trim during approach		
<b>Id</b>	2 d v b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Autopilot mode</b>	AUTO_HEADING
Automatic AUTO_HEADING mode : Heading is maintained constant through roll and yaw trim and Vertical Speed through pitch trim.	

<b>Initial parameters</b>	DESCENT_FLAPS_APP_N-1
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 3000 Vertical speed (ft/min) : -470 IAS (kt) : 90 (free) Heading (°) : 0 Bank (°) : 0 (free) Attitude (°) : -2 Pedal Position (%) : 23 Column Position (%) : 49 Wheel Position (%) : -5	Flaps lever position : 1 Gear lever position : 1 Left Load (%) : 0 Right Load (%) : 50 Left RPM : 0 Right RPM : 2030

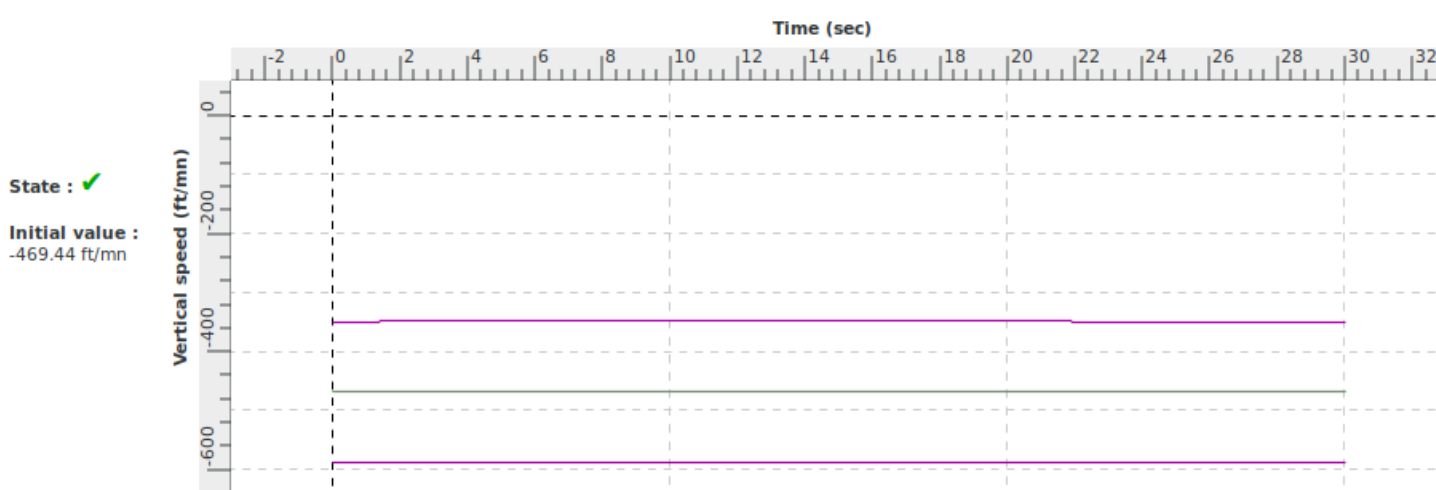
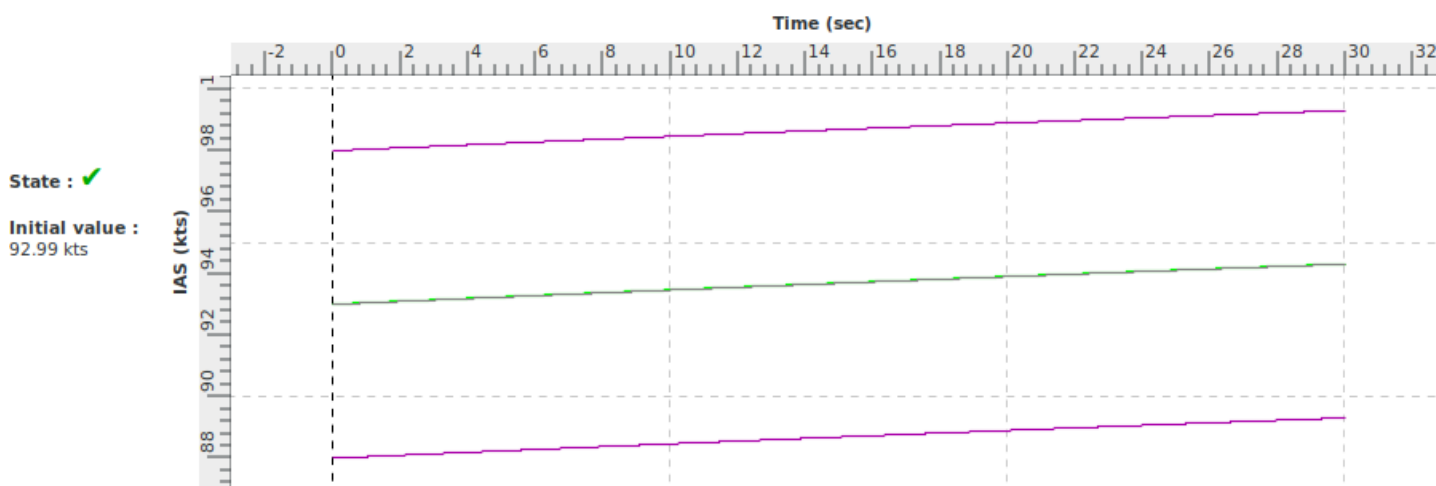
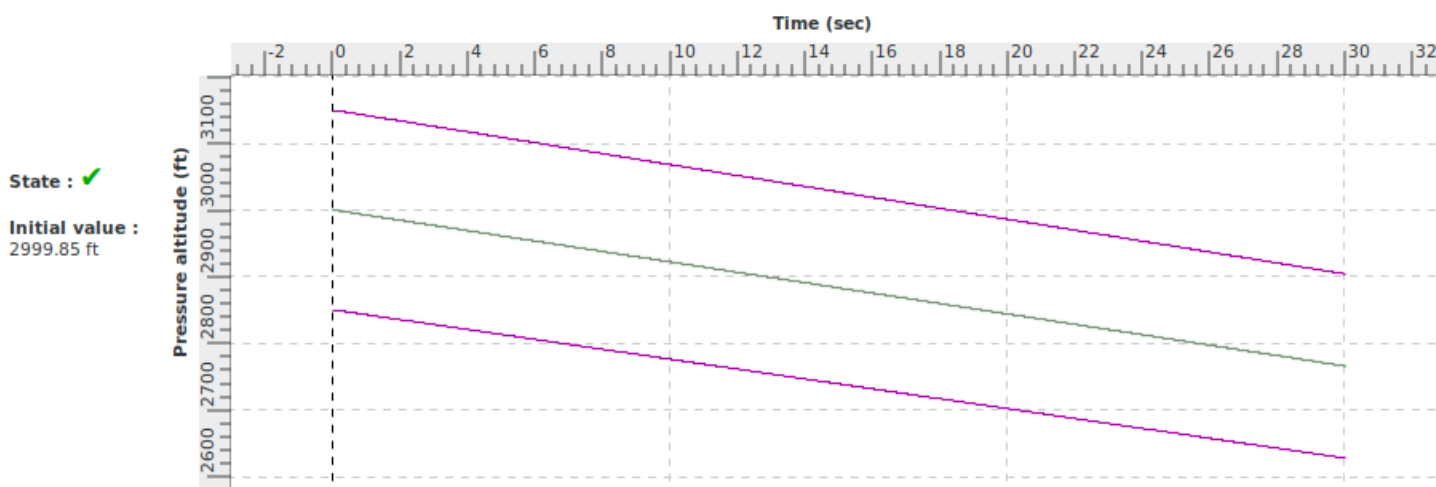
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
30.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Engine inoperative trim during approach		
<b>Id</b>	2 d v b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

Log of Revision		
Rev. Nbr	Date	Reason for revision
1.01	29/03/21	1909 master. New expected results. Pedal input to 23%
1.02	27/07/21	2012-R1 Master. Expected results unchanged.

Notes

Title	Engine inoperative trim during approach		
Id	2 d v b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	03/12/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



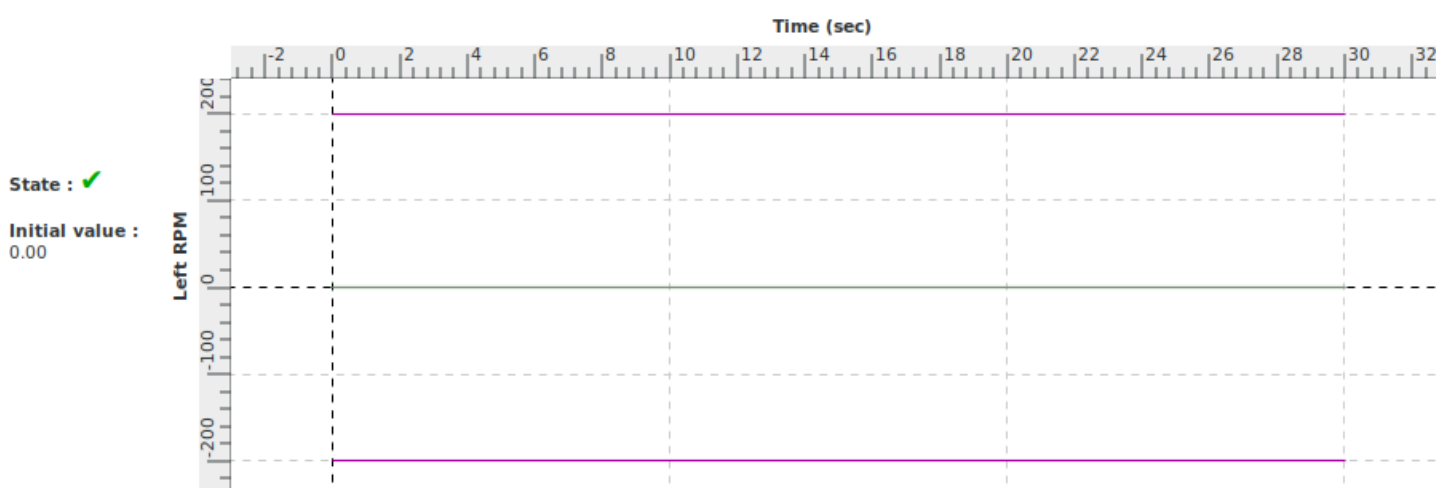
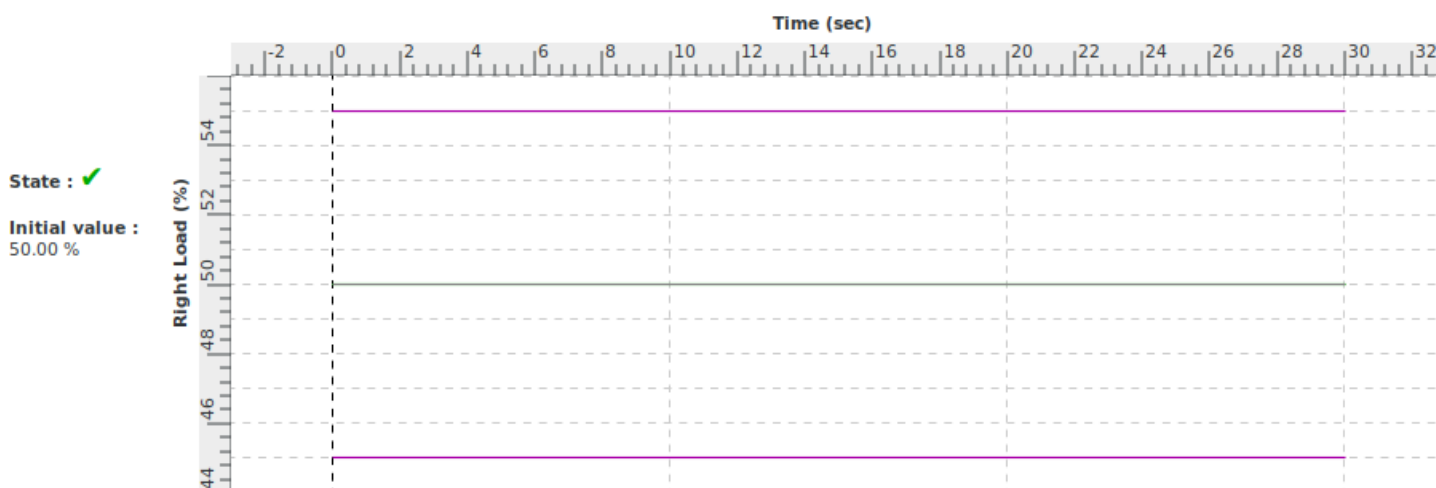
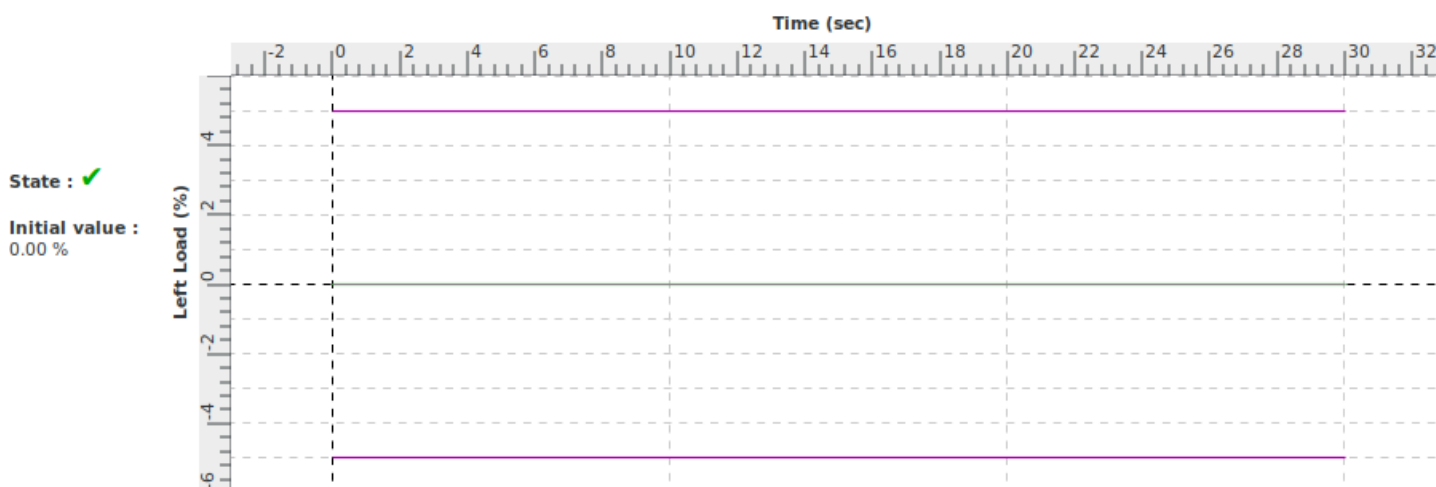
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Engine inoperative trim during approach		
Id	2 d v b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	03/12/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



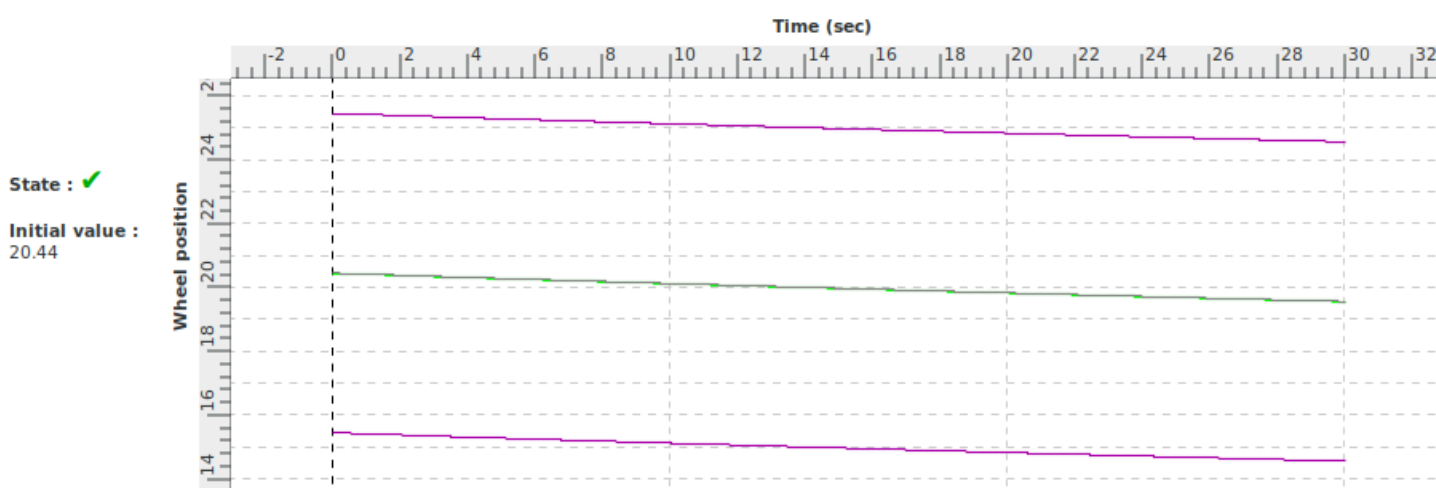
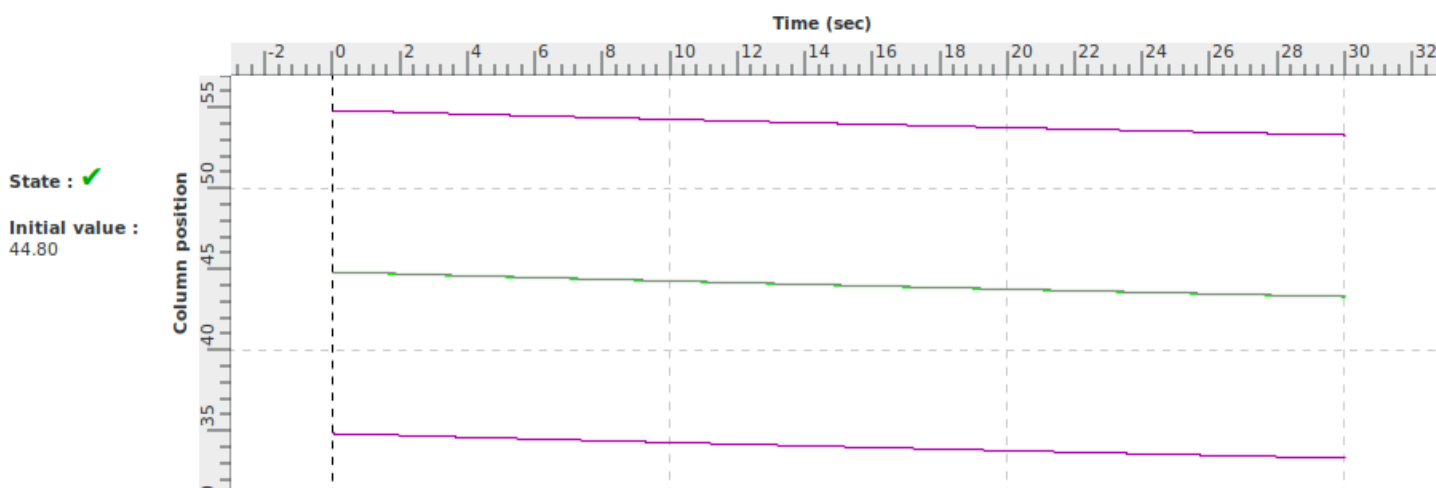
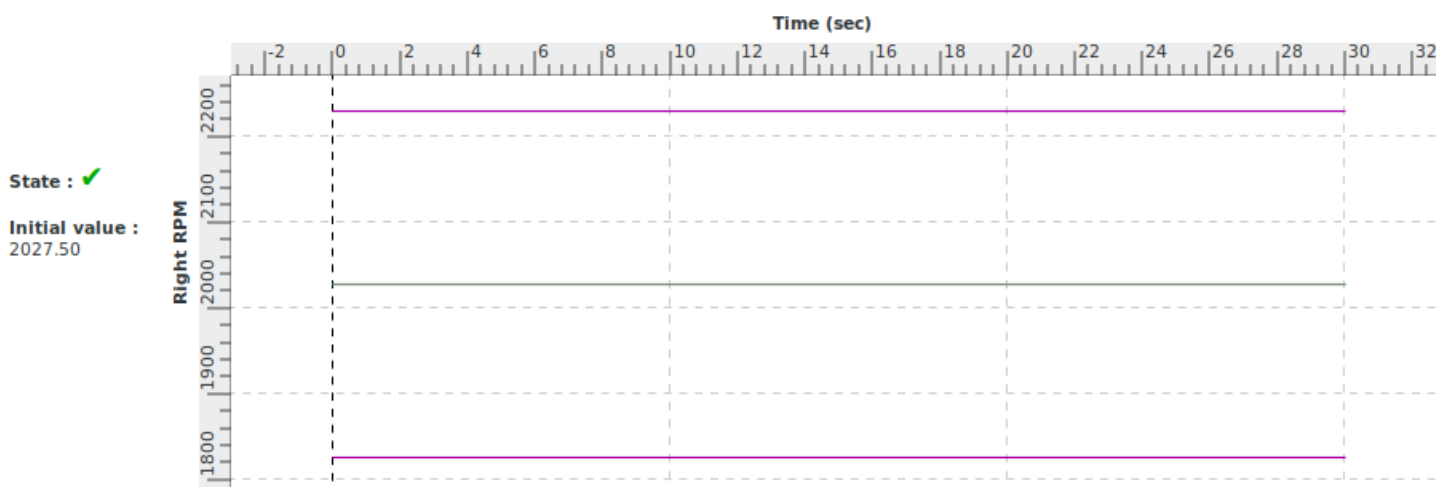
### Legend :

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blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Engine inoperative trim during approach		
Id	2 d v b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	03/12/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



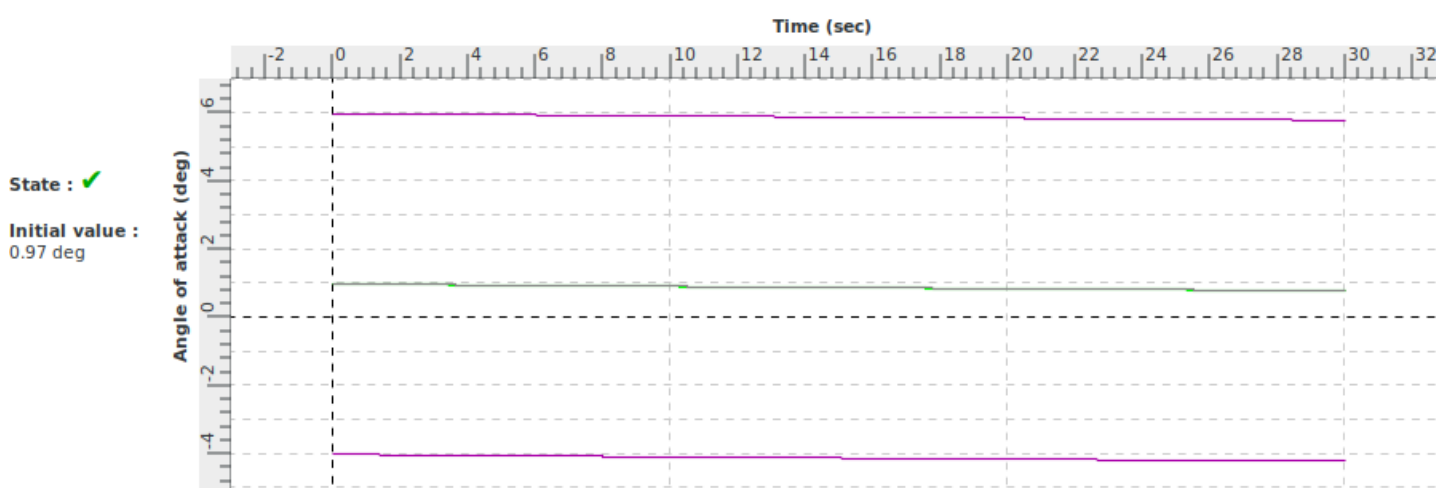
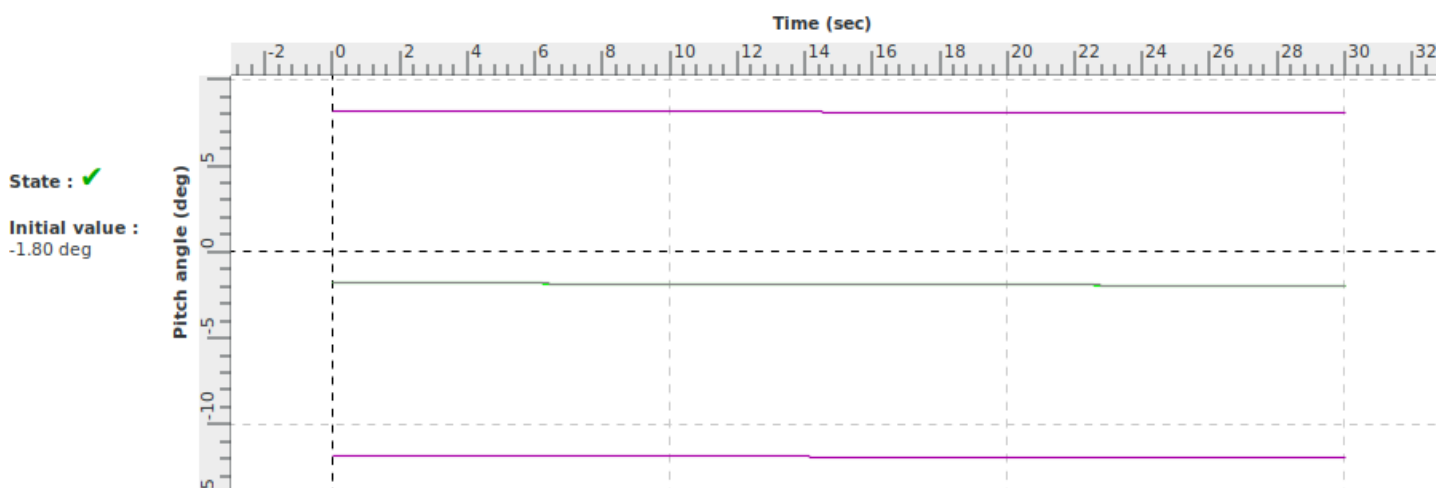
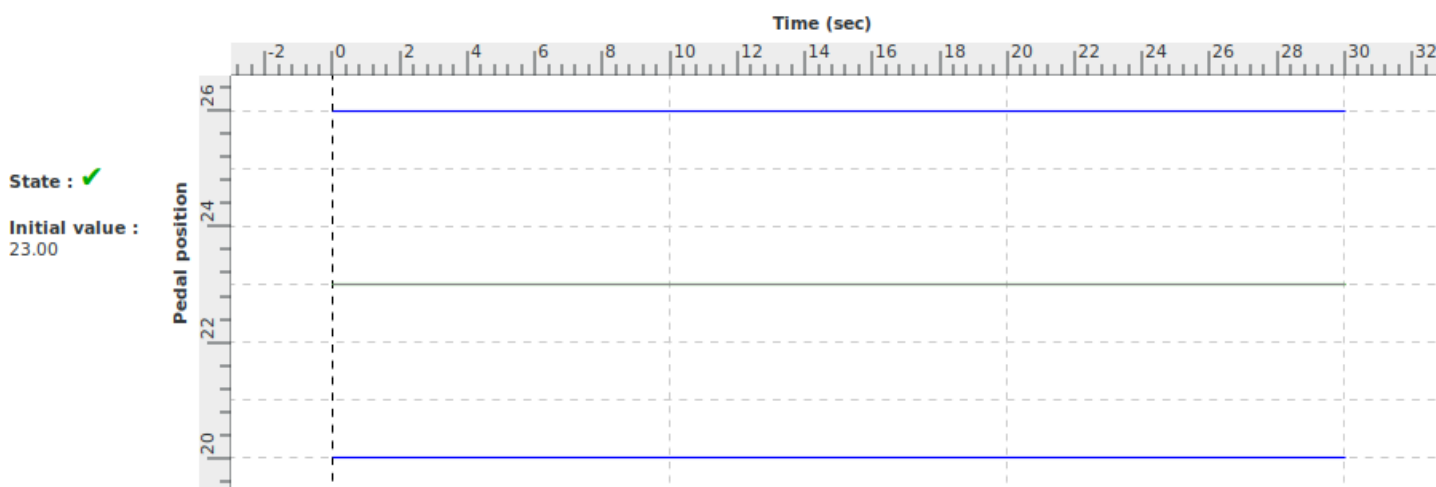
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsimg

grey : master

Title	Engine inoperative trim during approach		
Id	2 d v b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	03/12/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



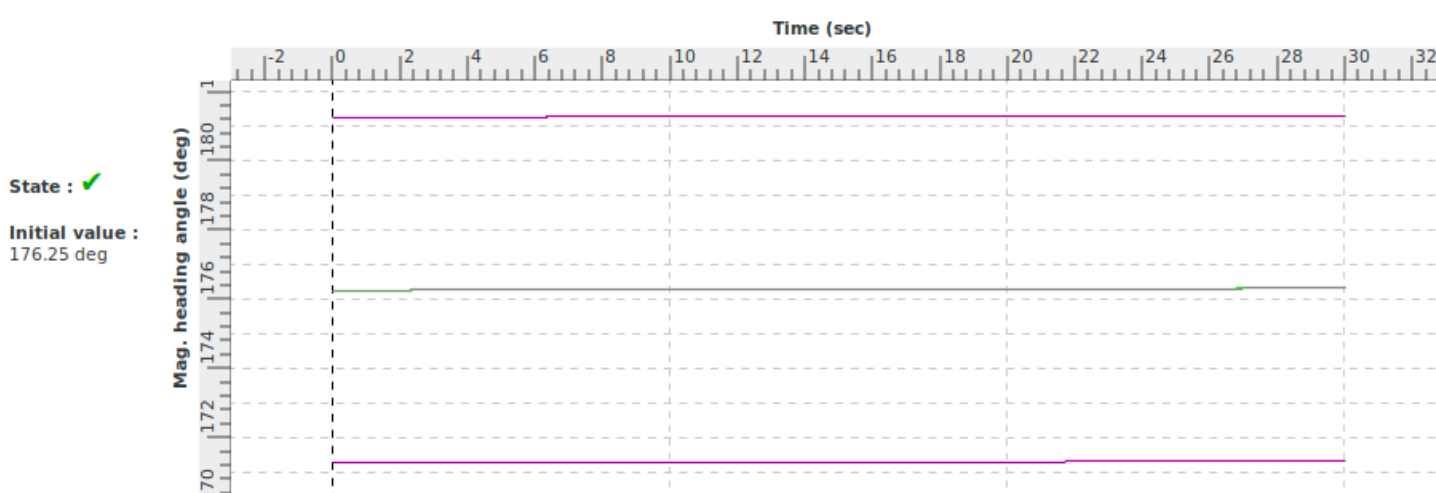
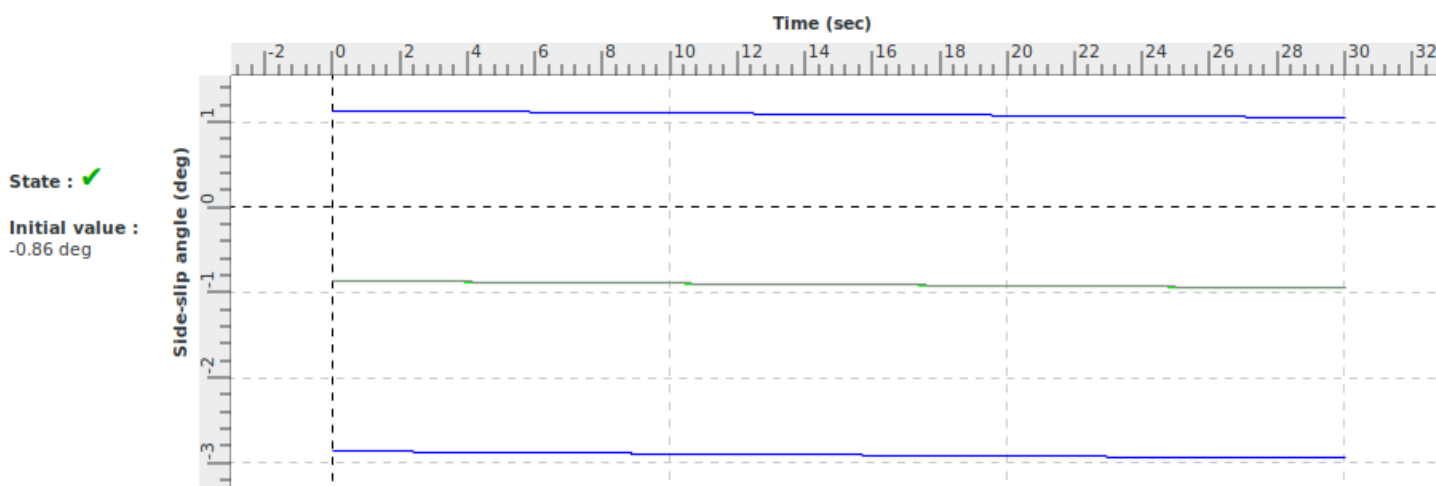
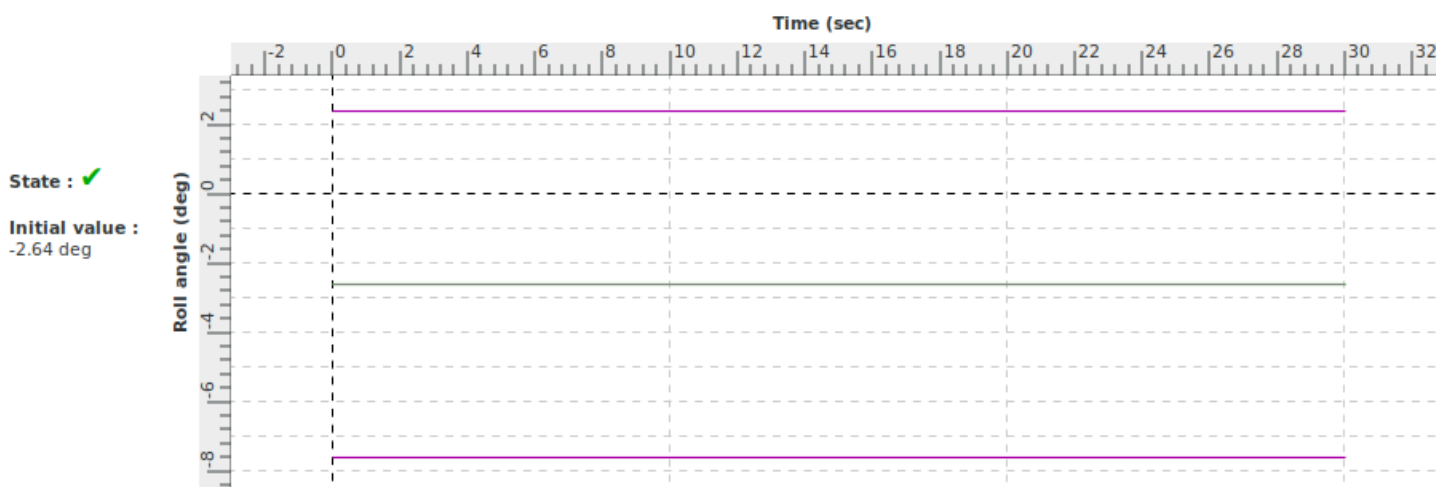
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master

Title	Engine inoperative trim during approach		
Id	2 d v b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	03/12/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsims

grey : master

# VALIDATION TEST

<b>Title</b>	Rudder response during approach		
<b>Id</b>	2 d vi	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	04/02/24	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the the simulator directional response from rudder control movements during approach conform to the class of aeroplanes	Max Yaw Rate: -3,8°/s
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.d.vi	+/- 2 deg/sec or 10% yaw rate or Heading change

<b>Demonstration procedure</b>	From steady approach initial conditions, an abrupt rudder step input of about 25% is applied.
<b>Manual test procedure</b>	In ISA conditions and cruise configuration, the pilot trims the airplane at approach. Then, the pilot applies impulse excitation on the pedals and leaves the controls free 5 to 10 seconds.
<b>Automatic test procedure</b>	2 d vi

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>



Title	Rudder response during approach		
<b>Id</b>	2 d vi	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	04/02/24	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Autopilot mode</b>	AUTO_SPEED
<p>Automatic Vertical Speed and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and VS. Roll Trim is computed to maintain 0° bank angle.</p>	

<b>Initial parameters</b>	HOLD_FLAPS_APP_GEAR
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 3000 Vertical speed (ft/min) : 0 IAS (kt) : 106 (free) Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : -1 Pedal Position (%) : 0 Column Position (%) : 32 Wheel Position (%) : 0	Flaps lever position : 1 Gear lever position : 1 Left Load (%) : 70 Right Load (%) : 70 Left RPM : 2060 Right RPM : 2060

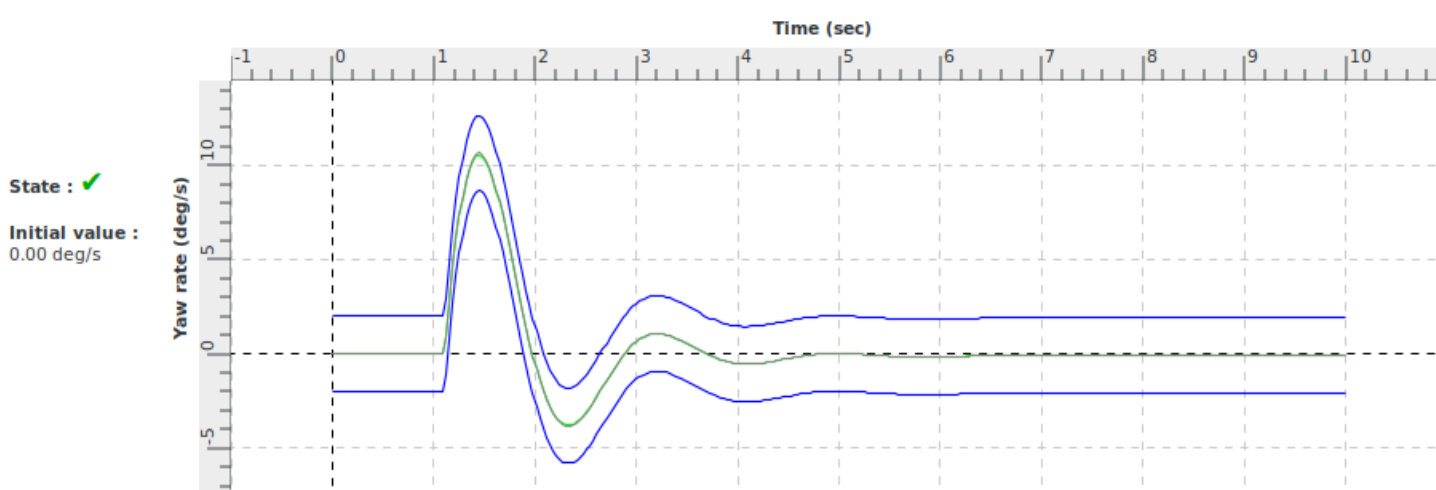
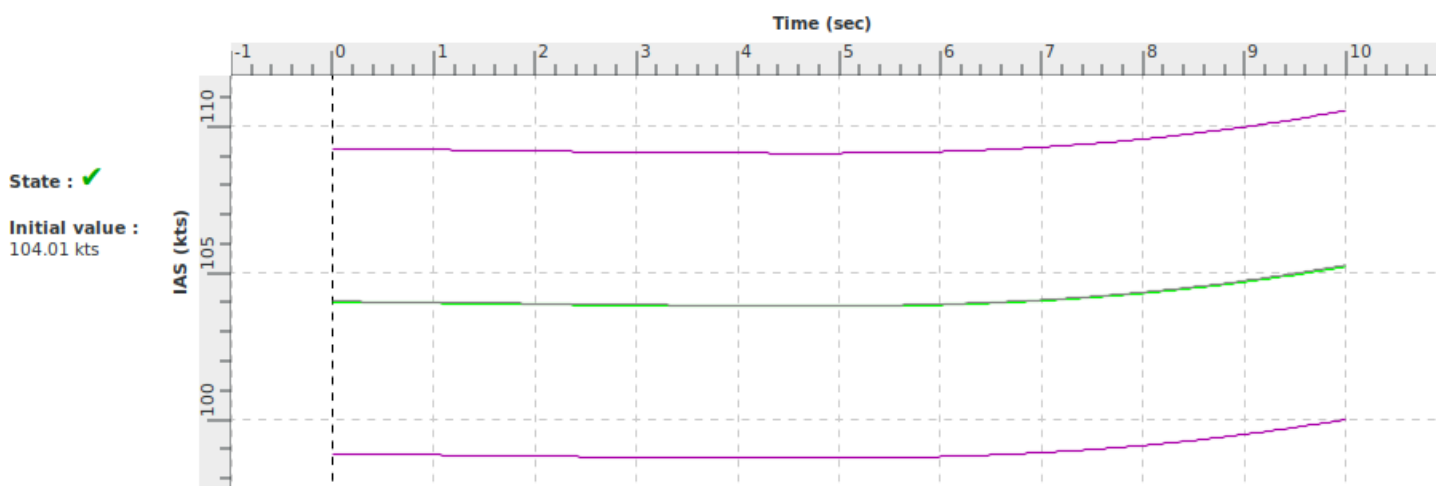
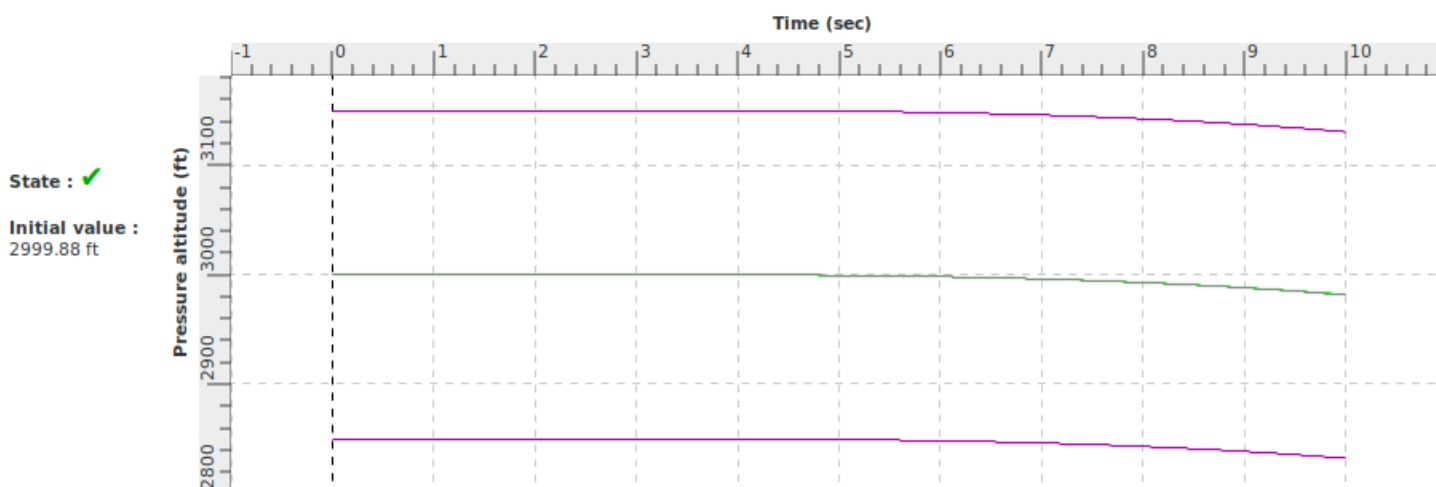
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
1.0	SetRudderCmdPalier	-25.0	Send a step in the rudder govern
1.0	SetRollCmdPalier	0.0	Send a step in the roll govern
1.0	SetAttCmdPalier	0.0	Send a step in the attitude govern
10.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Rudder response during approach		
<b>Id</b>	2 d vi	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	04/02/24	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

Log of Revision		
Rev. Nbr	Date	Reason for revision
1.01	29/03/21	1909 Master. New expected results.
1.02	27/07/21	2012-R1 Master. New expected results.

Notes

Title	Rudder response during approach		
Id	2 d vi	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	04/02/24	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



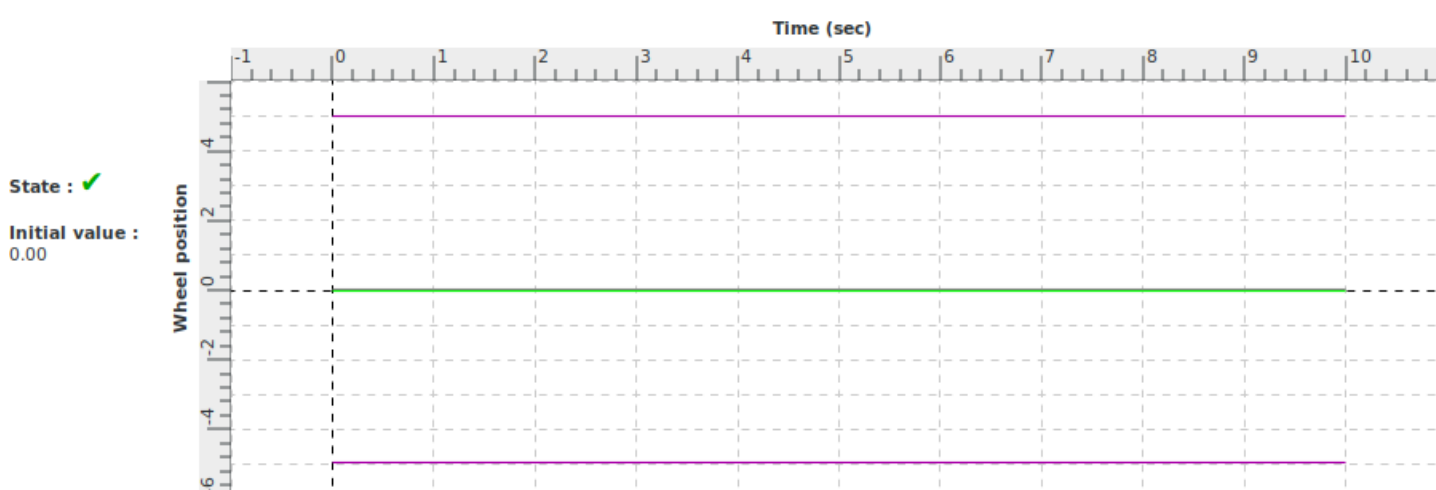
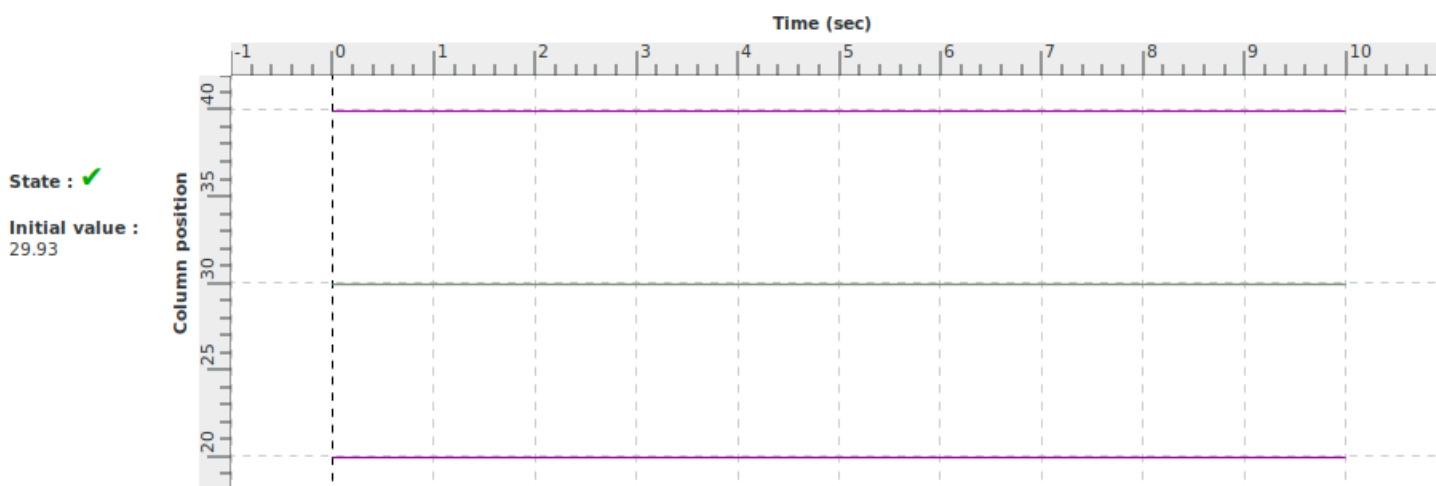
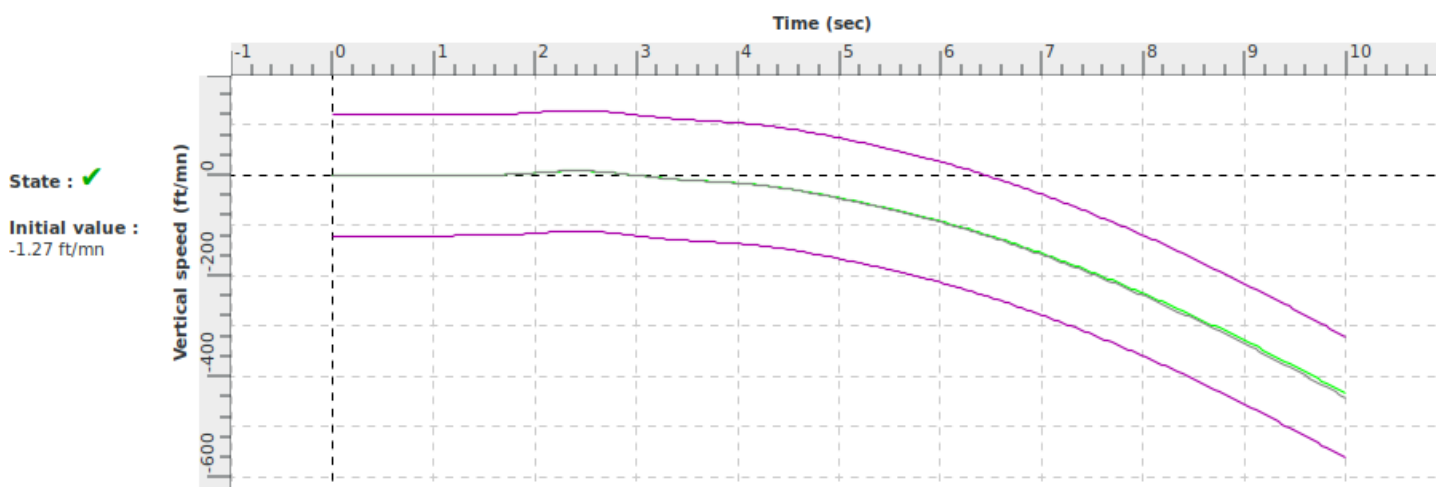
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Rudder response during approach		
Id	2 d vi	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	04/02/24	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



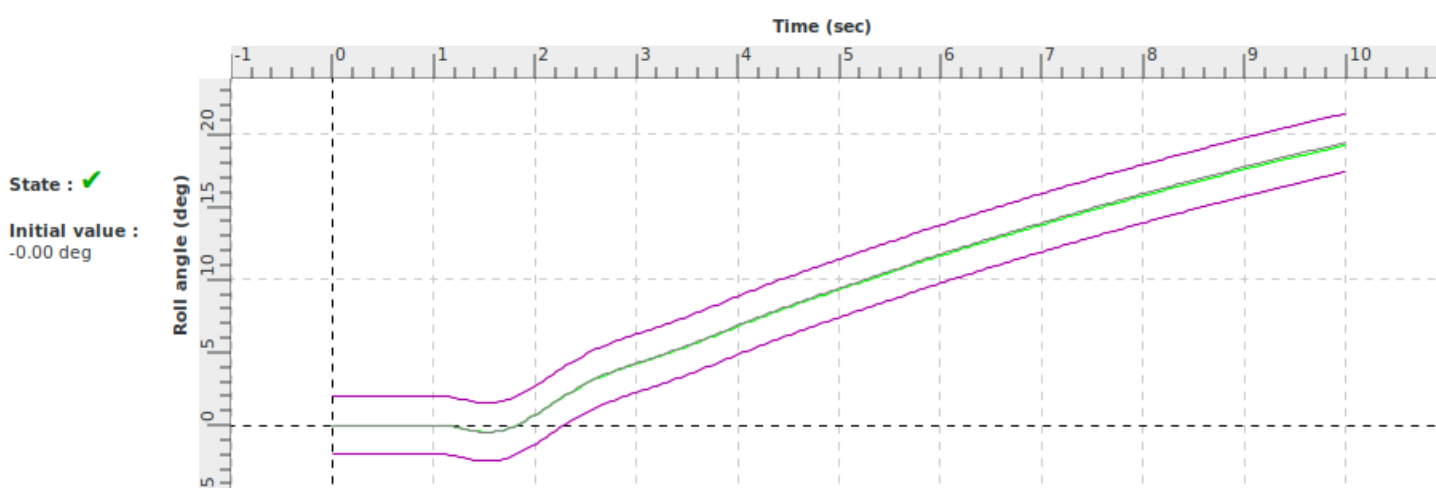
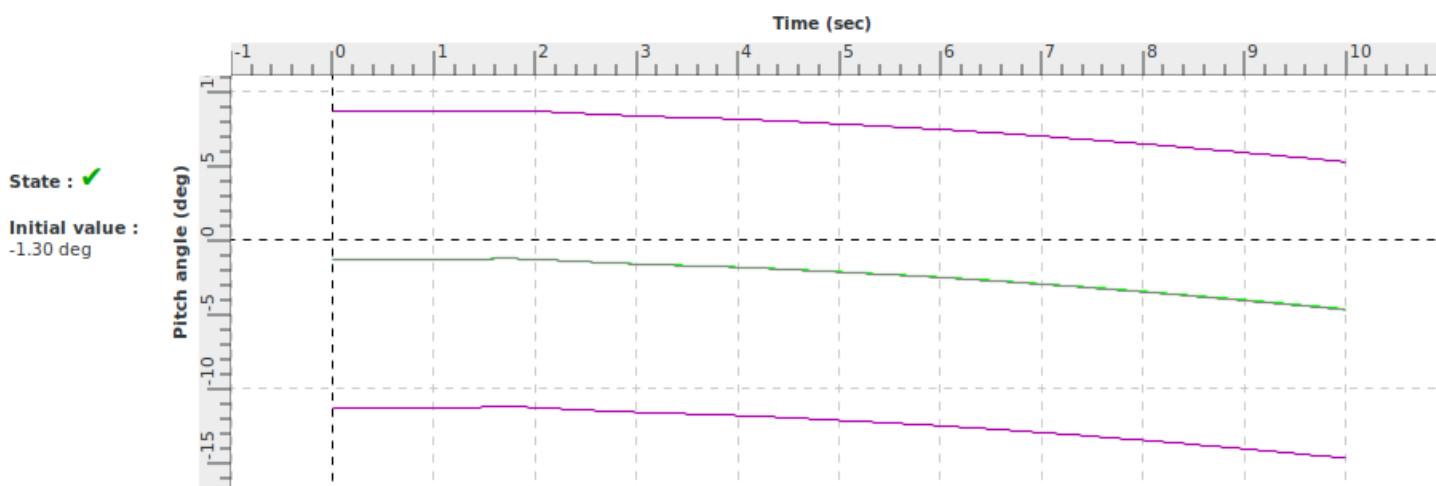
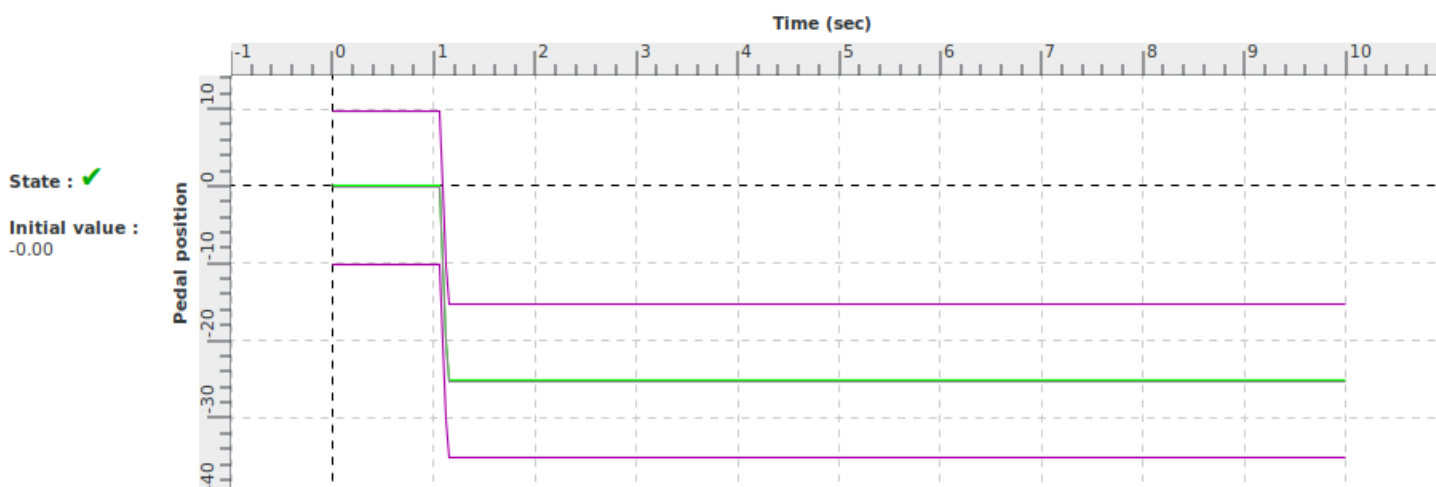
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master

Title	Rudder response during approach		
Id	2 d vi	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	04/02/24	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



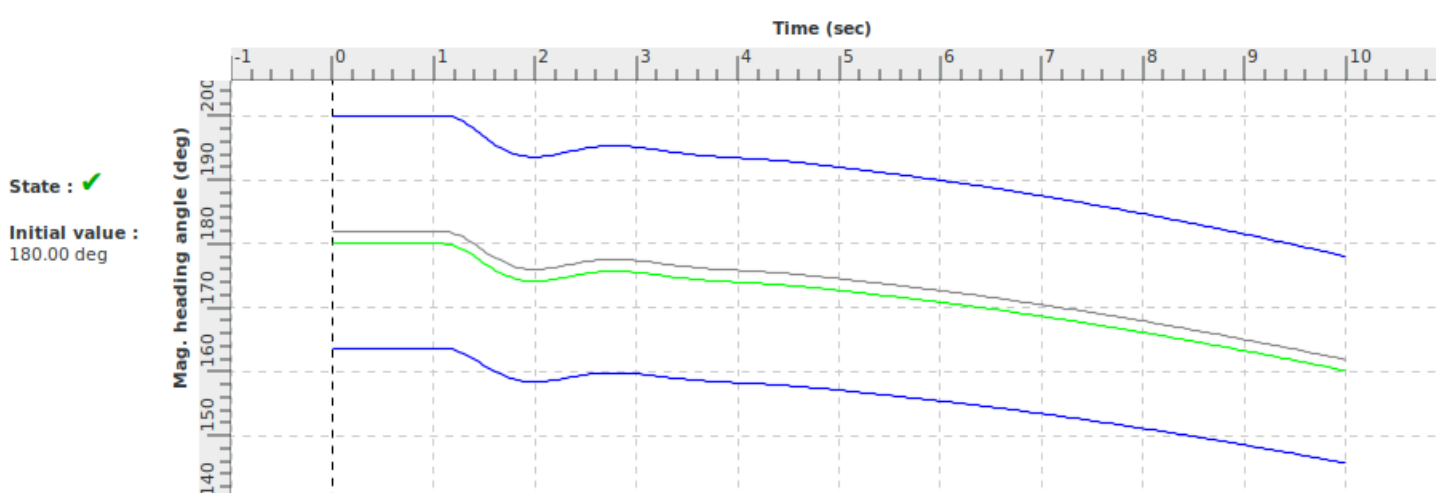
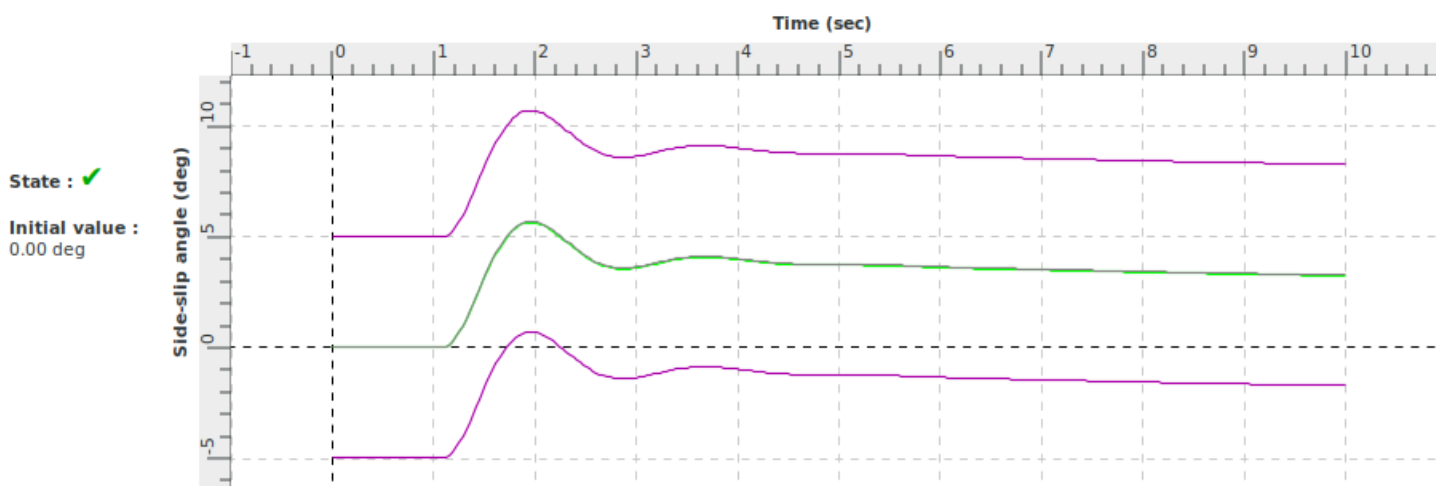
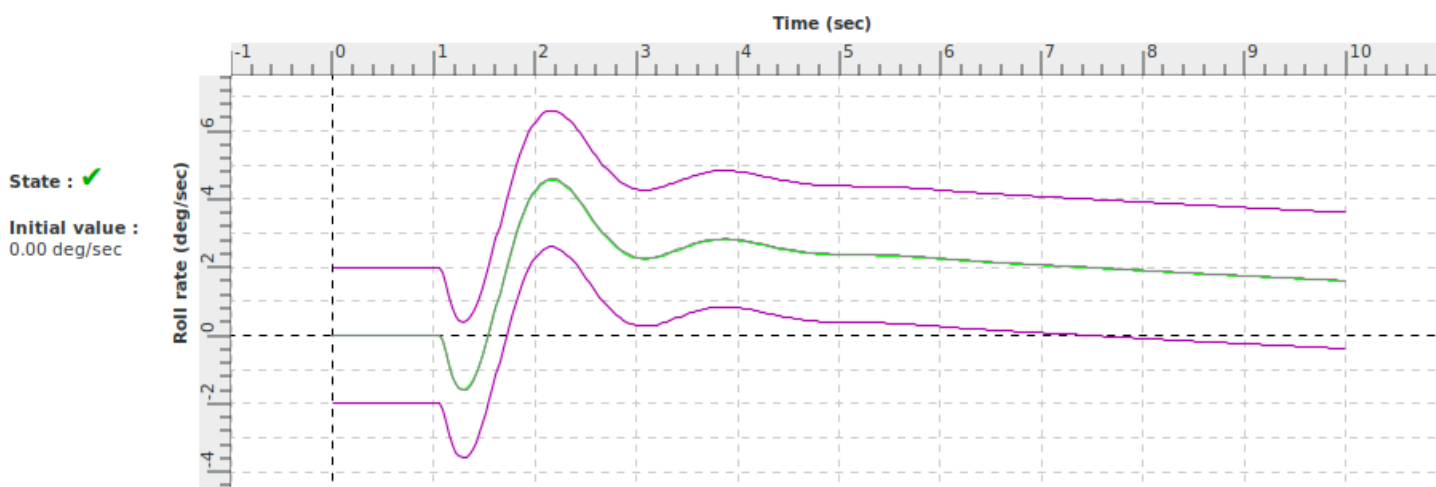
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master

Title	Rudder response during approach		
Id	2 d vi	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	04/02/24	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

# VALIDATION TEST

<b>Title</b>	Dutch roll (yaw damper off) during cruise		
<b>Id</b>	2 d vii a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the lateral/directional dynamic stability characteristics of the simulator in the dutch roll mode during cruise conform to the class of aeroplanes	Roll/yaw period: 1.42 s Time to half amplitude: 1.8 s Phase Delay: 0.7 s (results to be determined using the Table Sheet AL42_DA42VI_Tables_QTG_VolIII.xls)
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.d.vii.a	+/- 0.5s or 10% of period +/-10% of time of 1/2 amplitude or 0.02 of damping ratio +/-20% or +/-1s of time difference between peaks of bank and sideslip

<b>Demonstration procedure</b>	From steady cruise initial conditions, a short pedal impulse is applied in both directions left then right in order to excite the Dutch roll mode. The period and, time to 1/2 amplitude and time difference between peaks must be computed manually using the "Plot" function available on the graphs and compared with expected results. Tolerances proposed by Alsim on relevant graphs are more restrictive than required ones.
<b>Manual test procedure</b>	In ISA conditions and cruise configuration, the pilot trims the airplane at cruise. Then, the pilot applies impulse excitation on the pedals and leaves the controls free 5 to 10 seconds.
<b>Automatic test procedure</b>	2 d vii a

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

<b>Title</b>	Dutch roll (yaw damper off) during cruise		
<b>Id</b>	2 d vii a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Autopilot mode</b>	AUTO_SPEED
<p>Automatic Vertical Speed and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and VS. Roll Trim is computed to maintain 0° bank angle.</p>	

<b>Initial parameters</b>	CRUISE
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 6000 Vertical speed (ft/min) : 0 IAS (kt) : 139 (free) Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : 0 Pedal Position (%) : 0 Column Position (%) : 9 Wheel Position (%) : 0	Flaps lever position : 0 Gear lever position : 0 Left Load (%) : 70 Right Load (%) : 70 Left RPM : 2060 Right RPM : 2060

Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
0.0	deconnectionPA_roll	0.0	disable QTG Autopilot in roll axis
1.0	SetRudderCmdPalier	-70.0	Send a step in the rudder govern
1.0	SetAttCmdPalier	0.0	Send a step in the attitude govern
2.0	SetRudderCmdPalier	70.0	Send a step in the rudder govern
3.0	SetRudderCmdPalier	0.0	Send a step in the rudder govern
15.0	Stop_Test	0.0	Stop the test procedure

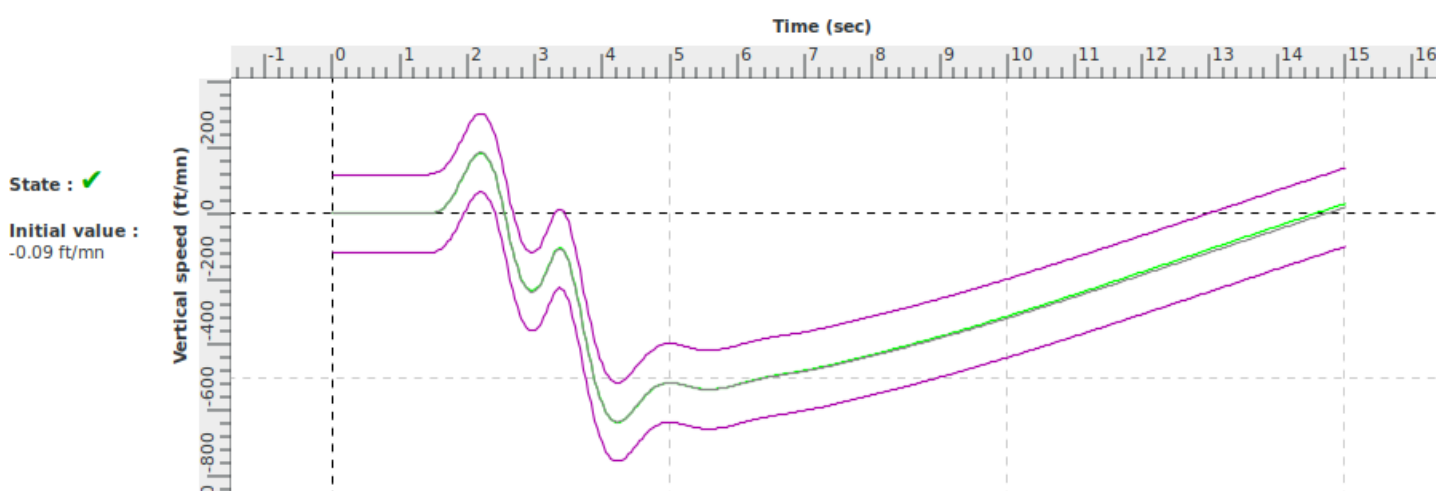
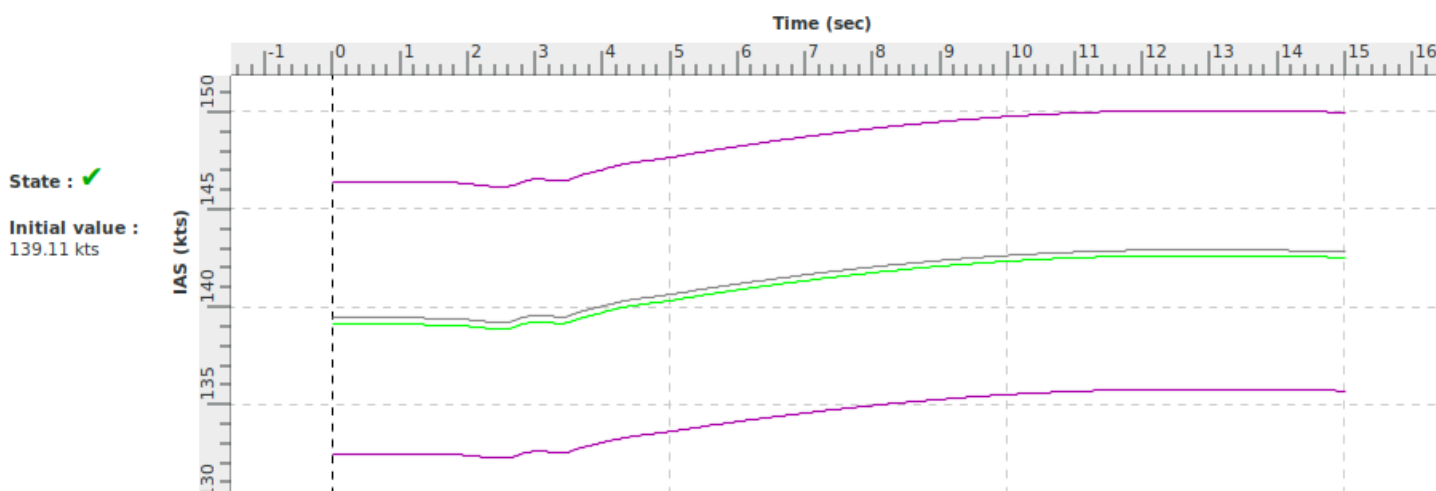
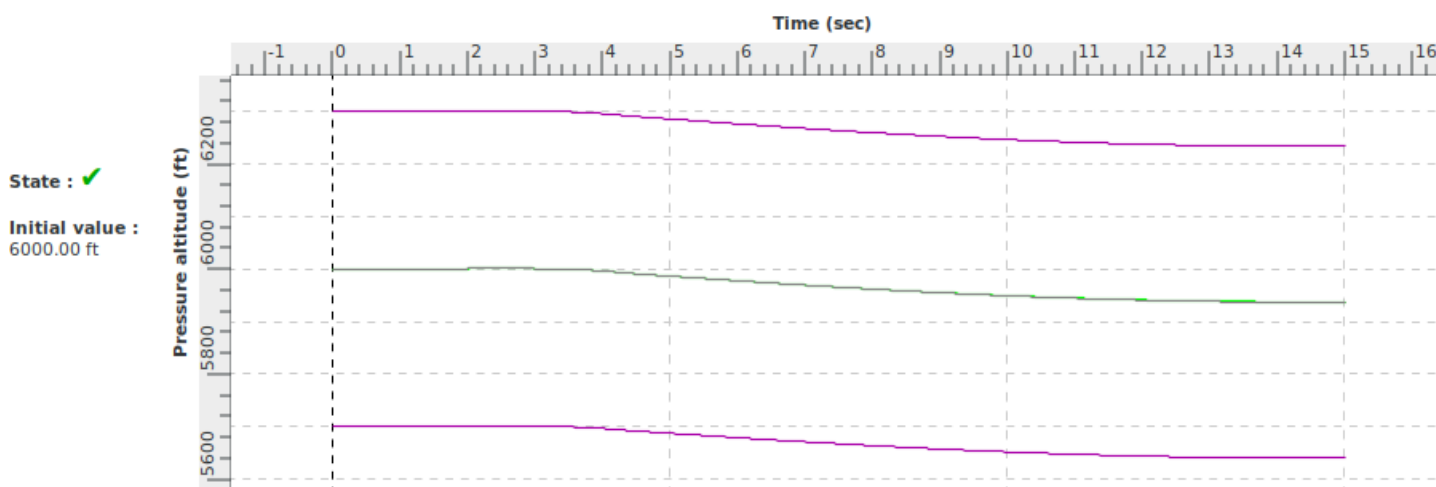


<b>Title</b>	Dutch roll (yaw damper off) during cruise		
<b>Id</b>	2 d vii a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

Log of Revision		
Rev. Nbr	Date	Reason for revision
1.01	29/03/21	1909 Master. New expected results of Time of half amplitude.
1.02	27/07/21	2012-R1 Master. Expected results unchanged.

Notes

Title	Dutch roll (yaw damper off) during cruise		
Id	2 d vii a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	14/06/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



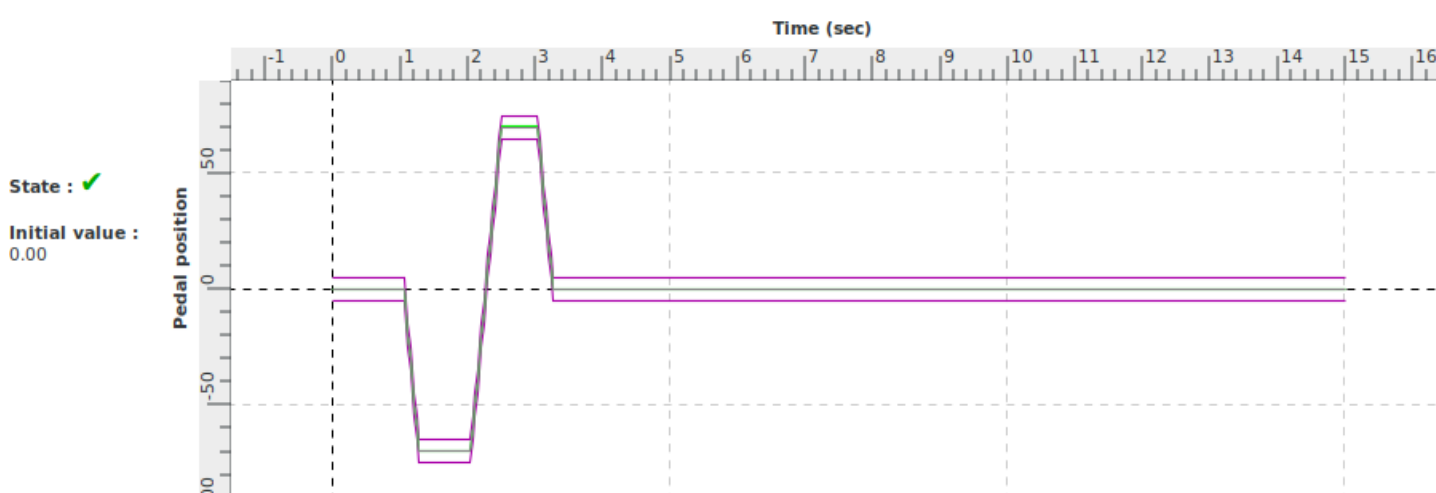
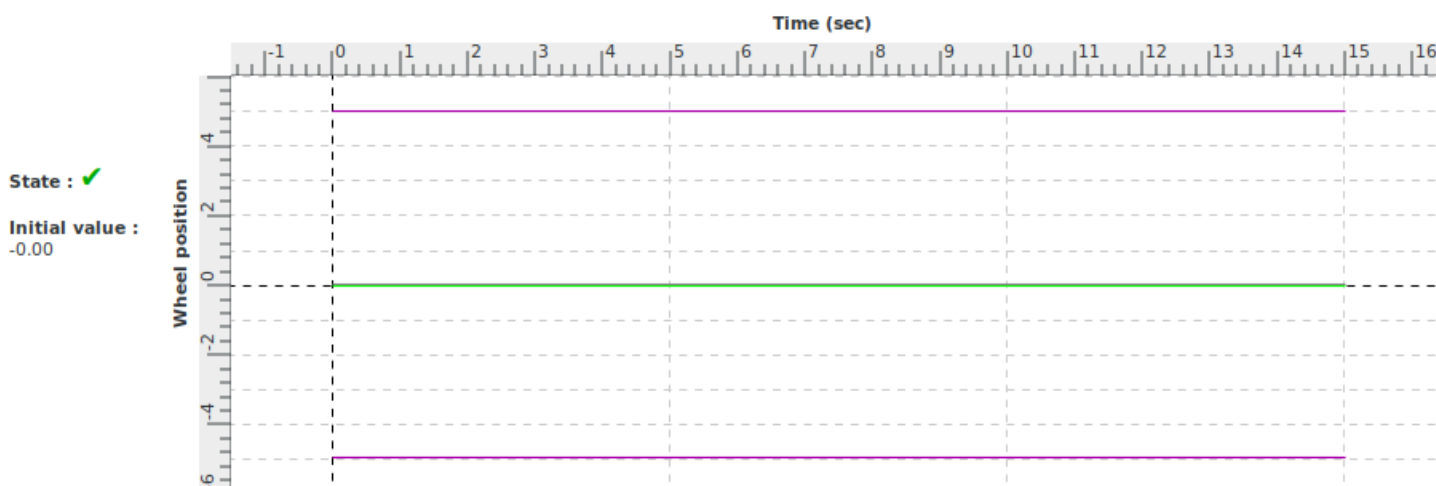
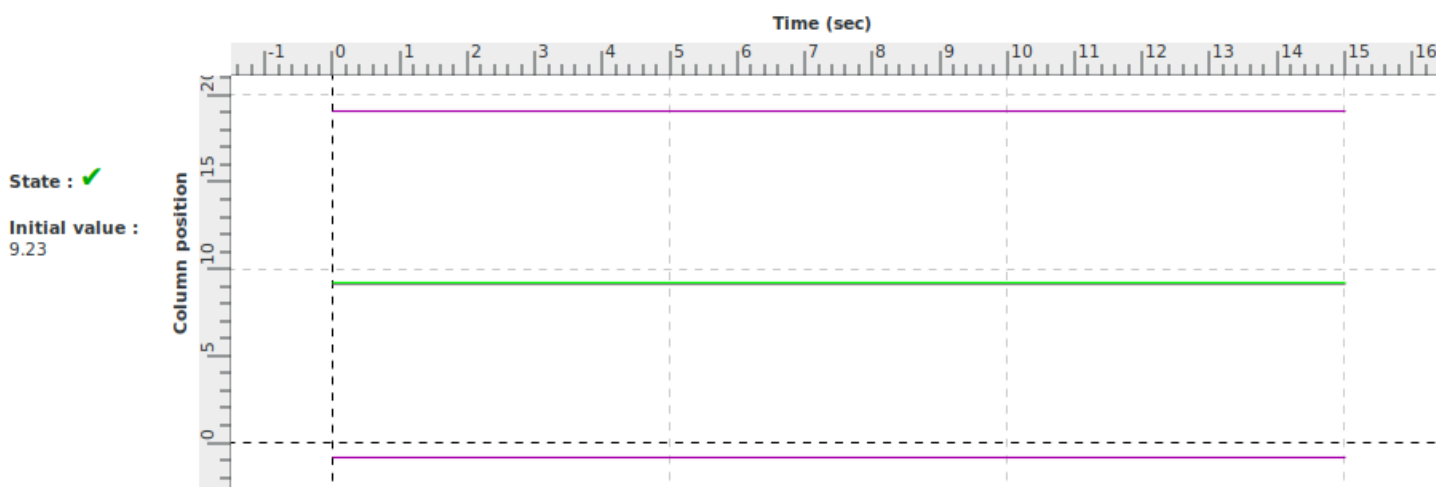
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Dutch roll (yaw damper off) during cruise		
Id	2 d vii a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	14/06/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



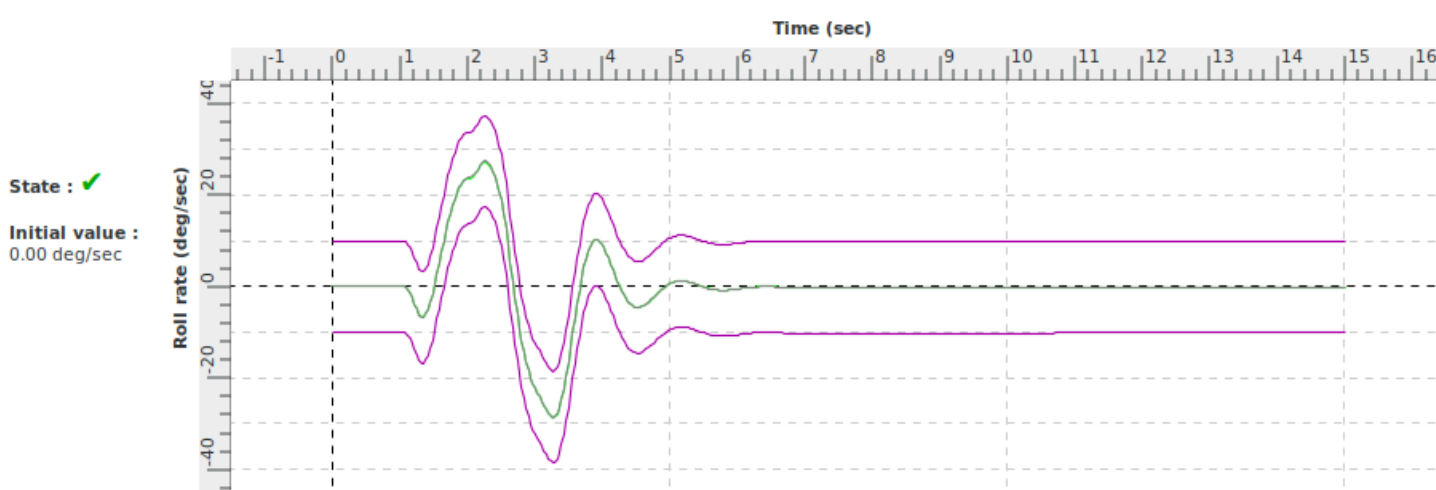
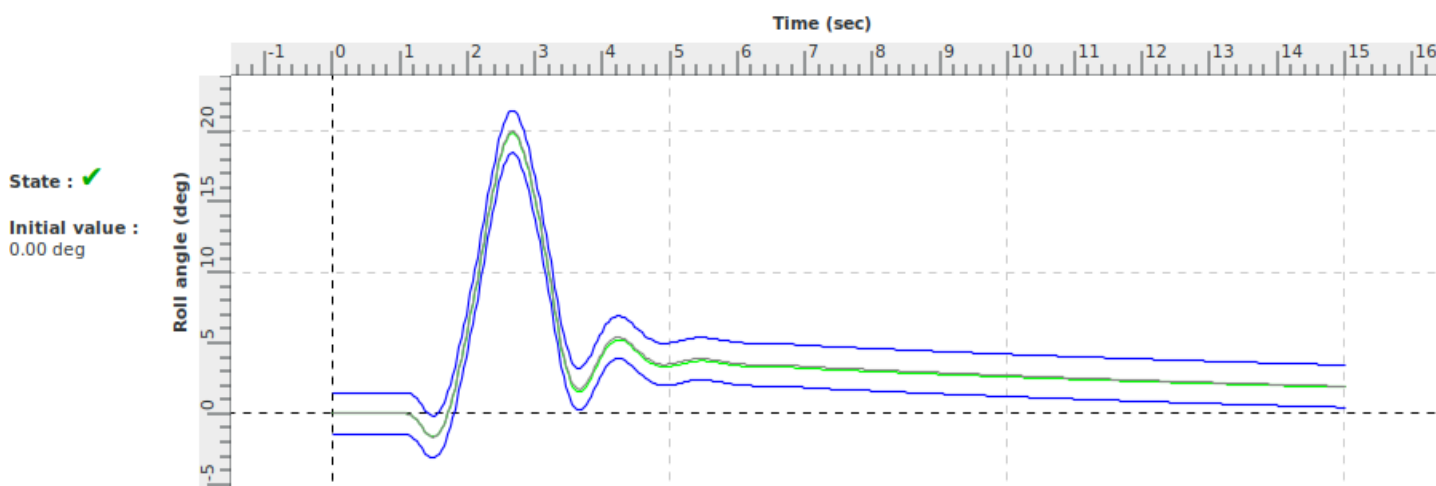
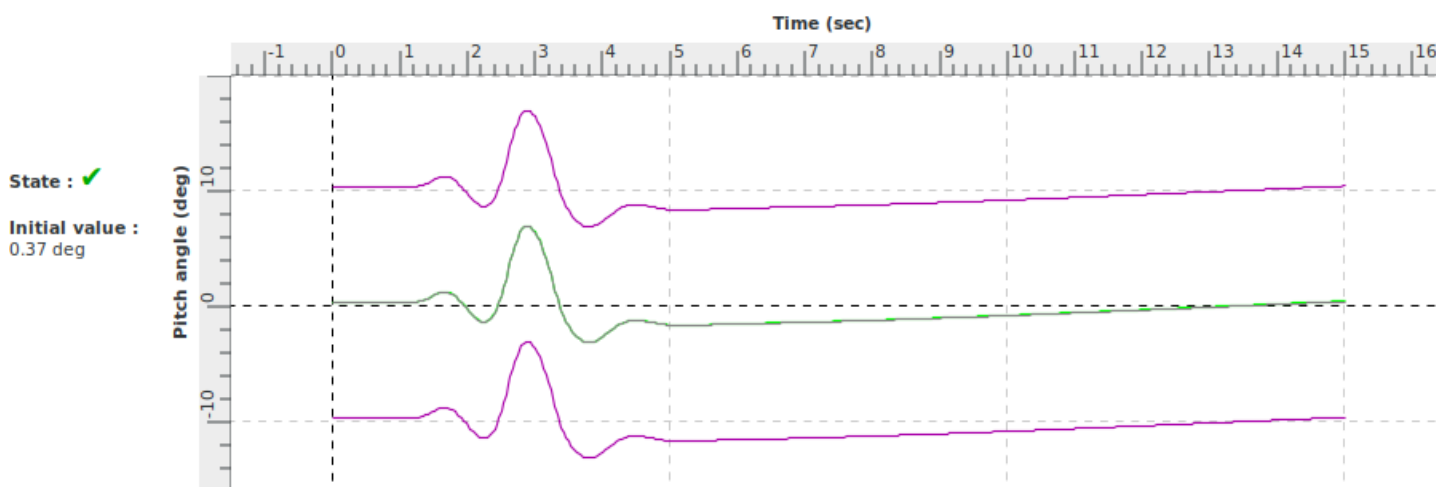
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Dutch roll (yaw damper off) during cruise		
Id	2 d vii a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	14/06/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



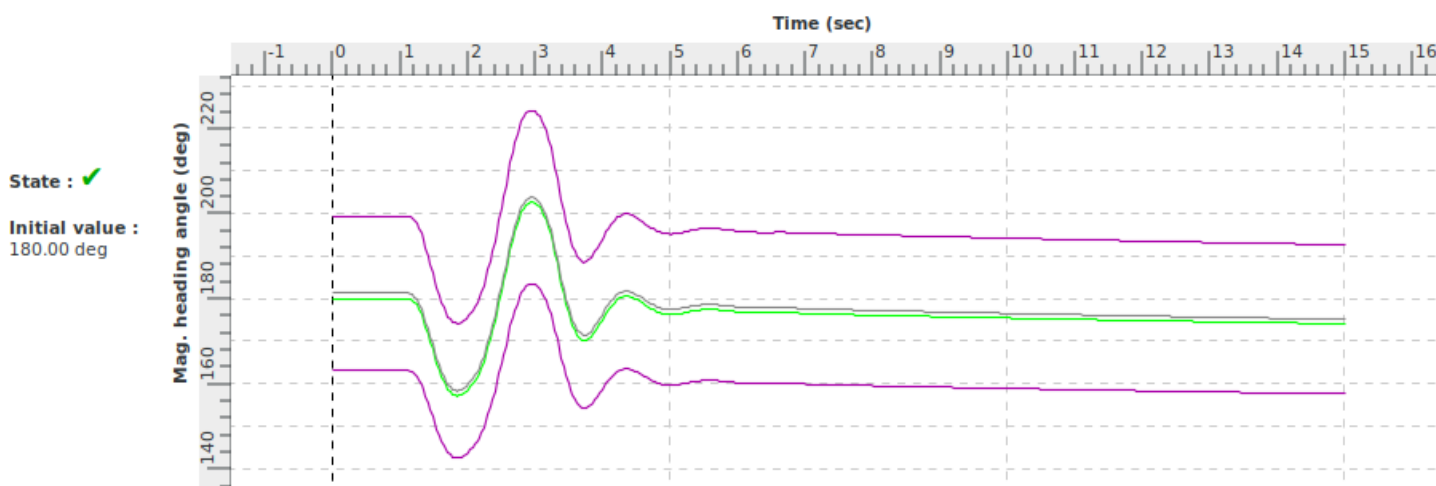
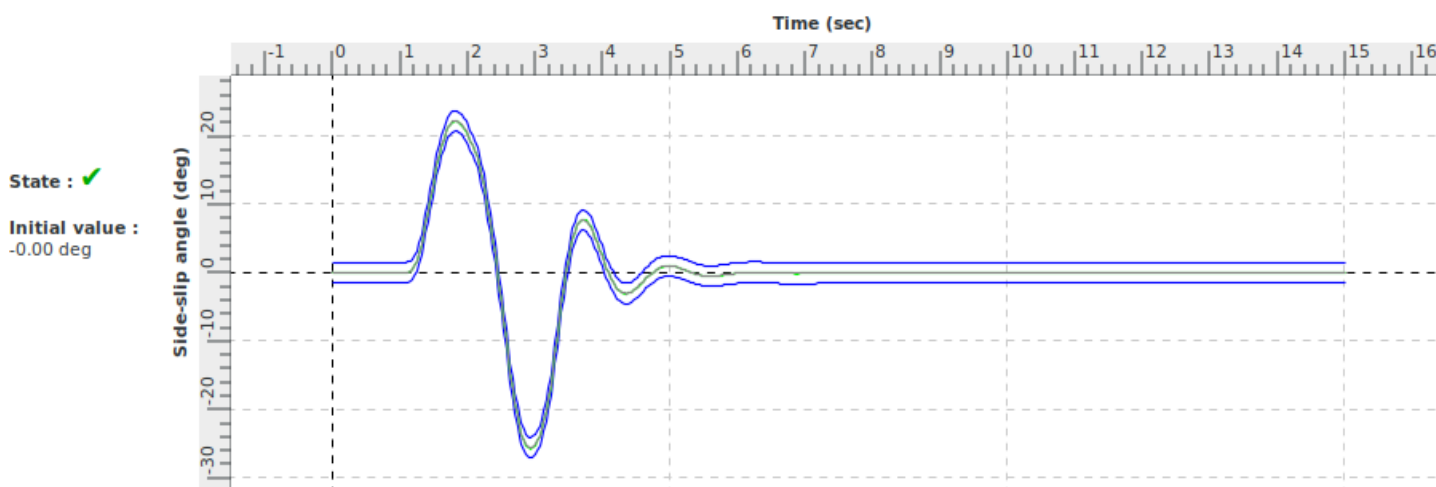
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Dutch roll (yaw damper off) during cruise		
Id	2 d vii a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	14/06/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

# VALIDATION TEST

<b>Title</b>	Dutch roll (yaw damper off) during approach		
<b>Id</b>	2 d vii b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the lateral/directional dynamic stability characteristics of the simulator in the dutch roll mode during approach conform to the class of aeroplanes	Roll/yaw period: 1.9 s Time to half amplitude: 0.7 s Phase Delay: 0.8 s (results to be determined using the Table Sheet AL42_DA42VI_Tables_QTG_VolIII.xls)
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.d.vii.b	+/- 0.5s or 10% of period +/-10% of time of 1/2 amplitude or 0.02 of damping ratio +/-20% or +/-1s of time difference between peaks of bank and sideslip

<b>Demonstration procedure</b>	From steady approach initial conditions, a short pedal impulse is applied in both directions left then right in order to excite the Dutch roll mode. The period and, time to 1/2 amplitude and time difference between peaks must be computed manually using the "Plot" function available on the graphs and compared with expected results. Tolerances proposed by Alsim on relevant graphs are more restrictive than required ones.
<b>Manual test procedure</b>	In ISA conditions and approach configuration, the pilot trims the airplane at approach. Then, the pilot applies impulse excitation on the pedals and leaves the controls free 5 to 10 seconds.
<b>Automatic test procedure</b>	2 d vii b

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

<b>Title</b>	Dutch roll (yaw damper off) during approach		
<b>Id</b>	2 d vii b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Autopilot mode</b>	AUTO_SPEED
<p>Automatic Vertical Speed and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and VS. Roll Trim is computed to maintain 0° bank angle.</p>	

<b>Initial parameters</b>	HOLD_FLAPS_APP_GEAR
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 3000 Vertical speed (ft/min) : 0 IAS (kt) : 106 (free) Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : -1 Pedal Position (%) : 0 Column Position (%) : 32 Wheel Position (%) : 0	Flaps lever position : 1 Gear lever position : 1 Left Load (%) : 70 Right Load (%) : 70 Left RPM : 2060 Right RPM : 2060

Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
0.0	deconnectionPA_roll	0.0	disable QTG Autopilot in roll axis
1.0	SetRudderCmdPalier	-70.0	Send a step in the rudder govern
1.0	SetAttCmdPalier	0.0	Send a step in the attitude govern
1.0	SetRollCmdPalier	0.0	Send a step in the roll govern
2.0	SetRudderCmdPalier	70.0	Send a step in the rudder govern
3.0	SetRudderCmdPalier	0.0	Send a step in the rudder govern
15.0	Stop_Test	0.0	Stop the test procedure

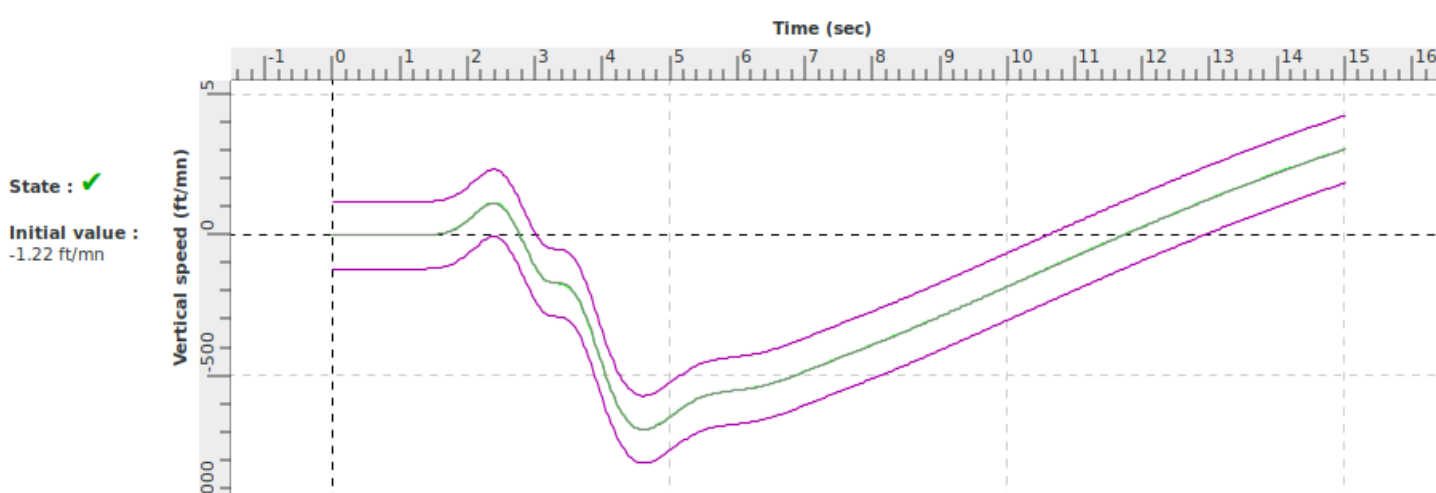
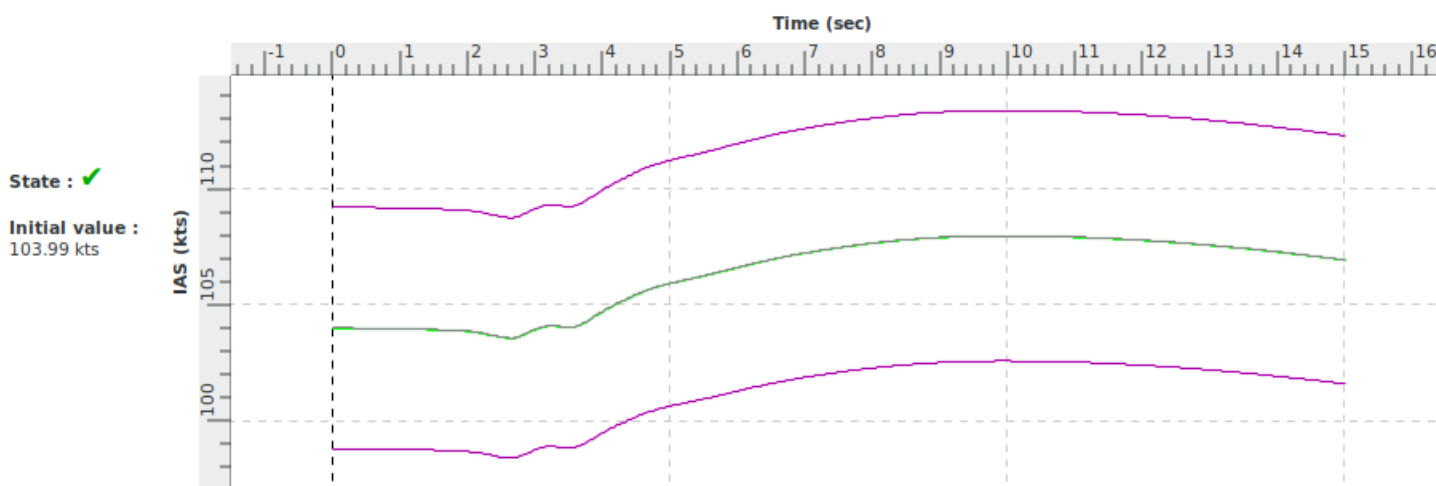
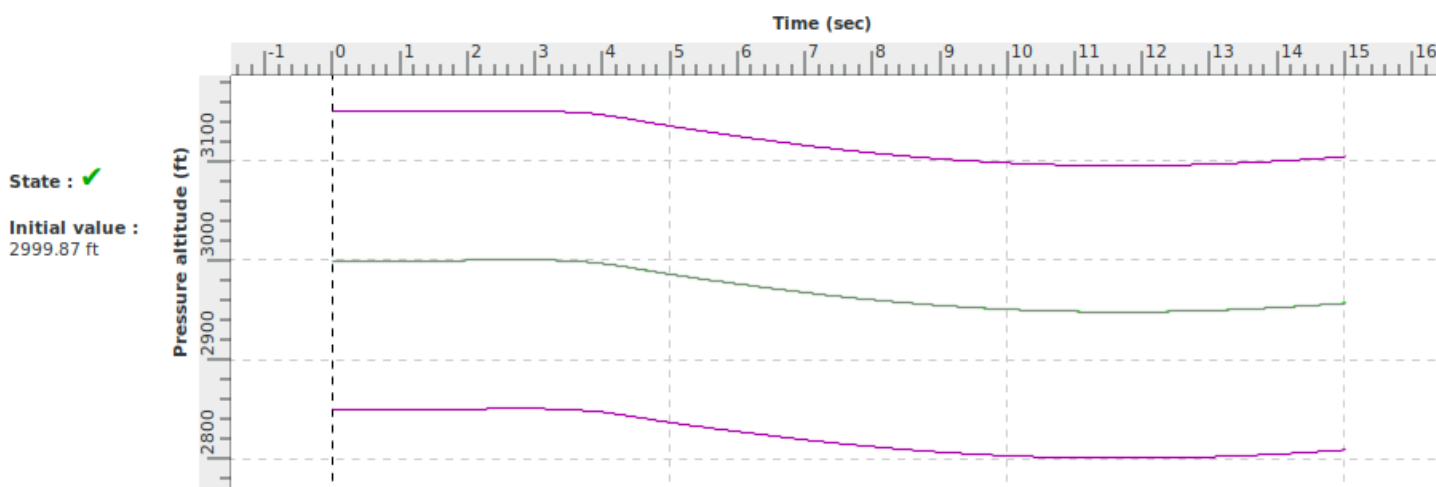
<b>Title</b>	Dutch roll (yaw damper off) during approach		
<b>Id</b>	2 d vii b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.02
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	27/07/21
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

Log of Revision		
Rev. Nbr	Date	Reason for revision
1.01	29/03/21	1909 Master. No impact on the expected results
1.02	27/07/21	2012-R1 Master. Expected results unchanged.

Notes



Title	Dutch roll (yaw damper off) during approach		
Id	2 d vii b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	22/08/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



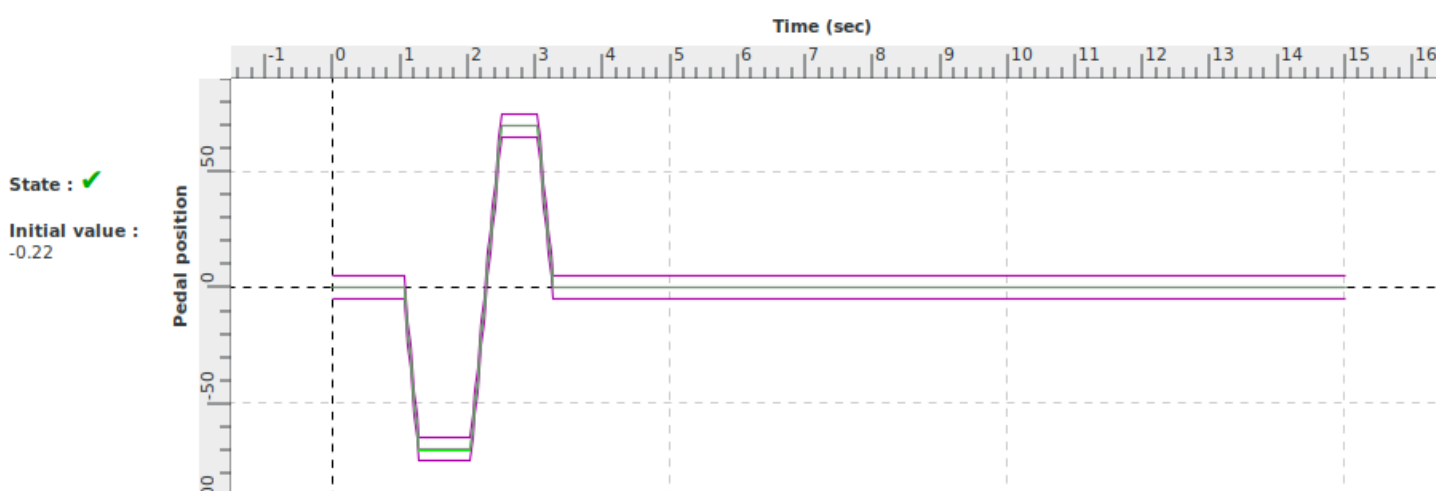
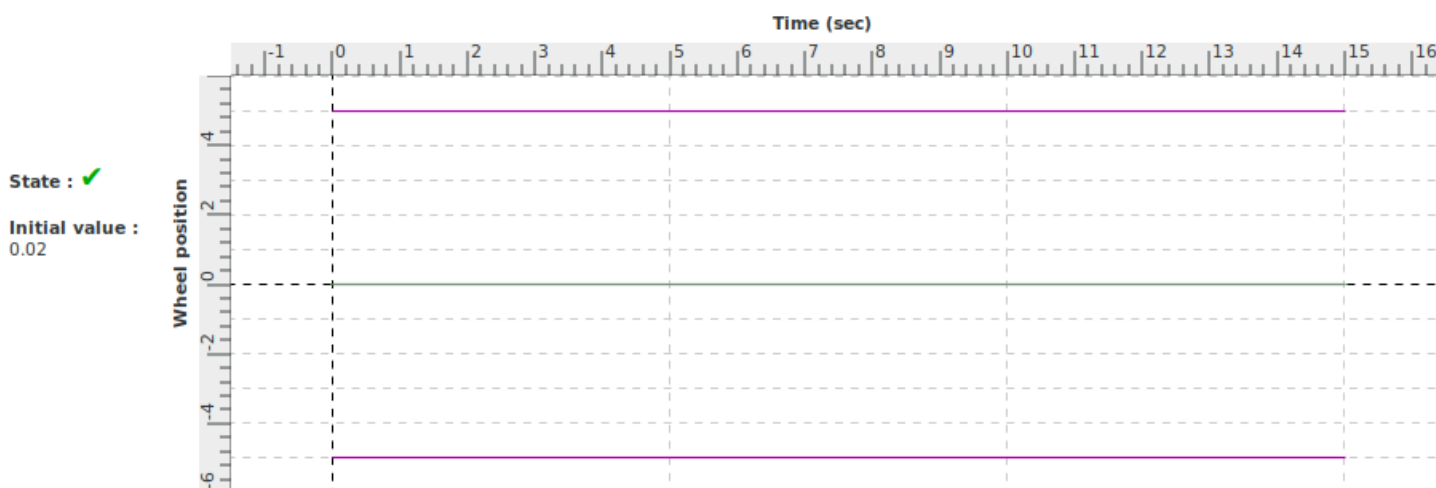
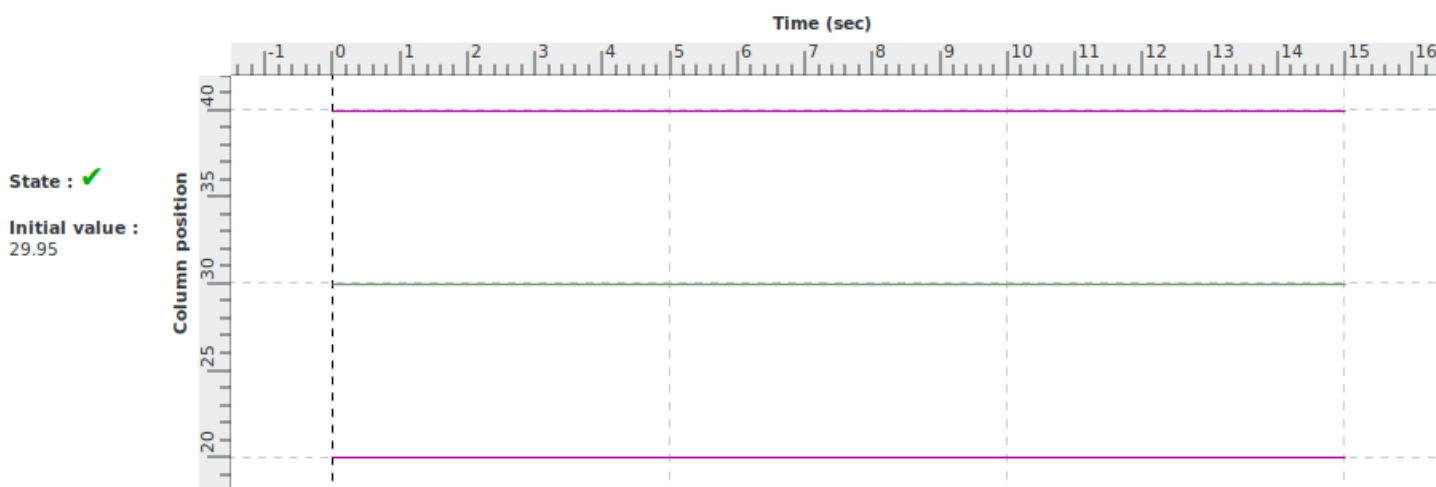
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Dutch roll (yaw damper off) during approach		
Id	2 d vii b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	22/08/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



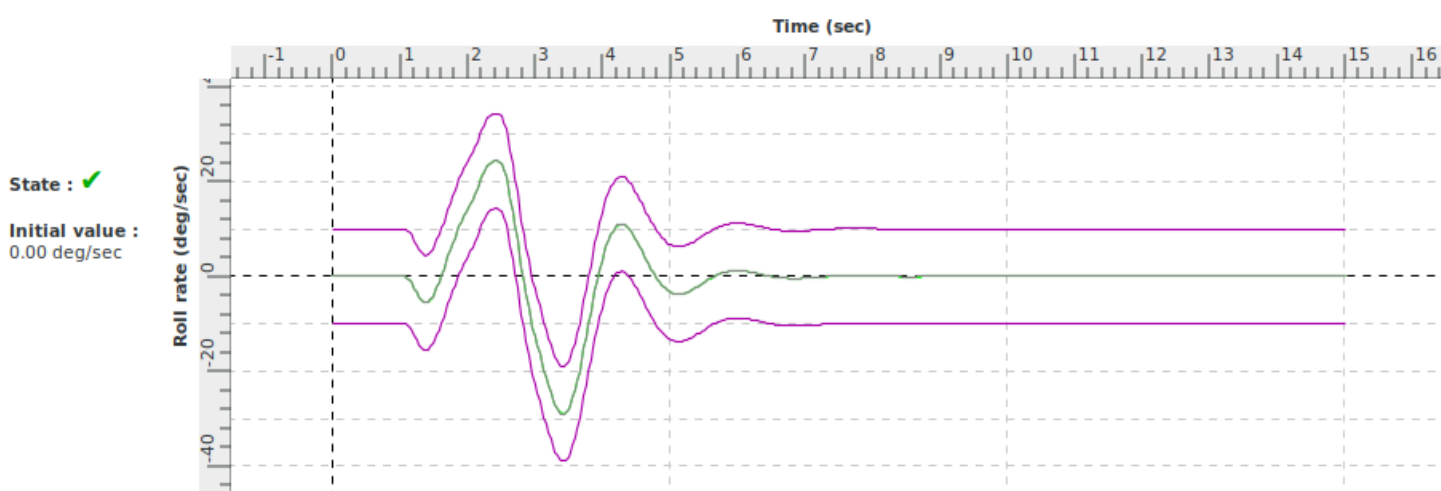
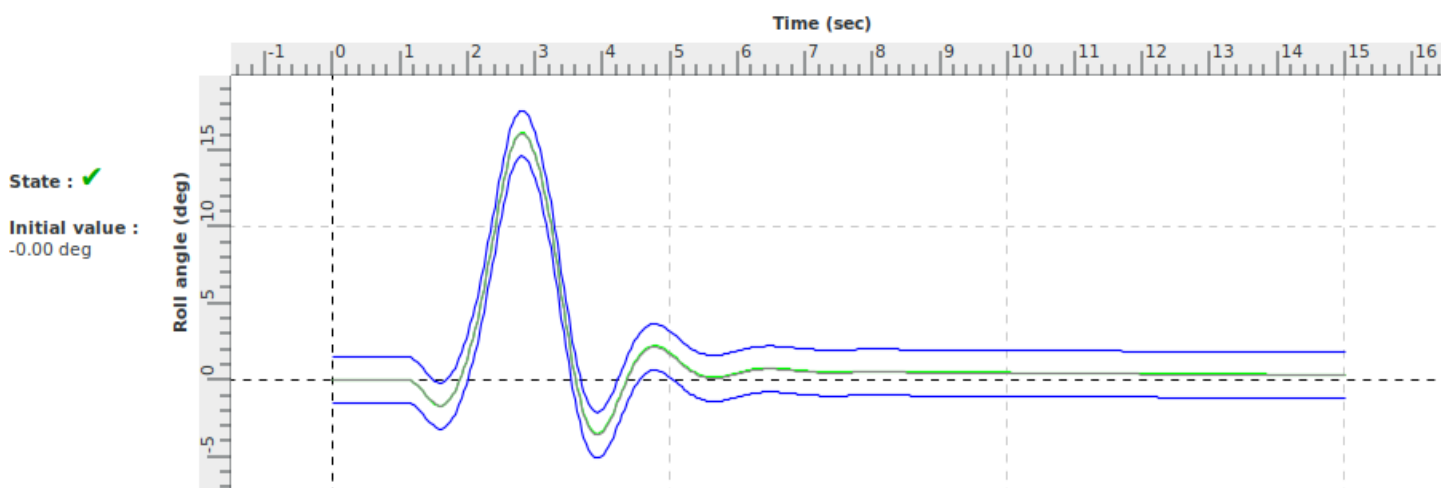
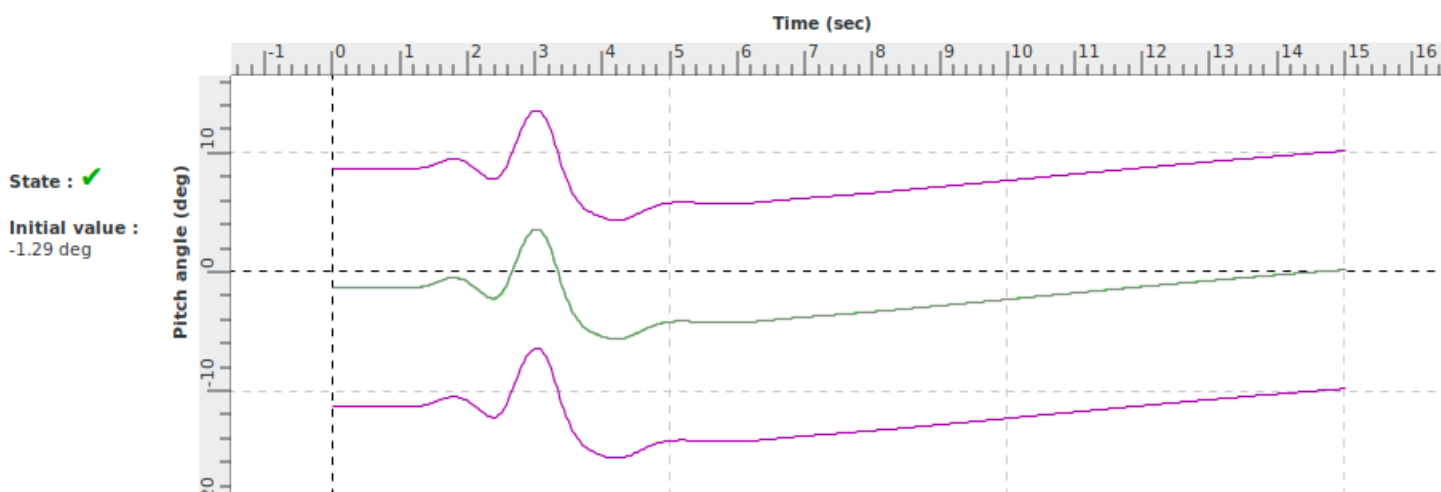
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Dutch roll (yaw damper off) during approach		
Id	2 d vii b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	22/08/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



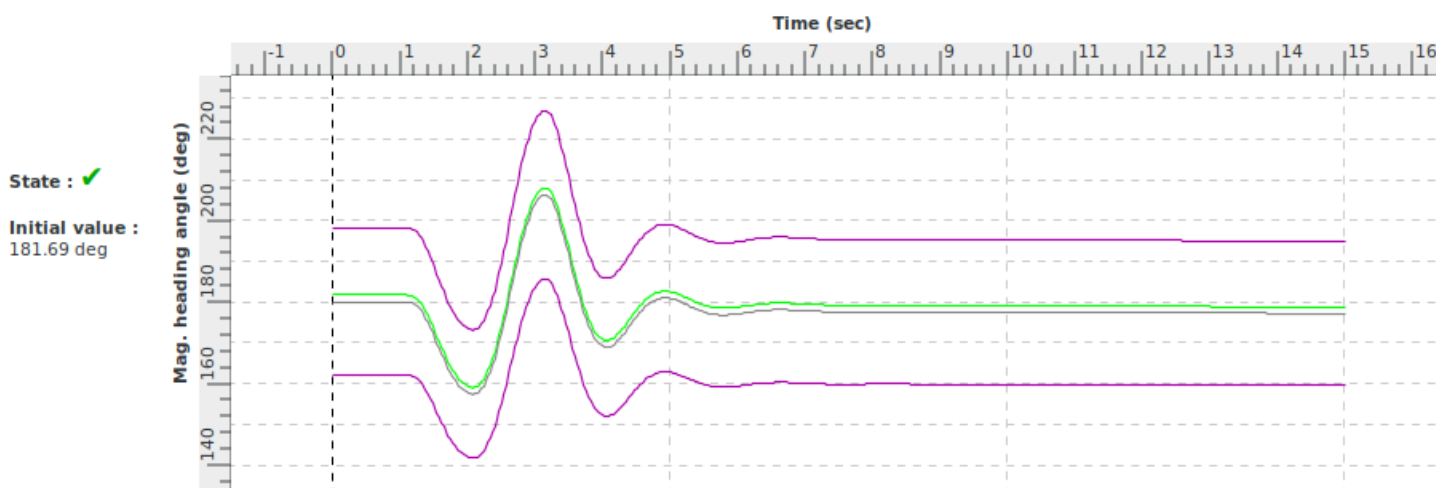
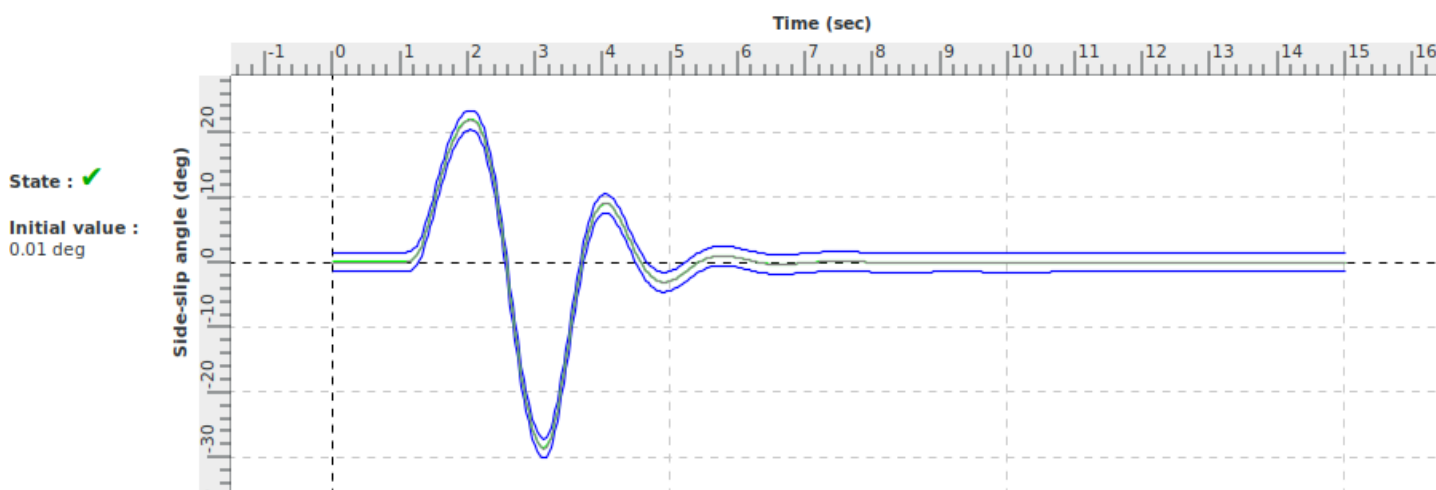
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Dutch roll (yaw damper off) during approach		
Id	2 d vii b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.02
Result Date	22/08/23	Master Date	27/07/21
Result Load	2012.01	Master Load	2012.01



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

# VALIDATION TEST

<b>Title</b>	Steady state sideslip during approach - Left		
<b>Id</b>	2 d viii a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.03
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	19/04/22
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the the simulator exhibits the correct inter-relationship of steady state lateral/directional flight characteristics in conformance with the class of aeroplanes	Rudder / Bank / Sideslip / Wheel position -20% / -1.5 deg / 3.1 deg / 8.5% -100% / -10.2 deg / 25 deg / 68%
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.d.viii.a	+/- 2 deg bank +/- 1 deg sideslip +/- 5 deg or +/- 10% wheel position

<b>Demonstration procedure</b>	From steady approach initial conditions, the control rudder is used to established a steady state sideslip on the left, for two different rudder displacements.
<b>Manual test procedure</b>	In ISA conditions and approach configuration, the pilot performs standard approach profile. When approach is stabilised, the pilot moves the rudder by 20% then 60% of its travel in one side whilst the roll control is moved to stabilize a new heading.
<b>Automatic test procedure</b>	2 d viii a

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

Title	Steady state sideslip during approach - Left		
<b>Id</b>	2 d viii a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.03
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	19/04/22
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Autopilot mode</b>	AUTO_HEADING
Automatic AUTO_HEADING mode : Heading is maintained constant through roll and yaw trim and Vertical Speed through pitch trim.	

<b>Initial parameters</b>	HOLD_FLAPS_APP_GEAR
Gross weight (kg) : 1900	Flaps lever position : 1
Balance (%) : 50	Gear lever position : 1
Altitude (ft) : 3000	Left Load (%) : 70
Vertical speed (ft/min) : 0	Right Load (%) : 70
IAS (kt) : 106 (free)	Left RPM : 2060
Heading (°) : 0	Right RPM : 2060
Bank (°) : 0 (free)	
Attitude (°) : -1	
Pedal Position (%) : 0	
Column Position (%) : 32	
Wheel Position (%) : 0	

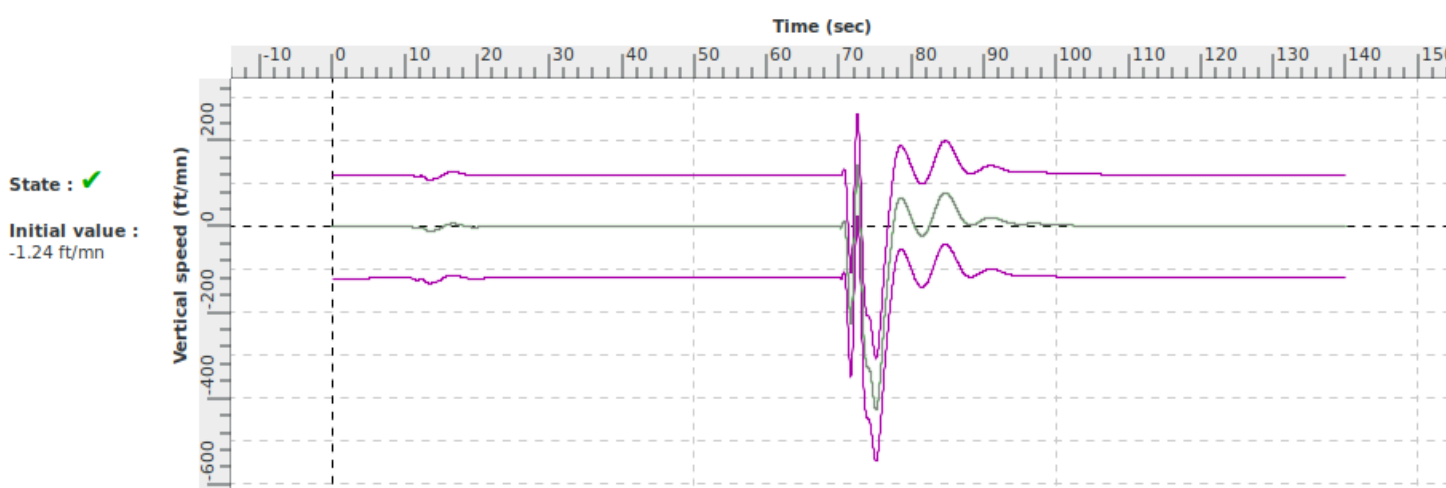
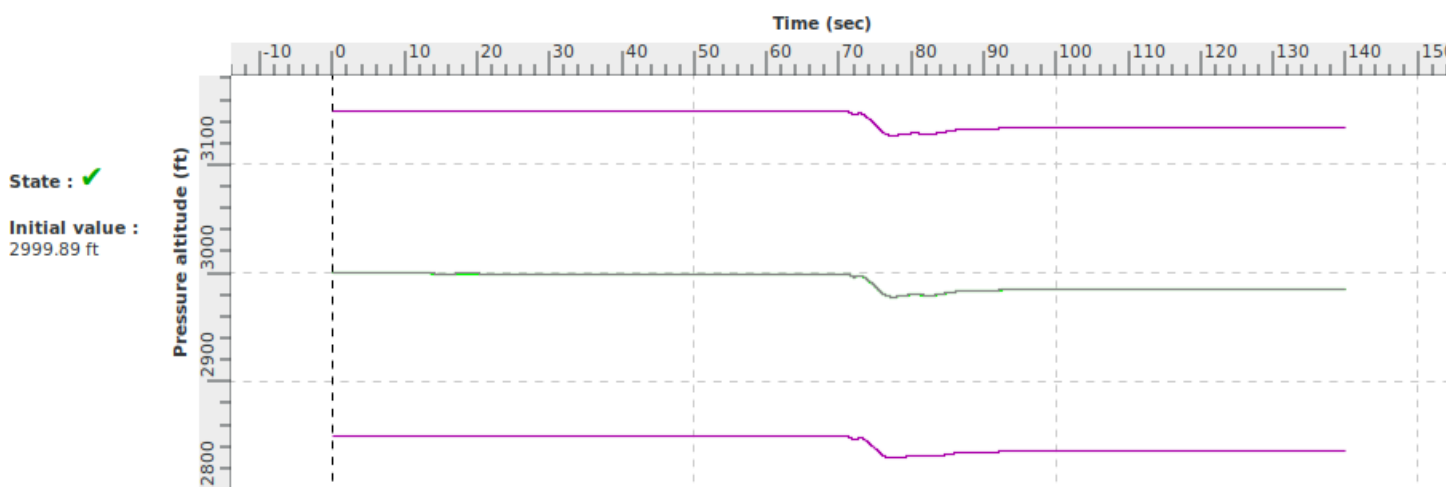
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
1.0	set_rudder_auto_heading	0.0	Ask it to maintain the desired rudder angle
10.0	set_rudder_auto_heading	-20.0	Ask it to maintain the desired rudder angle
70.0	set_rudder_auto_heading	-100.0	Ask it to maintain the desired rudder angle
140.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Steady state sideslip during approach - Left		
<b>Id</b>	2 d viii a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.03
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	19/04/22
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

Log of Revision		
Rev. Nbr	Date	Reason for revision
1.01	29/03/21	1909 Master. New expected results and new command.
1.02	27/07/21	2012-R1 Master. New expected results.
1.03	19/04/22	2012-R1 master correction on Force

Notes

Title	Steady state sideslip during approach - Left		
Id	2 d viii a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.03
Result Date	03/12/23	Master Date	19/04/22
Result Load	2012.01	Master Load	2012.01



### Legend :

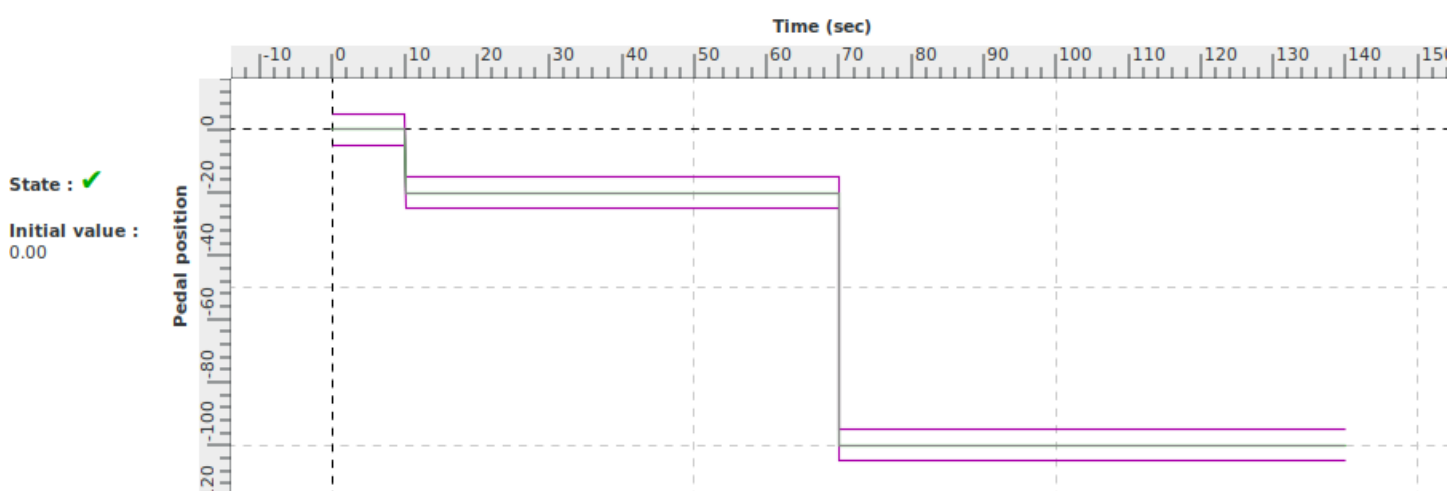
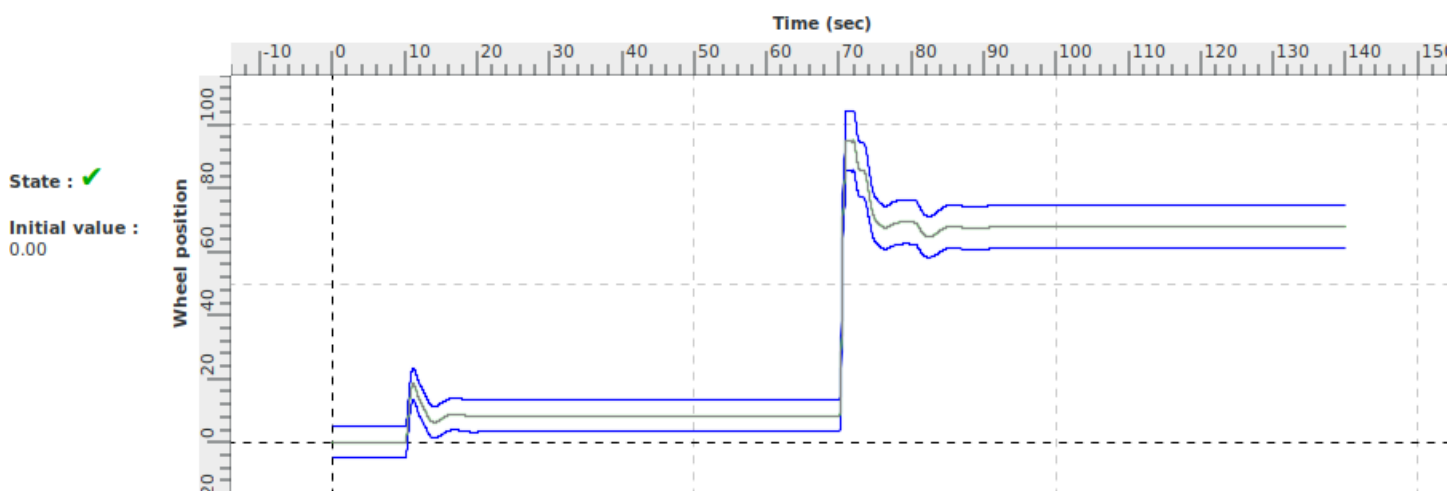
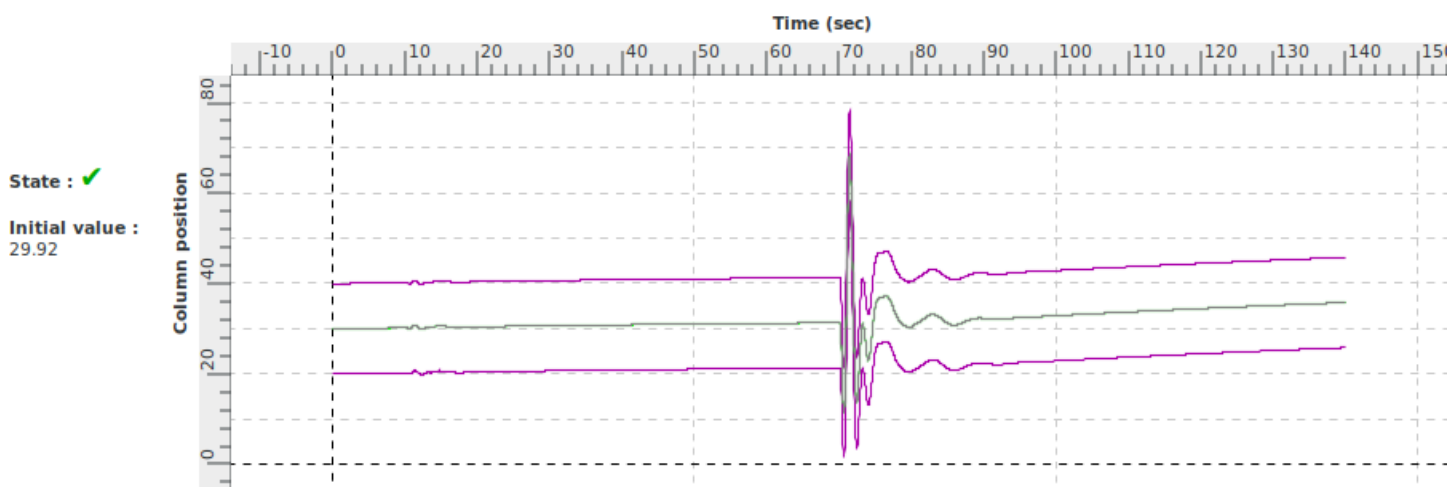
green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master



Title	Steady state sideslip during approach - Left		
Id	2 d viii a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.03
Result Date	03/12/23	Master Date	19/04/22
Result Load	2012.01	Master Load	2012.01



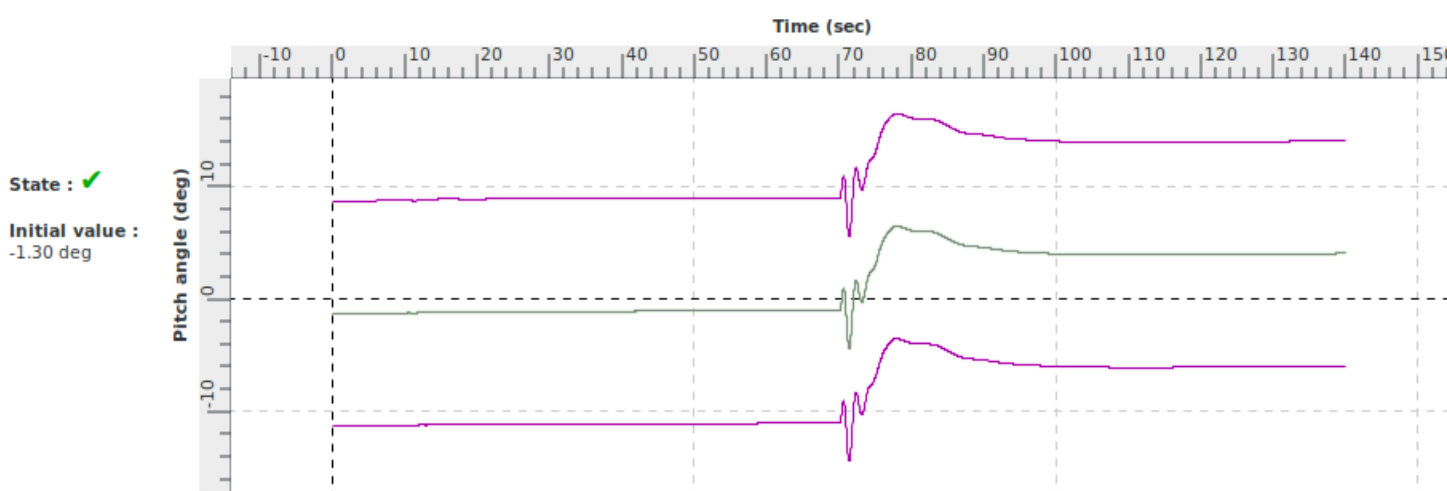
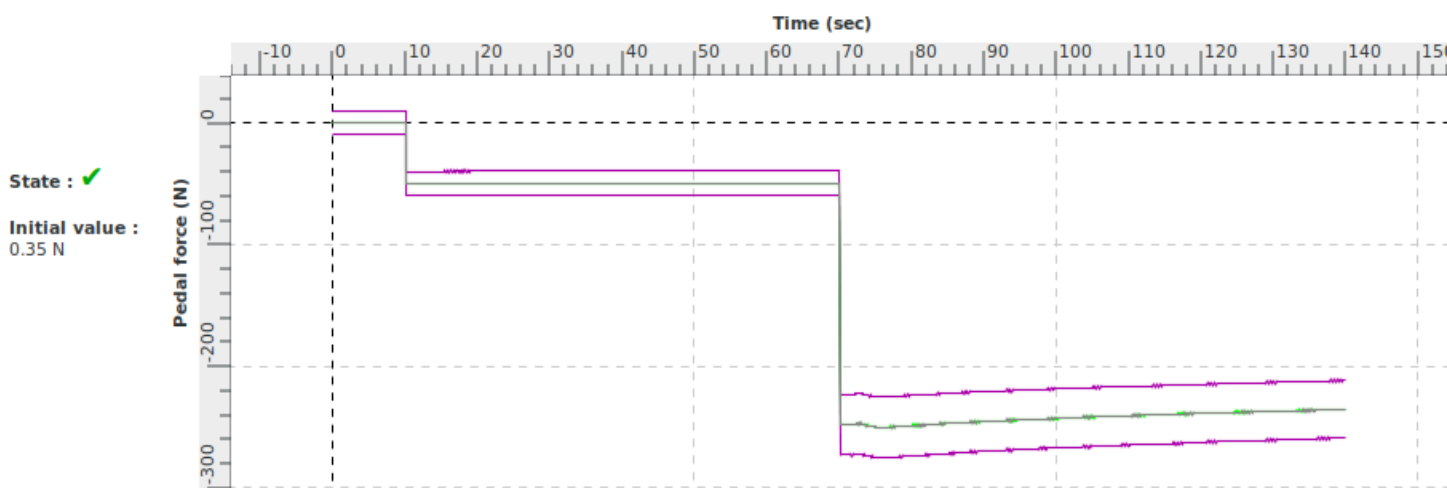
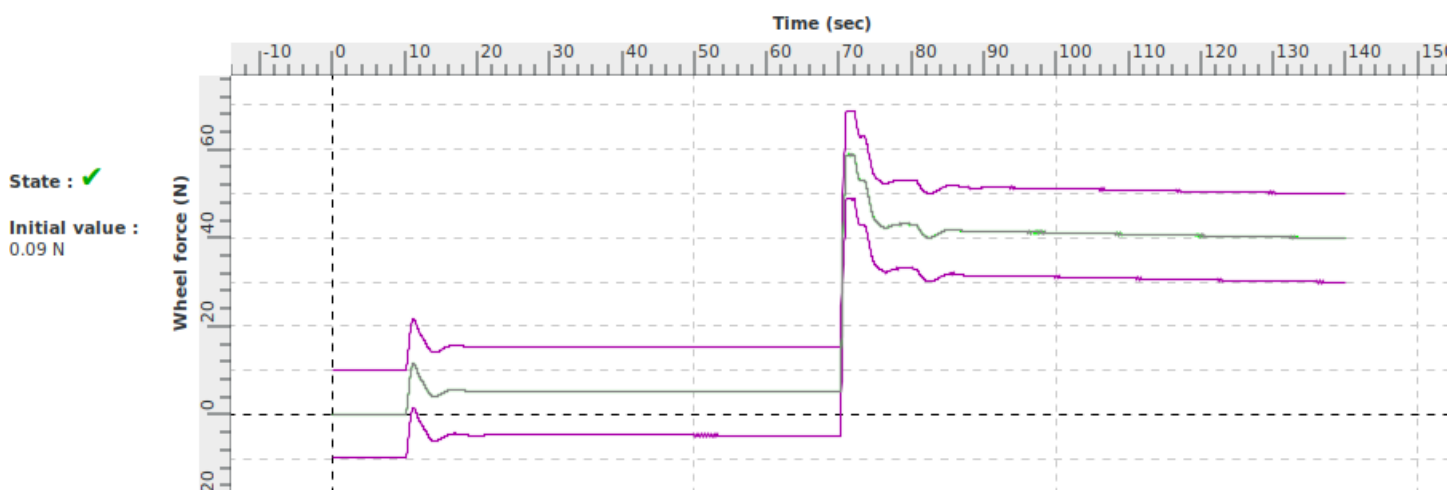
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Steady state sideslip during approach - Left		
Id	2 d viii a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.03
Result Date	03/12/23	Master Date	19/04/22
Result Load	2012.01	Master Load	2012.01



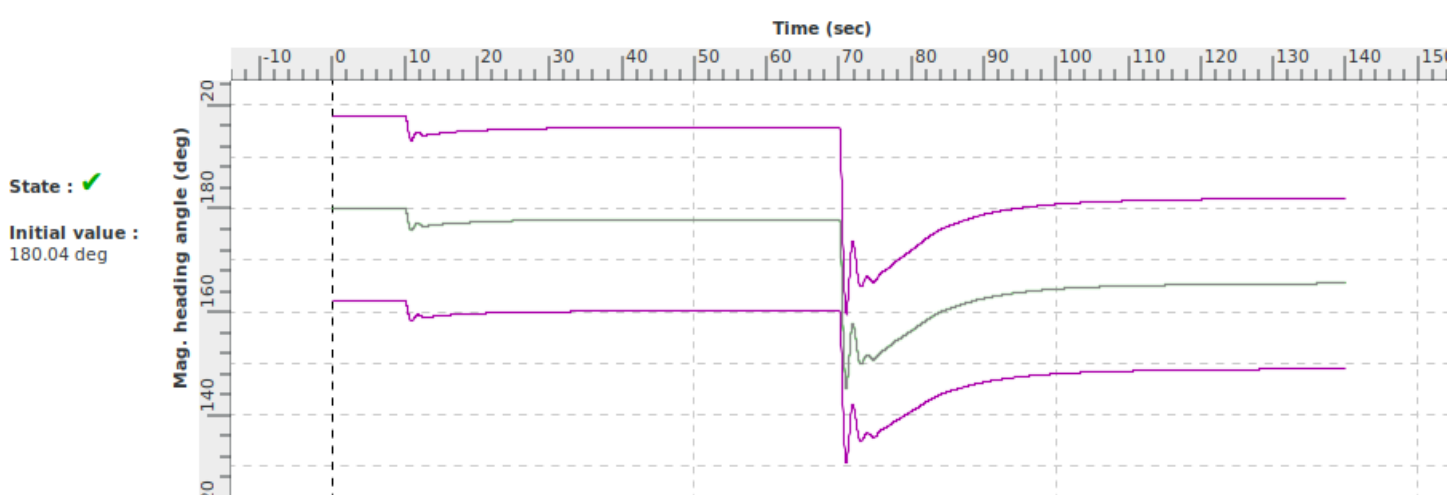
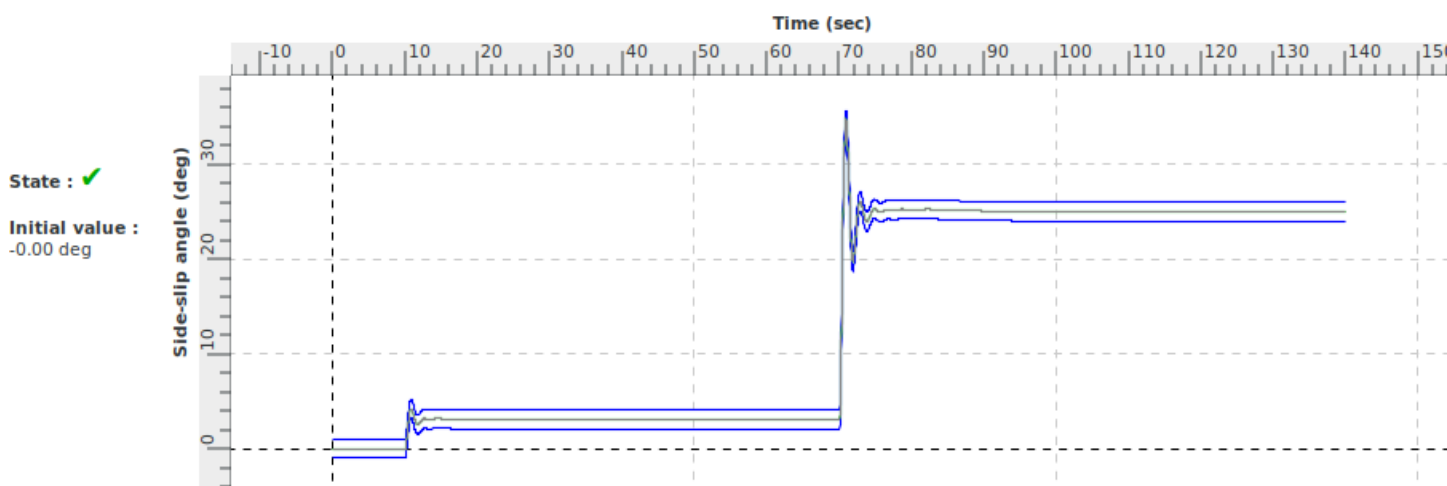
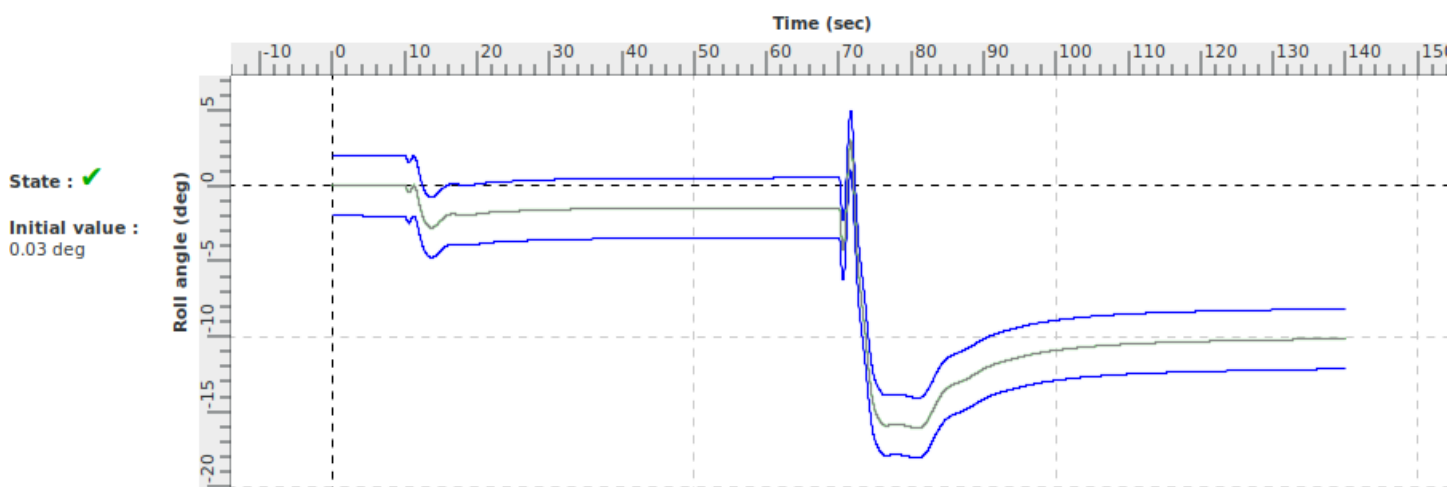
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Steady state sideslip during approach - Left		
Id	2 d viii a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.03
Result Date	03/12/23	Master Date	19/04/22
Result Load	2012.01	Master Load	2012.01



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

# VALIDATION TEST

<b>Title</b>	Steady state sideslip during approach - Right		
<b>Id</b>	2 d viii b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.03
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	04/02/24	<b>Master Date</b>	19/04/22
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the the simulator exhibits the correct inter-relationship of steady state lateral/directional flight characteristics in conformance with the class of aeroplanes	Rudder / Bank / Sideslip / Wheel position 20% / 1.5 deg / -3.1 deg / -8.5% 100% / 10.2 deg / -25 deg / -68%
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Handling Qualities - Test 2.d.viii.b	+/- 2 deg bank +/- 1 deg sideslip +/- 5 deg or +/- 10% wheel position

<b>Demonstration procedure</b>	From steady approach initial conditions, the control rudder is used to established a steady state sideslip on the right, for two different rudder displacements.
<b>Manual test procedure</b>	In ISA conditions and approach configuration, the pilot performs standard approach profile. When approach is stabilised, the pilot moves the rudder by 20% then 60% of its travel in one side whilst the roll control is moved to stabilize a new heading.
<b>Automatic test procedure</b>	2 d viii b

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

Title	Steady state sideslip during approach - Right		
Id	2 d viii b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.03
Qualification Level	FNPT2	Operator	AFTA
Result Date	04/02/24	Master Date	19/04/22
Result Load	2012.01	Master Load	2012.01

Autopilot mode	AUTO_HEADING
Automatic AUTO_HEADING mode : Heading is maintained constant through roll and yaw trim and Vertical Speed through pitch trim.	

Initial parameters	HOLD_FLAPS_APP_GEAR
Gross weight (kg) : 1900	Flaps lever position : 1
Balance (%) : 50	Gear lever position : 1
Altitude (ft) : 3000	Left Load (%) : 70
Vertical speed (ft/min) : 0	Right Load (%) : 70
IAS (kt) : 106 (free)	Left RPM : 2060
Heading (°) : 0	Right RPM : 2060
Bank (°) : 0 (free)	
Attitude (°) : -1	
Pedal Position (%) : 0	
Column Position (%) : 32	
Wheel Position (%) : 0	

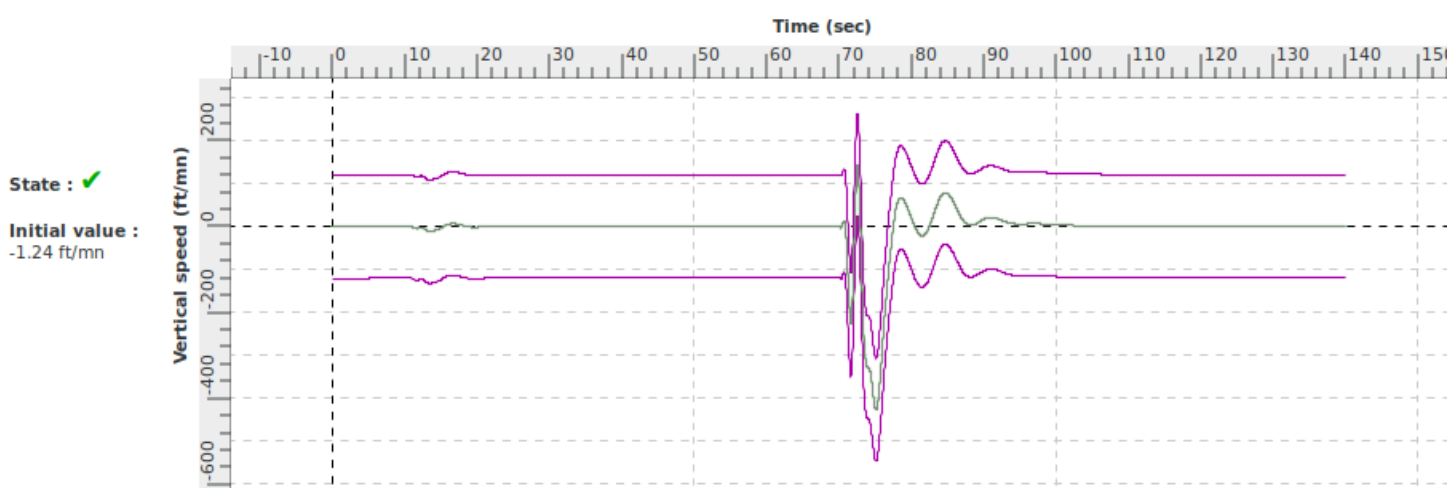
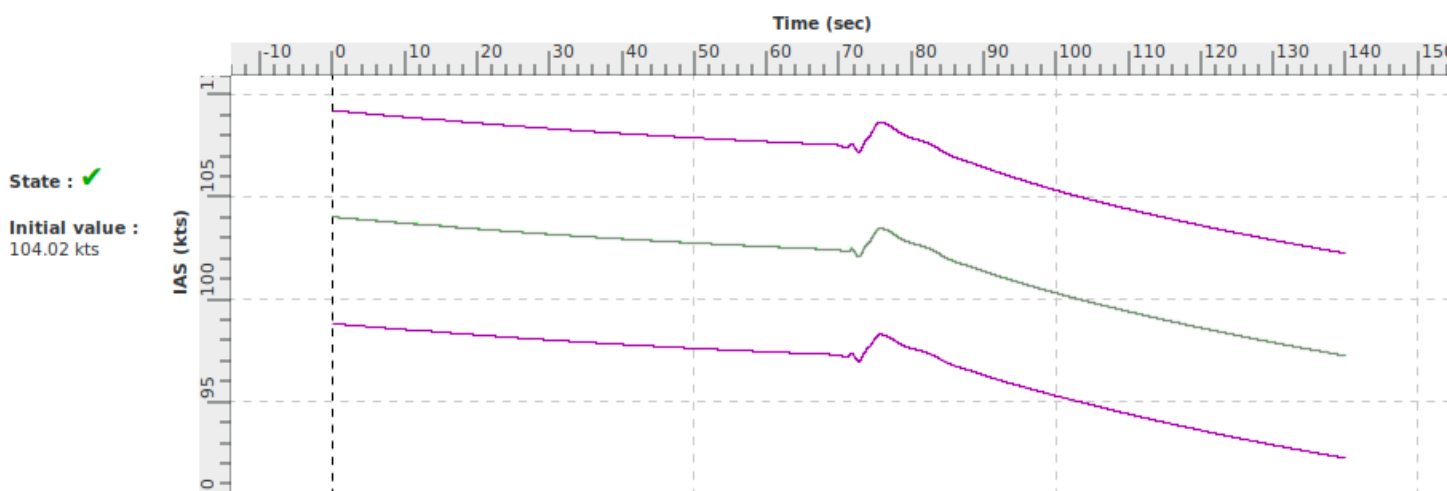
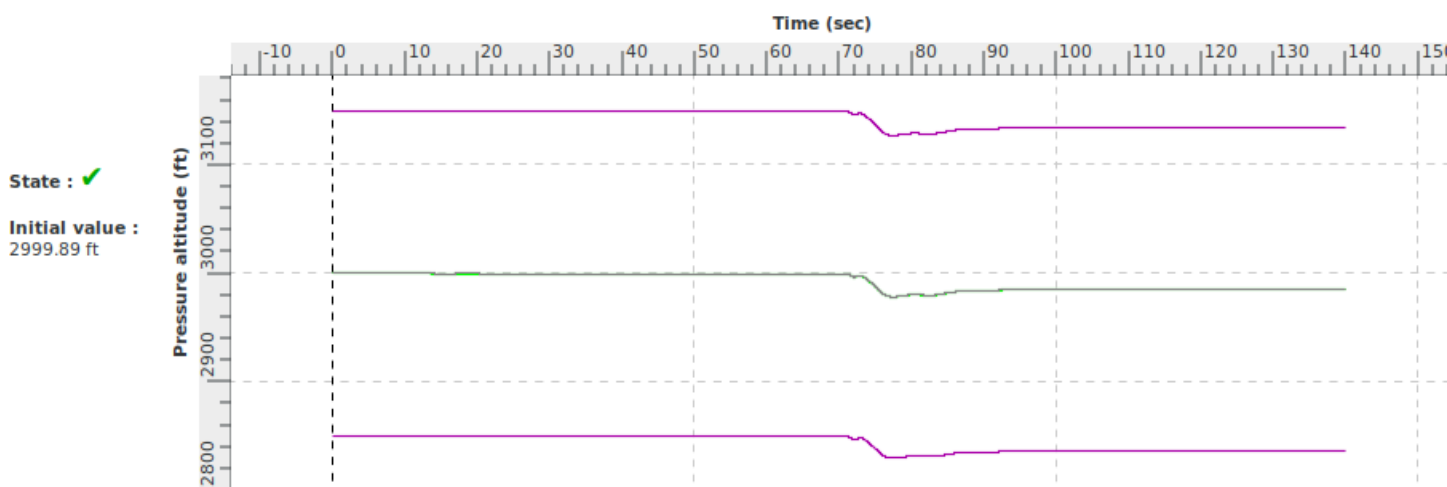
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
1.0	set_rudder_auto_heading	0.0	Ask it to maintain the desired rudder angle
10.0	set_rudder_auto_heading	20.0	Ask it to maintain the desired rudder angle
70.0	set_rudder_auto_heading	100.0	Ask it to maintain the desired rudder angle
140.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Steady state sideslip during approach - Right		
<b>Id</b>	2 d viii b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.03
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	04/02/24	<b>Master Date</b>	19/04/22
<b>Result Load</b>	2012.01	<b>Master Load</b>	2012.01

Log of Revision		
Rev. Nbr	Date	Reason for revision
1.01	29/03/21	1909 Master. New expected results and new command.
1.02	27/07/21	2012-R1 Master. New expected results.
1.03	19/04/22	2012-R1 master correction on Force

Notes

Title	Steady state sideslip during approach - Right		
Id	2 d viii b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.03
Result Date	04/02/24	Master Date	19/04/22
Result Load	2012.01	Master Load	2012.01



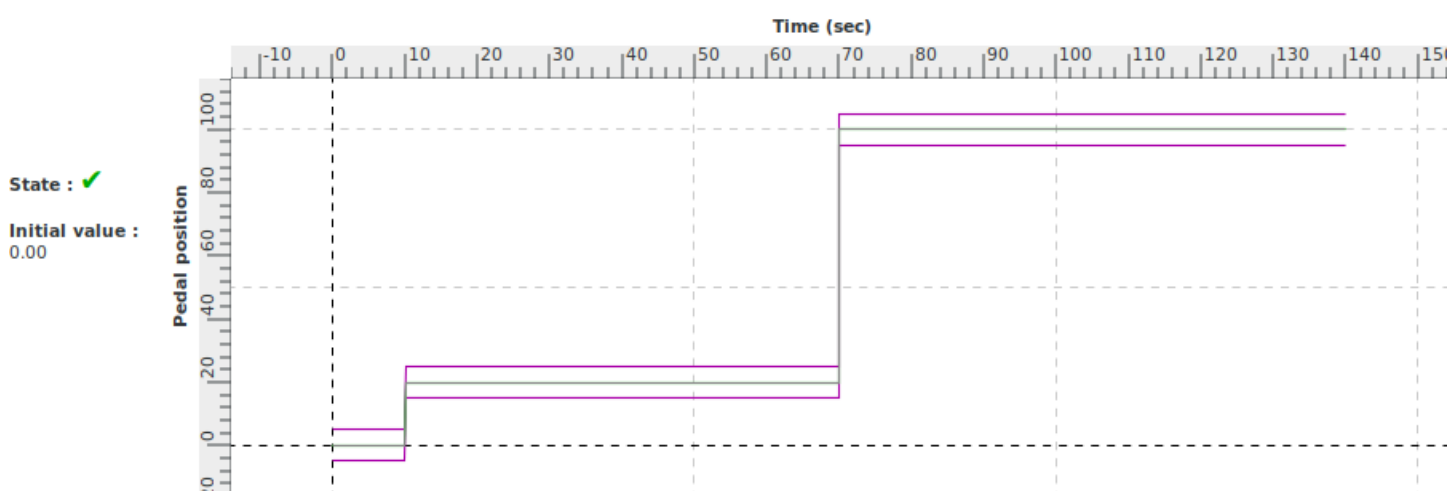
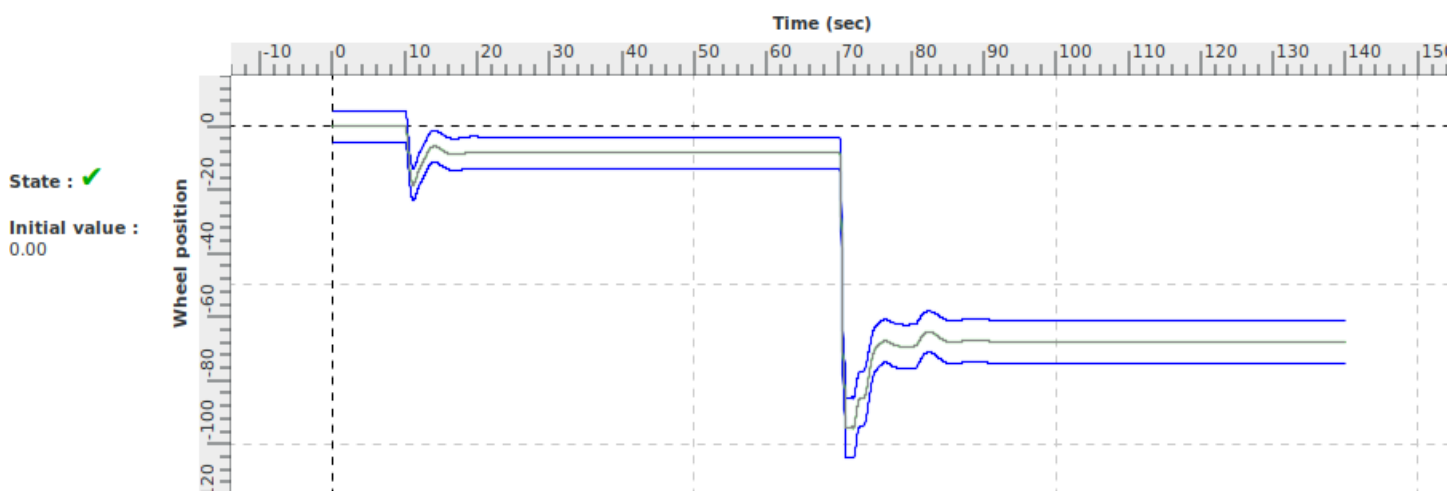
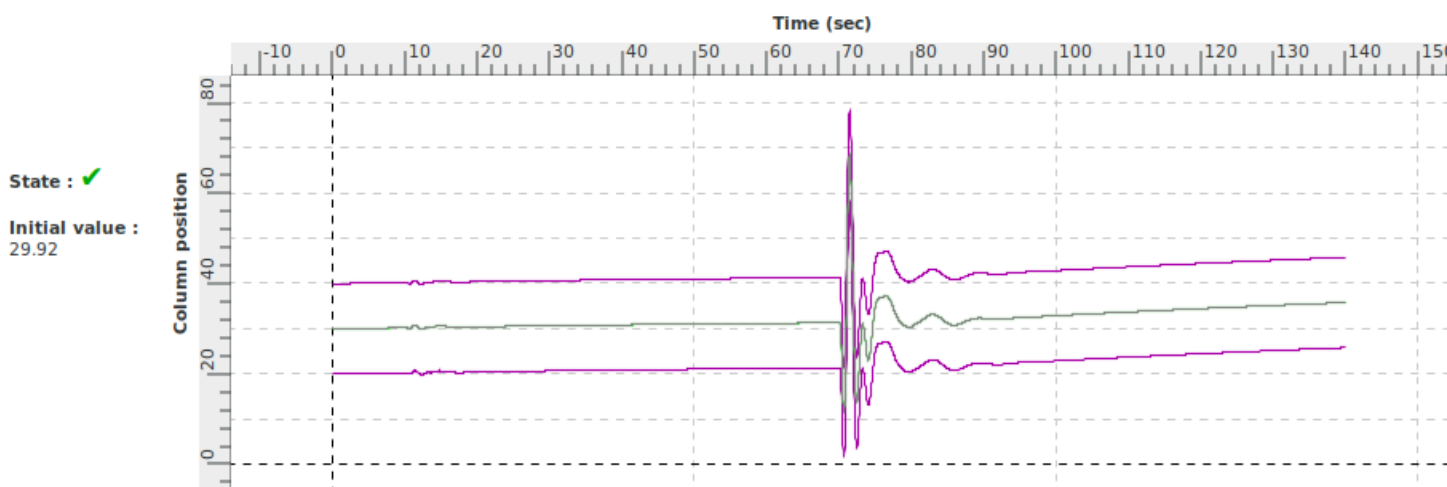
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Steady state sideslip during approach - Right		
Id	2 d viii b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.03
Result Date	04/02/24	Master Date	19/04/22
Result Load	2012.01	Master Load	2012.01



### Legend :

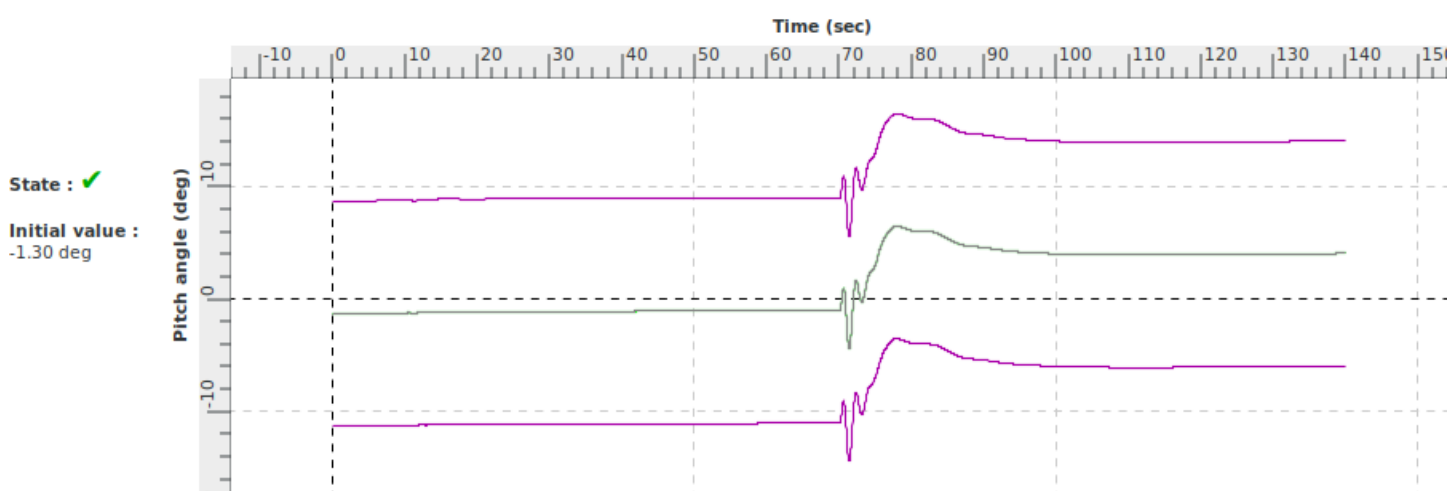
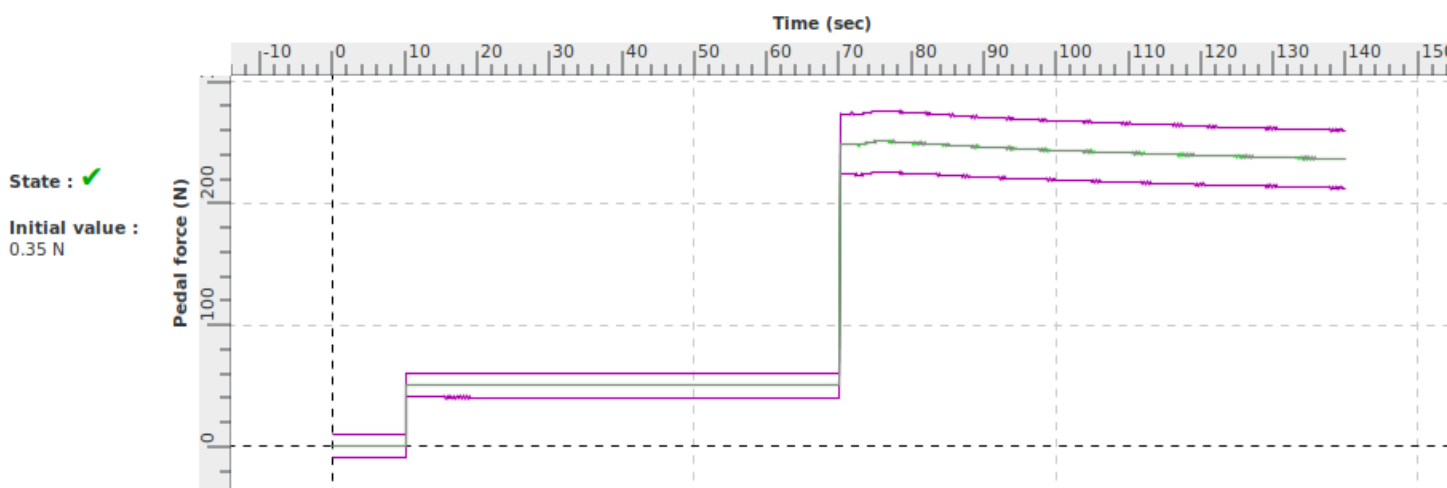
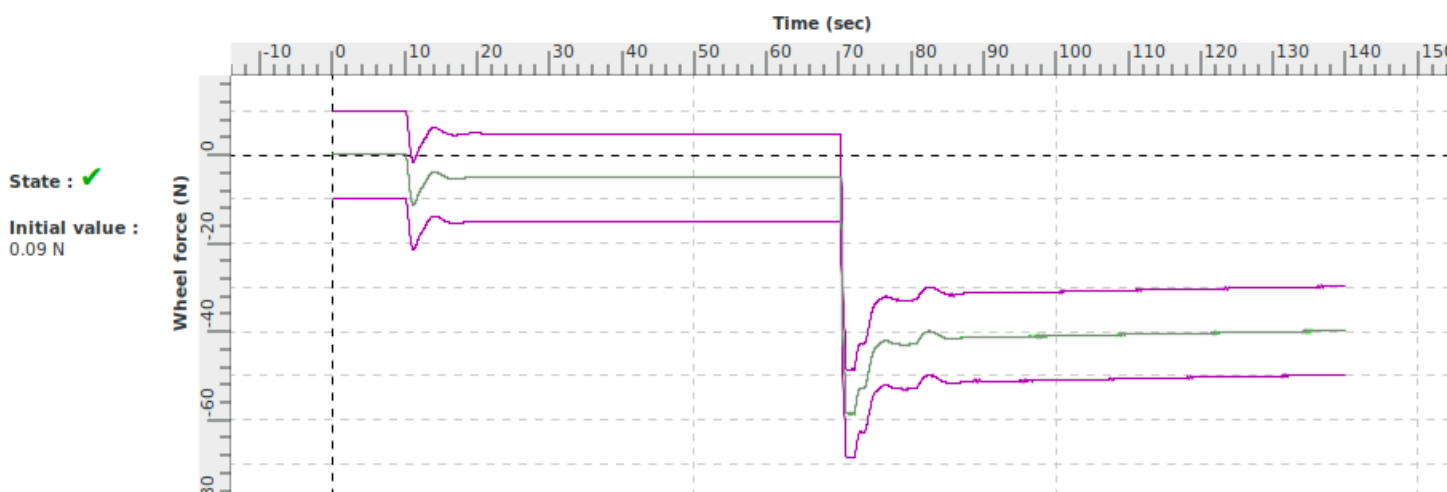
green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master



Title	Steady state sideslip during approach - Right		
Id	2 d viii b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.03
Result Date	04/02/24	Master Date	19/04/22
Result Load	2012.01	Master Load	2012.01



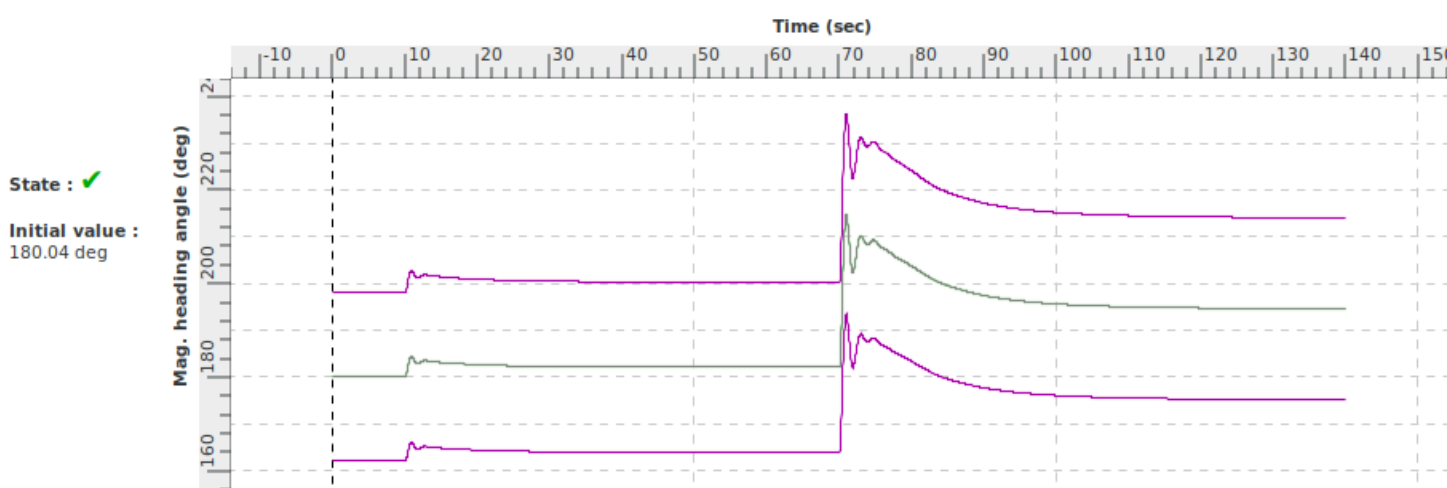
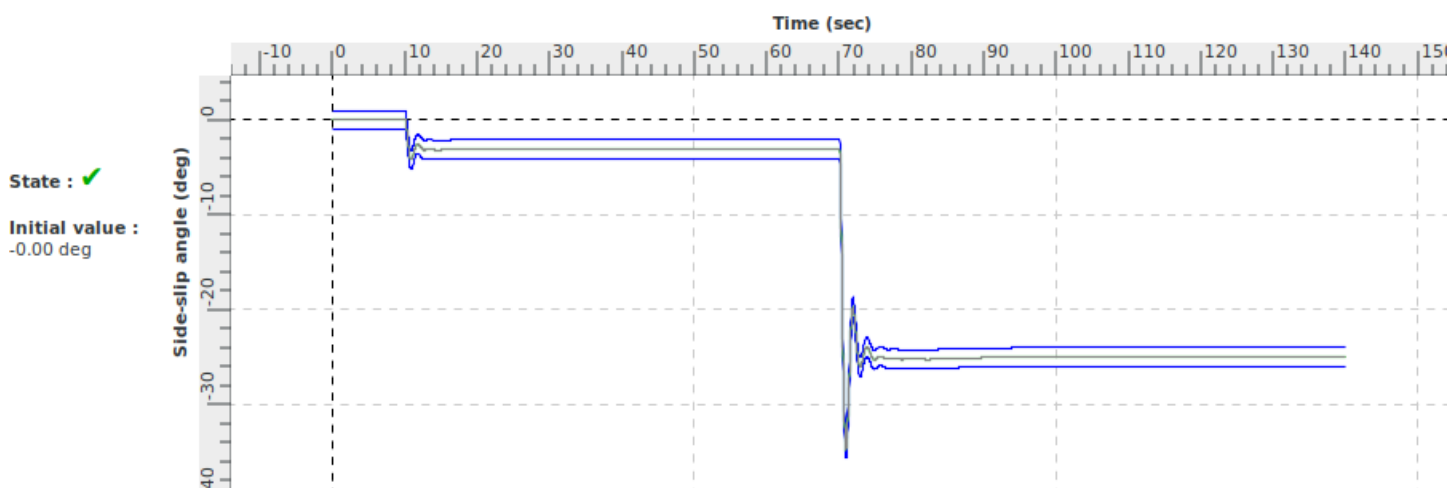
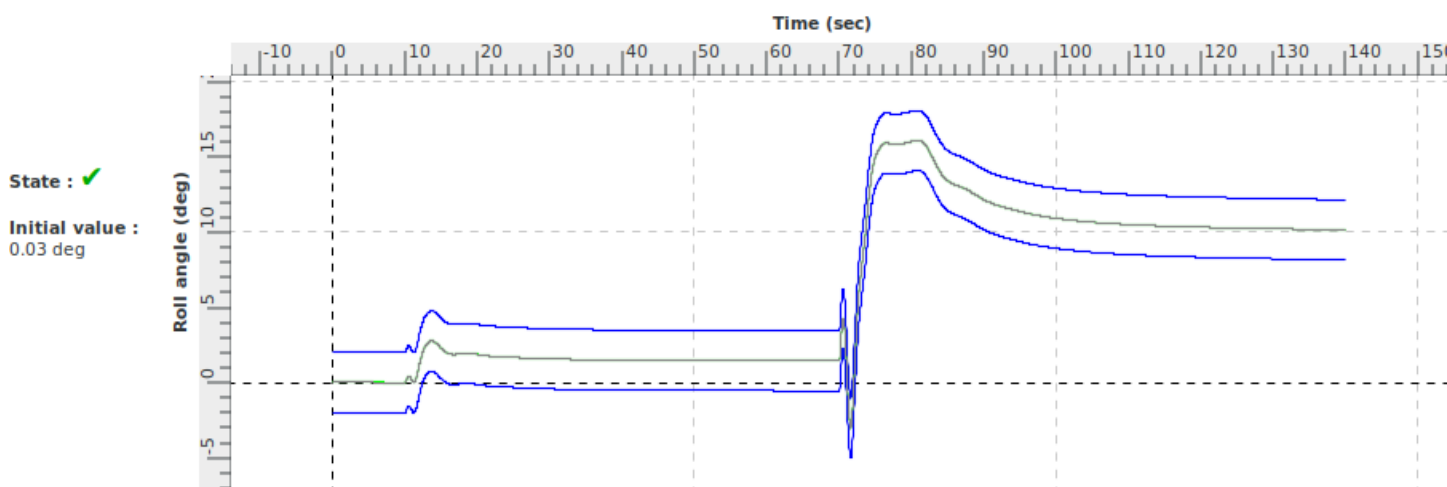
### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

Title	Steady state sideslip during approach - Right		
Id	2 d viii b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.03
Result Date	04/02/24	Master Date	19/04/22
Result Load	2012.01	Master Load	2012.01



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

# VALIDATION TEST

<b>Title</b>	Transport delay on pitch axis		
<b>Id</b>	4 a i a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the cue correlation and responses of visual and instrument drives are sufficient to be representative of the cues perceived in the class of aeroplanes	Transport delay time : less than 300 ms
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Visual System Tests - Test 4.a.i.a	less than 300 ms

<b>Demonstration procedure</b>	The pitch trim is moved to force the control loading system to move the pitch control. The column position is plotted versus time while the instruments and visual system response are also plotted versus time
<b>Manual test procedure</b>	The pilot moves rapidly the pitch control of about 20% on one side.
<b>Automatic test procedure</b>	4 a i a

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

<b>Title</b>	Transport delay on pitch axis		
<b>Id</b>	4 a i a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Autopilot mode</b>	AUTO_SPEED
<p>Automatic Vertical Speed and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and VS. Roll Trim is computed to maintain 0° bank angle.</p>	

<b>Initial parameters</b>	CRUISE
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 6000 Vertical speed (ft/min) : 0 IAS (kt) : 139 (free) Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : 0 Pedal Position (%) : 0 Column Position (%) : 9 Wheel Position (%) : 0	Flaps lever position : 0 Gear lever position : 0 Left Load (%) : 70 Right Load (%) : 70 Left RPM : 2060 Right RPM : 2060

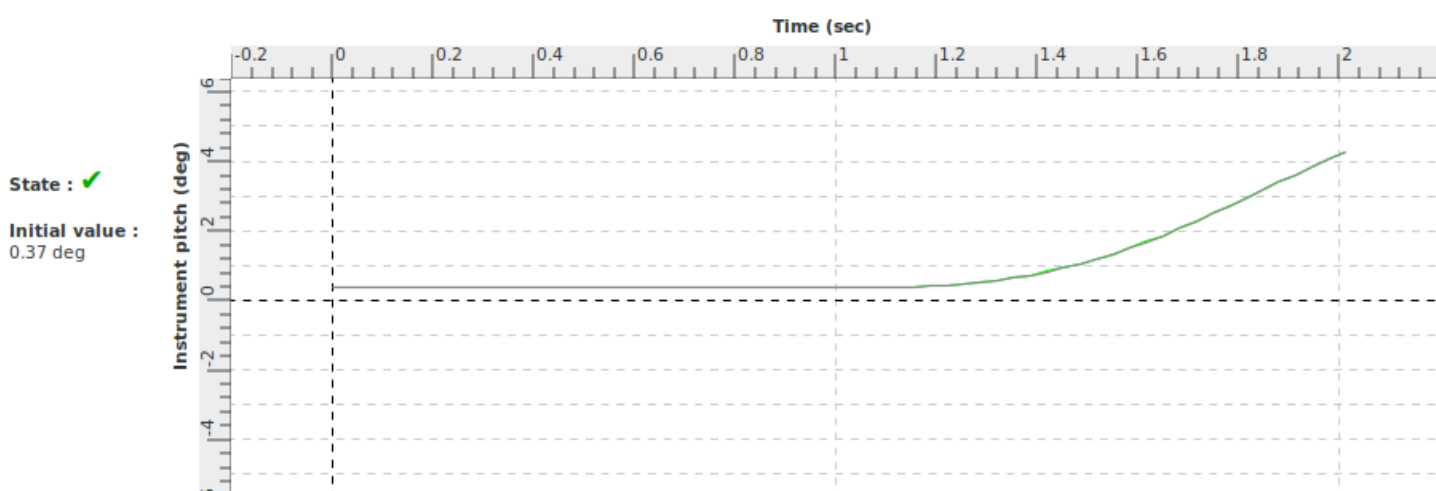
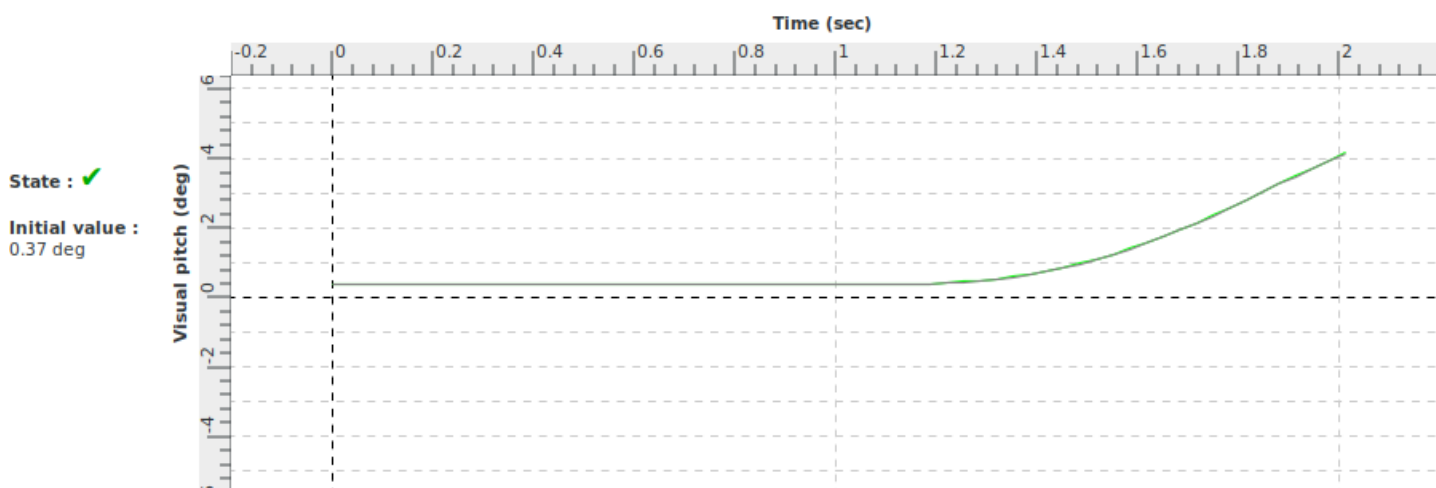
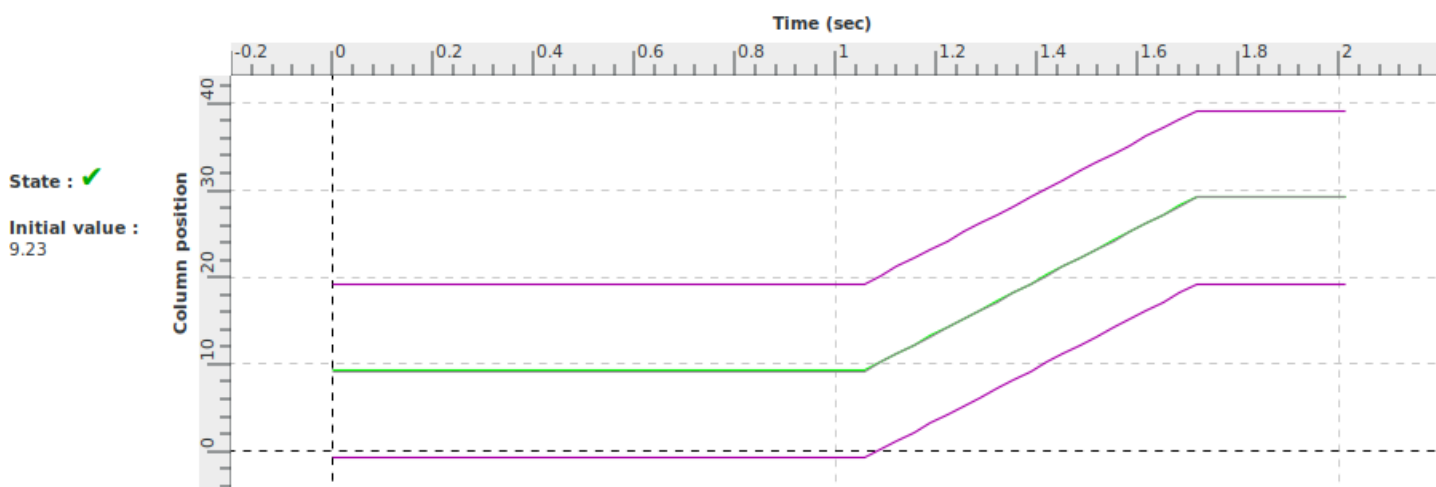
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
1.0	SetAttCmdPalier	20.0	Send a step in the attitude govern
2.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Transport delay on pitch axis		
<b>Id</b>	4 a i a	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	14/06/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

Log of Revision		
Rev. Nbr	Date	Reason for revision

Notes

Title	Transport delay on pitch axis		
Id	4 a i a	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	14/06/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsim

grey : master

# VALIDATION TEST

<b>Title</b>	Transport delay on roll axis		
<b>Id</b>	4 a i b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the cue correlation and responses of visual and instrument drives are sufficient to be representative of the cues perceived in the class of aeroplanes	Transport delay time : less than 300 ms
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Visual System Tests - Test 4.a.i.b	less than 300 ms

<b>Demonstration procedure</b>	The roll trim is moved to force the control loading system to move the wheel &&The wheel position is plotted versus time while the instruments and visual system response are also plotted versus time
<b>Manual test procedure</b>	The pilot moves rapidly the wheel control of about 20% on one side.
<b>Automatic test procedure</b>	4 a i b

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

<b>Title</b>	Transport delay on roll axis		
<b>Id</b>	4 a i b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Autopilot mode</b>	AUTO_SPEED
<p>Automatic Vertical Speed and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and VS. Roll Trim is computed to maintain 0° bank angle.</p>	

<b>Initial parameters</b>	CRUISE
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 6000 Vertical speed (ft/min) : 0 IAS (kt) : 139 (free) Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : 0 Pedal Position (%) : 0 Column Position (%) : 9 Wheel Position (%) : 0	Flaps lever position : 0 Gear lever position : 0 Left Load (%) : 70 Right Load (%) : 70 Left RPM : 2060 Right RPM : 2060

Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
1.0	SetRollCmdPalier	20.0	Send a step in the roll govern
2.0	Stop_Test	0.0	Stop the test procedure

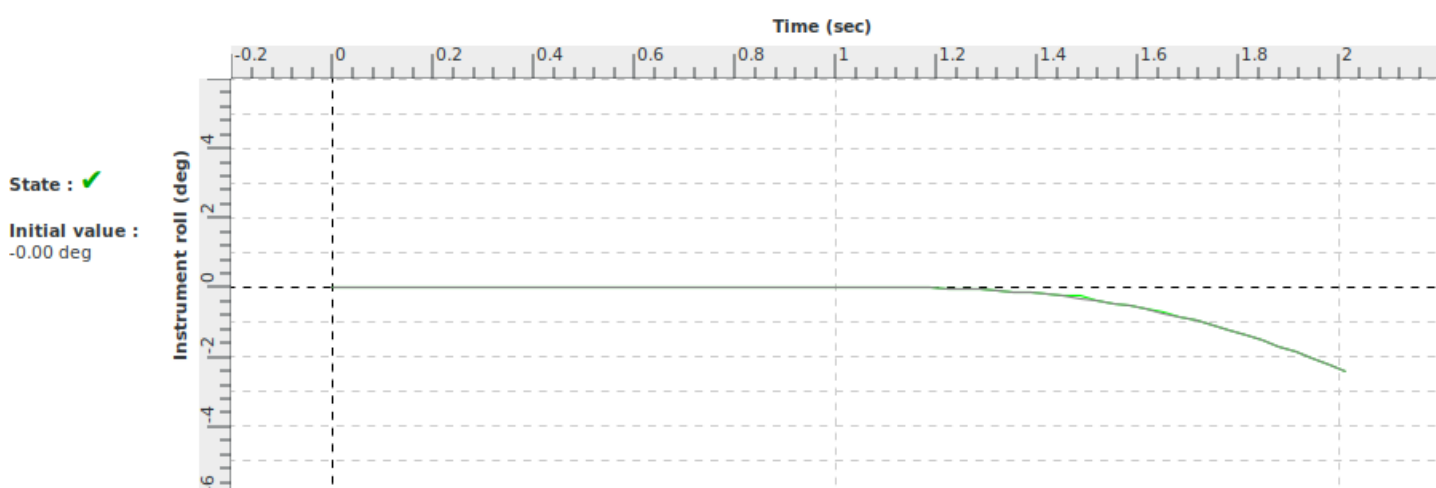
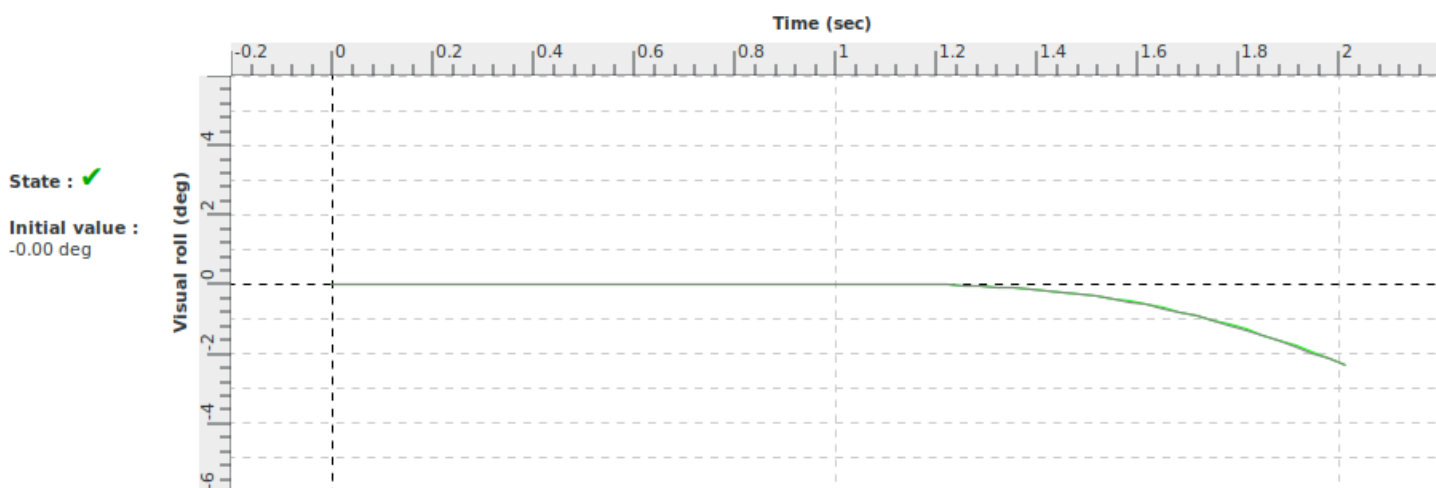
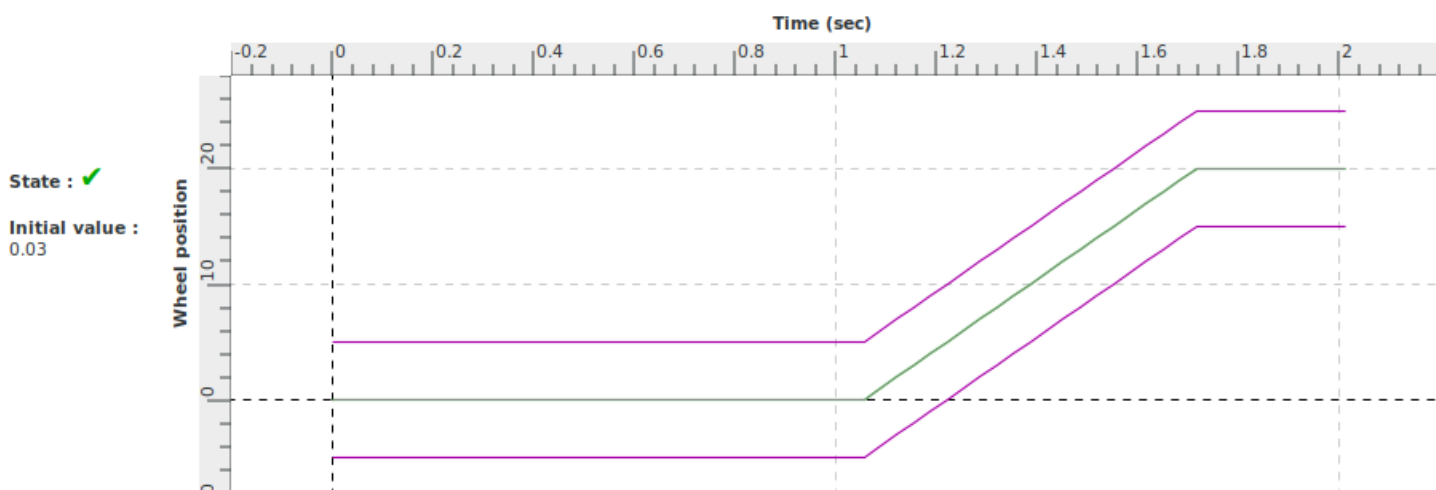


<b>Title</b>	Transport delay on roll axis		
<b>Id</b>	4 a i b	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	22/08/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

Log of Revision		
Rev. Nbr	Date	Reason for revision

Notes

Title	Transport delay on roll axis		
Id	4 a i b	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	22/08/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsım

grey : master

# VALIDATION TEST

<b>Title</b>	Transport delay on yaw axis		
<b>Id</b>	4 a i c	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Objective</b>	<b>Expected Results</b>
Demonstrate that the cue correlation and responses of visual and instrument drives are sufficient to be representative of the cues perceived in the class of aeroplanes	Transport delay time : less than 300 ms
<b>Reference</b>	<b>Evaluation Criteria</b>
Chapter 12 - Validation data - Visual System Tests - Test 4.a.i.c	less than 300 ms

<b>Demonstration procedure</b>	The Yaw trim is moved to force the control loading system to move the yaw control. The yaw position is plotted versus time while the instruments and visual system response are also plotted versus time
<b>Manual test procedure</b>	The pilot moves rapidly the rudders of about 5% on one side.
<b>Automatic test procedure</b>	4 a i c

<b>Authority's approval (date, signature and comments)</b>	<b>Operator's approval (date, signature and comments)</b>

<b>Title</b>	Transport delay on yaw axis		
<b>Id</b>	4 a i c	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

<b>Autopilot mode</b>	AUTO_SPEED
<p>Automatic Vertical Speed and power maintain mode : it changes the attitude through pitch trim value and the power levers to maintain power and VS. Roll Trim is computed to maintain 0° bank angle.</p>	

<b>Initial parameters</b>	CRUISE
Gross weight (kg) : 1900 Balance (%) : 50 Altitude (ft) : 6000 Vertical speed (ft/min) : 0 IAS (kt) : 139 (free) Heading (°) : 0 (free) Bank (°) : 0 Attitude (°) : 0 Pedal Position (%) : 0 Column Position (%) : 9 Wheel Position (%) : 0	Flaps lever position : 0 Gear lever position : 0 Left Load (%) : 70 Right Load (%) : 70 Left RPM : 2060 Right RPM : 2060

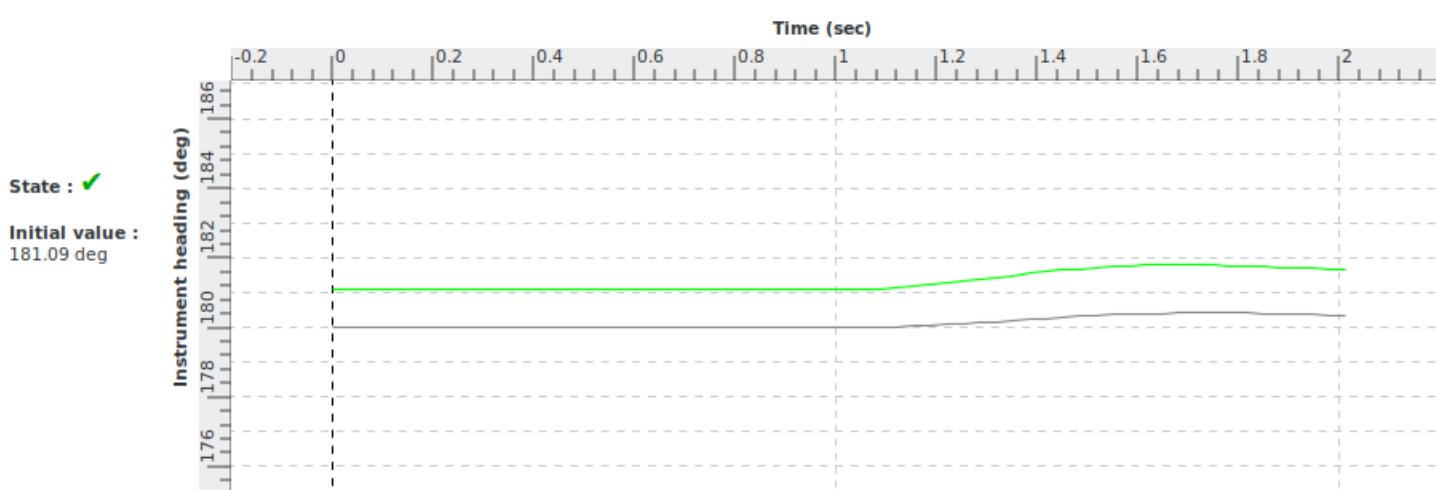
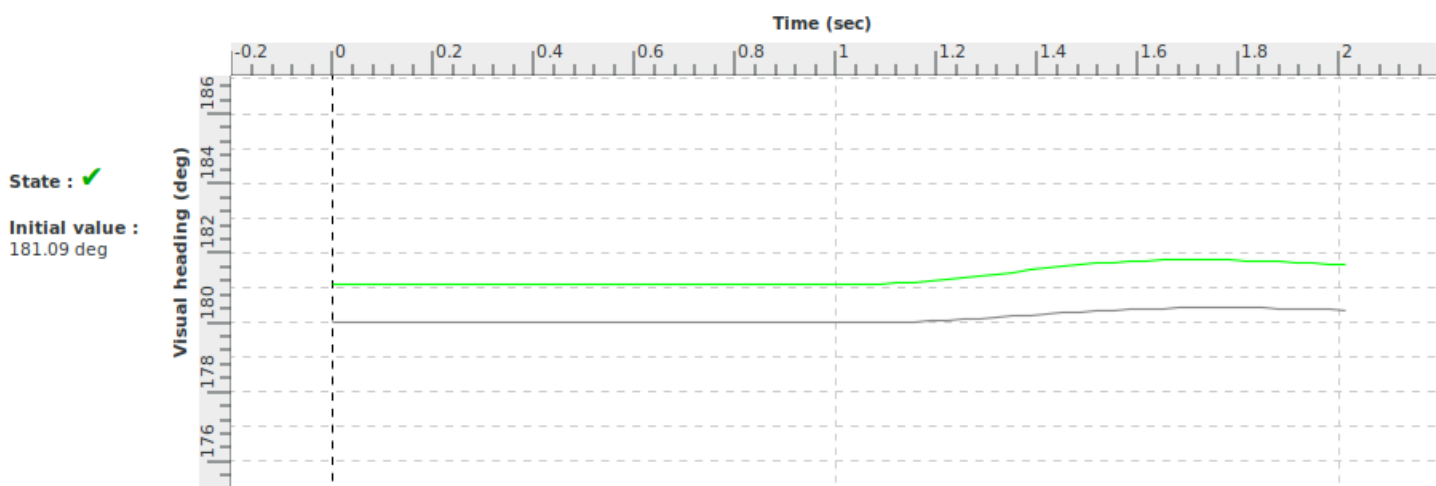
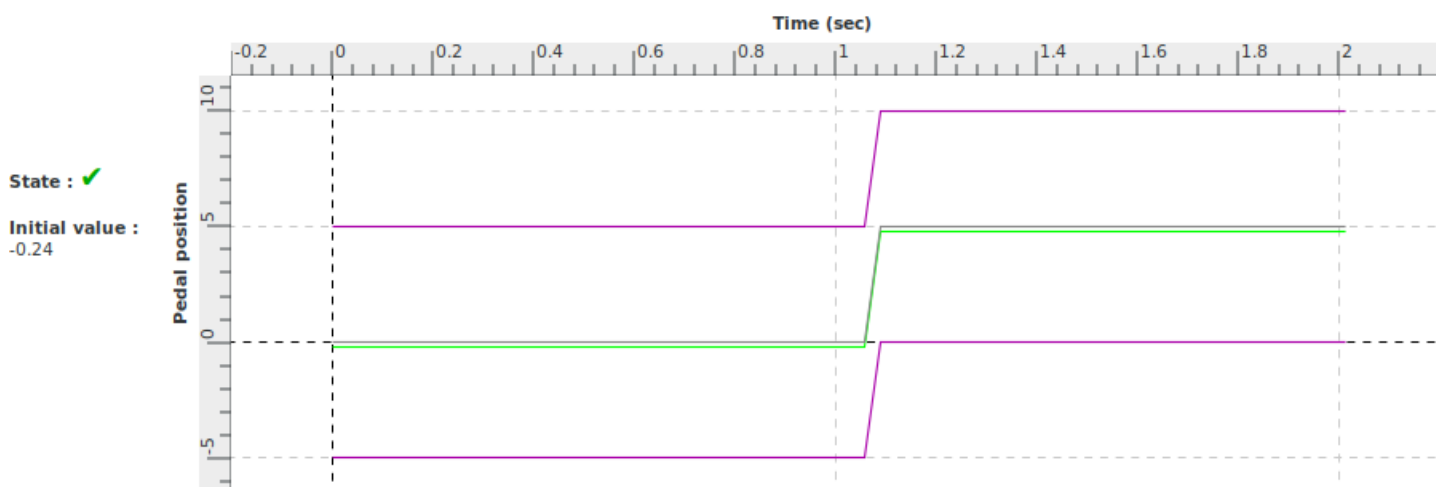
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
1.0	SetRudderCmdPalier	5.0	Send a step in the rudder govern
2.0	Stop_Test	0.0	Stop the test procedure

<b>Title</b>	Transport delay on yaw axis		
<b>Id</b>	4 a i c	<b>Aircraft</b>	DA42-VI
<b>Device</b>	A42M2-12	<b>Version</b>	1.0
<b>Qualification Level</b>	FNPT2	<b>Operator</b>	AFTA
<b>Result Date</b>	03/12/23	<b>Master Date</b>	01/03/19
<b>Result Load</b>	2012.01	<b>Master Load</b>	1902

Log of Revision		
Rev. Nbr	Date	Reason for revision

Notes

Title	Transport delay on yaw axis		
Id	4 a i c	Aircraft	DA42-VI
Device	A42M2-12	Version	1.0
Result Date	03/12/23	Master Date	01/03/19
Result Load	2012.01	Master Load	1902



### Legend :

green : results within tolerances  
blue : tolerances

red : results out of tolerances  
violet : tolerances Alsिम

grey : master