

VALIDATION TEST

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

Objective	Expected Results
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
Reference	Evaluation Criteria
Chapter 12 - Validation data - Handling Qualities - Test 2.d.iv.1.a	Correct trend and +/- 2 deg or +/- 10 % Bank in 20 seconds

Demonstration procedure	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.
Manual test procedure	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.
Automatic test procedure	2 d iv 1 a

Authority's approval (date, signature and comments)	Operator's approval (date, signature and comments)

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Autopilot mode	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>	

Initial parameters	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

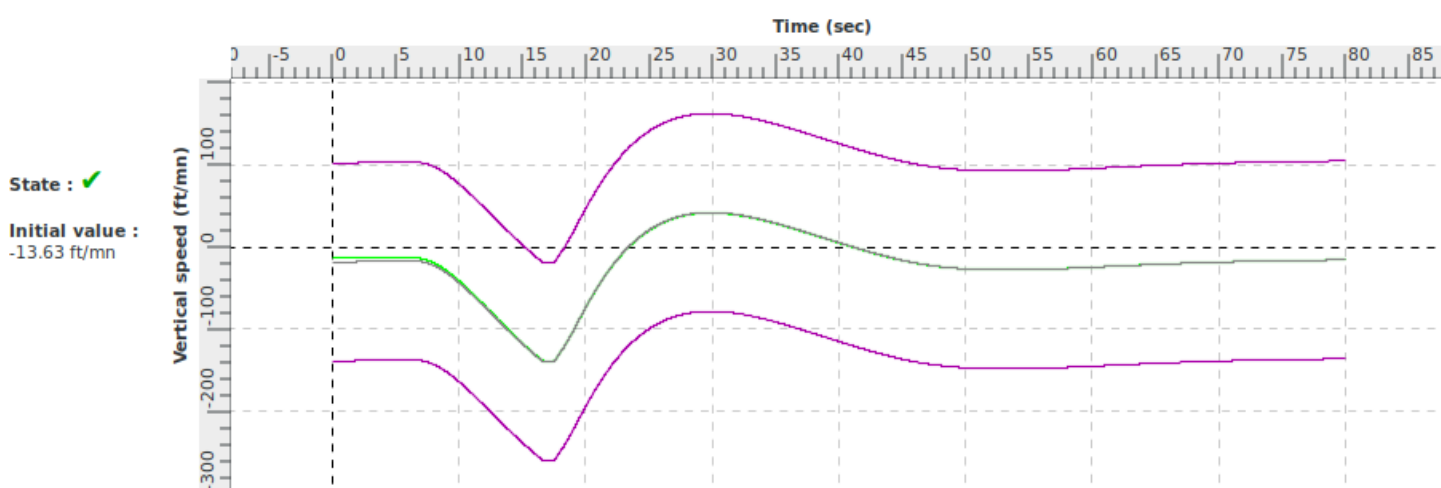
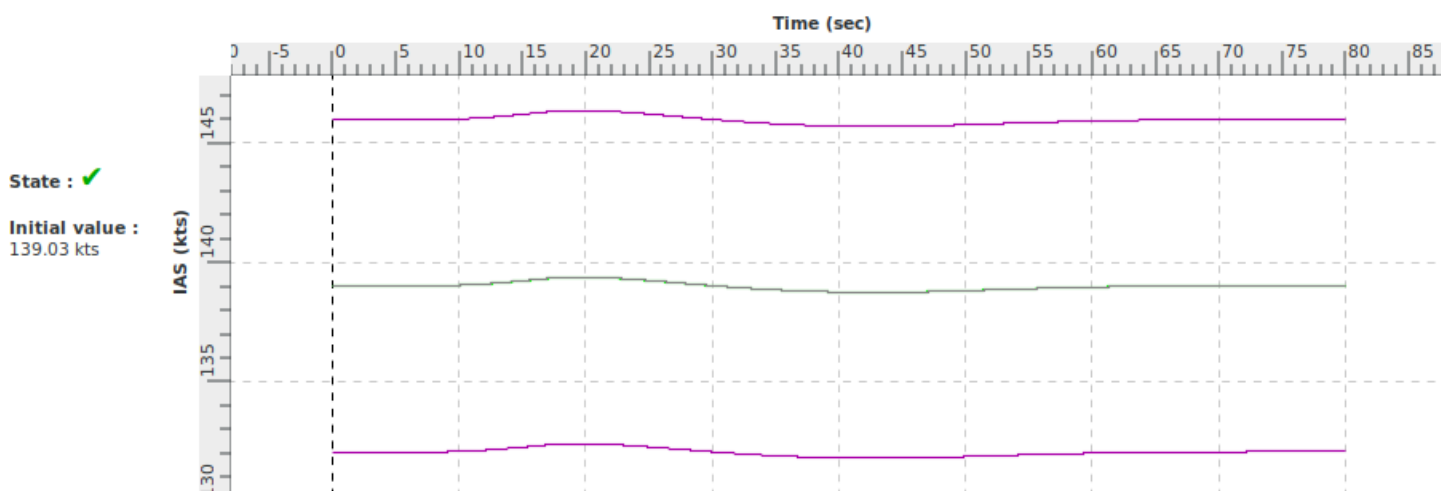
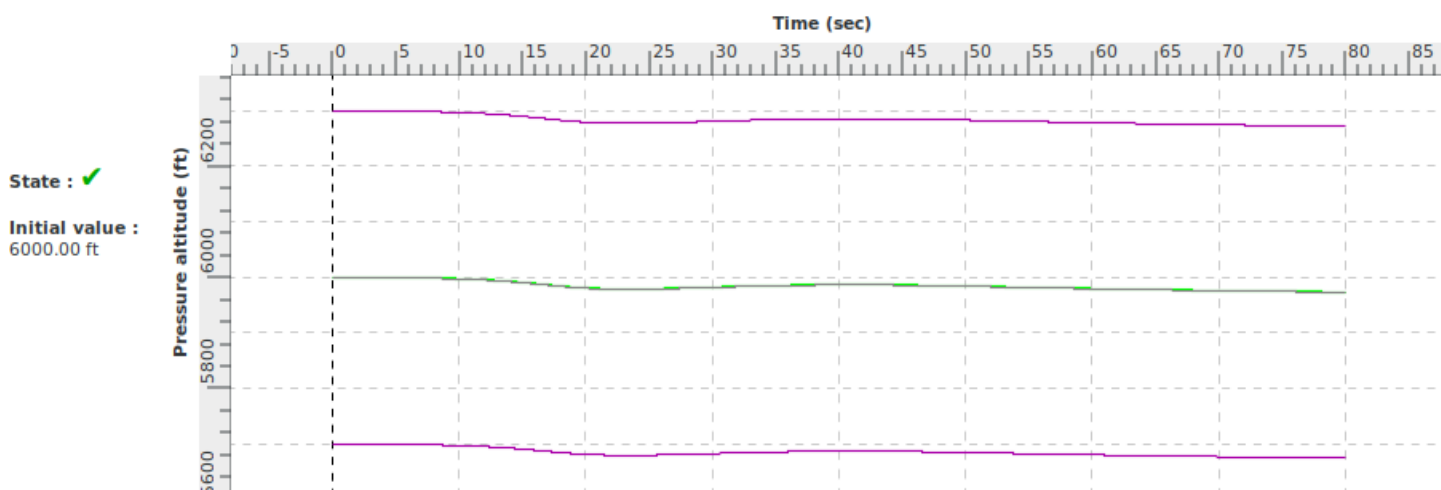
Commands			
Time	Name	Param	Explanations
0.0	Start_Test	0.0	Start the results recording
1.0	SetRudderCmdPalier	0.0	Send a step in the rudder govern
5.0	SetRollCmdPalier	-7.0	Send a step in the roll govern
16.0	SetRollCmdPalier	0.0	Send a step in the roll govern
80.0	Stop_Test	0.0	Stop the test procedure

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

Notes

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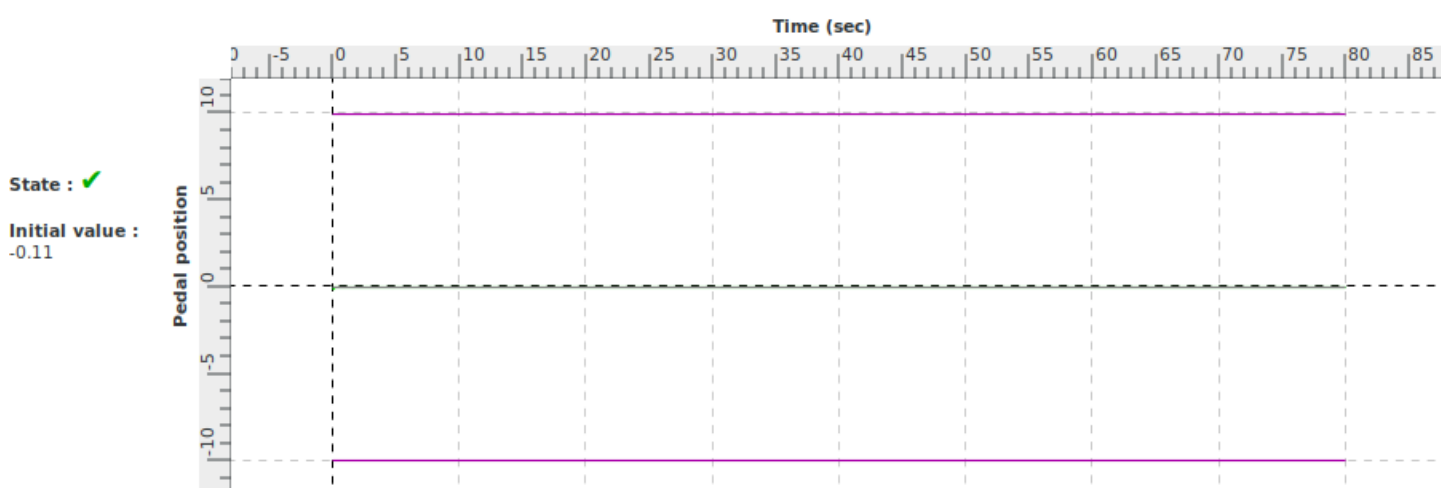
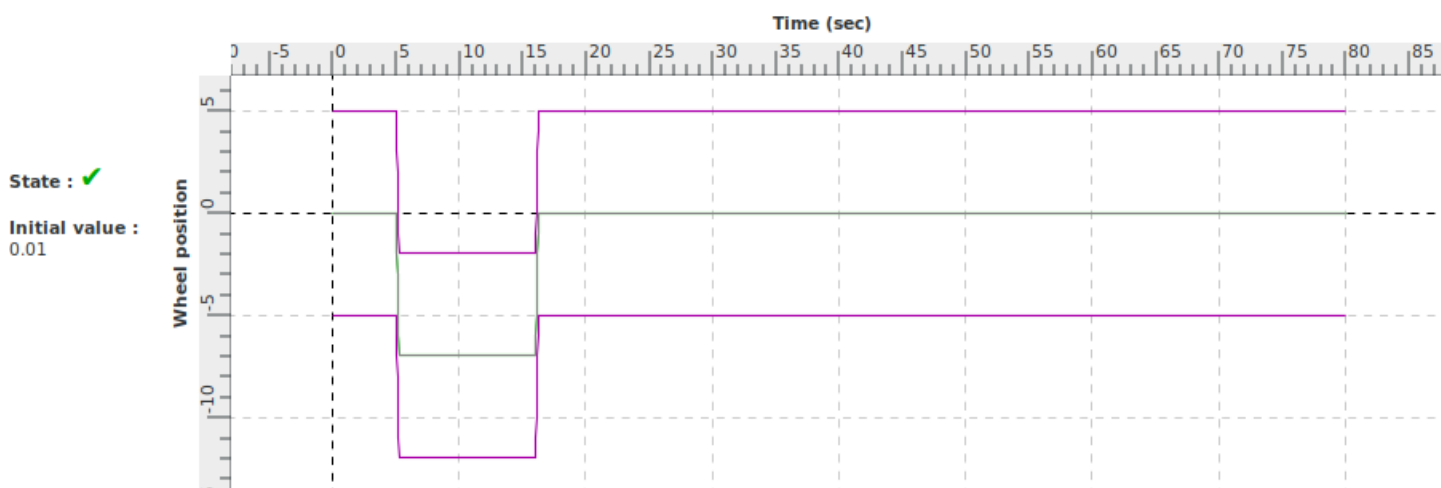
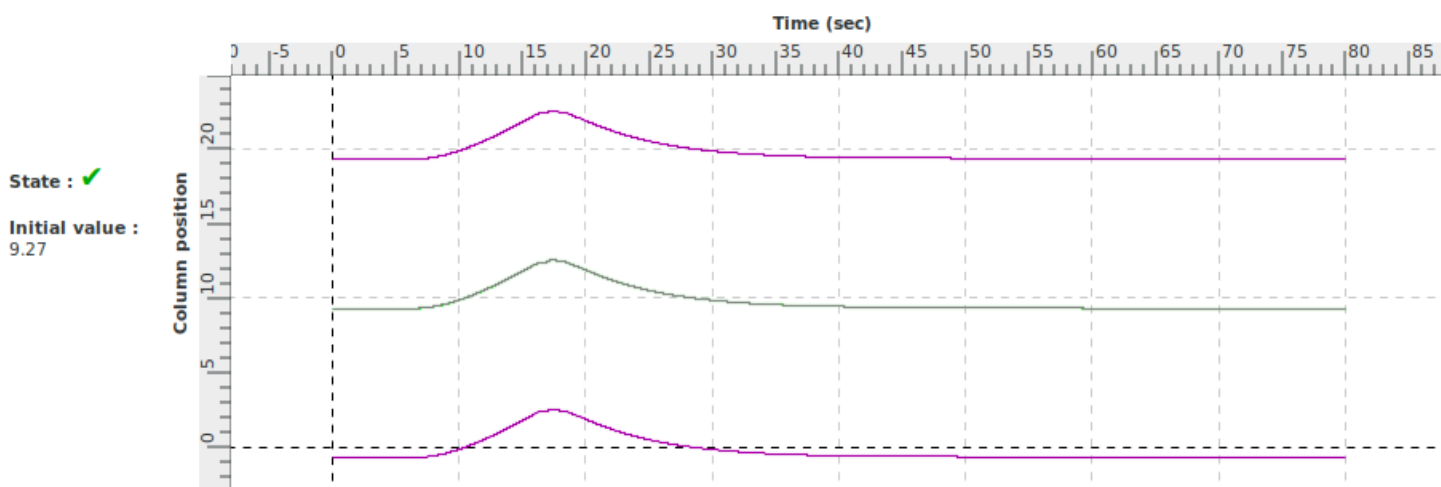
Legend :

green : results within tolerances
blue : tolerances

red : results out of tolerances
violet : tolerances Alsim

grey : master

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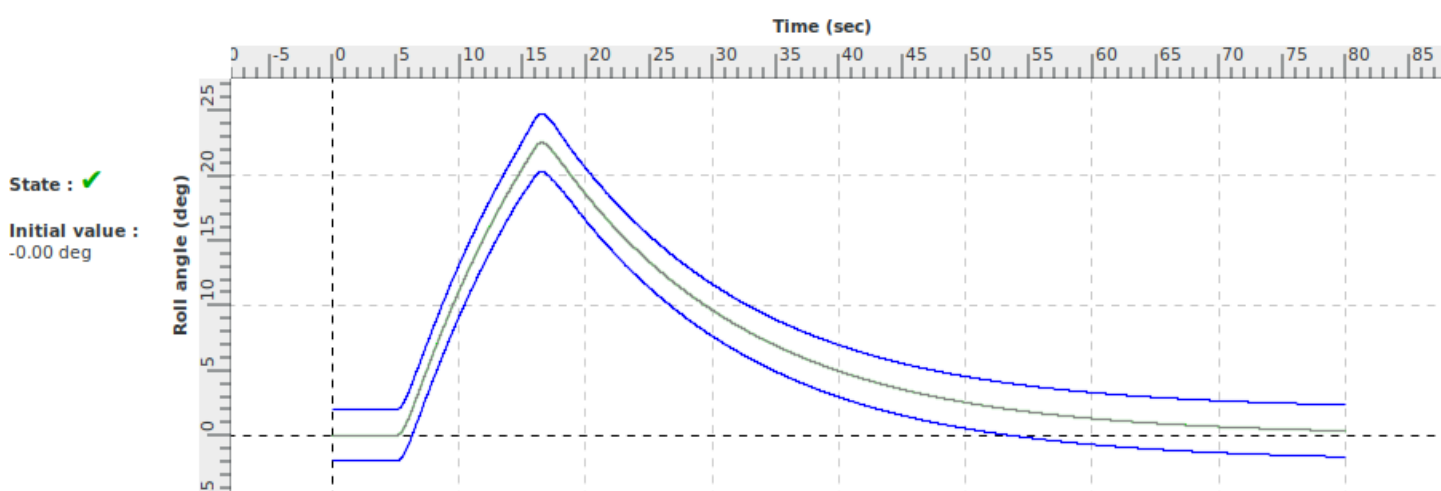
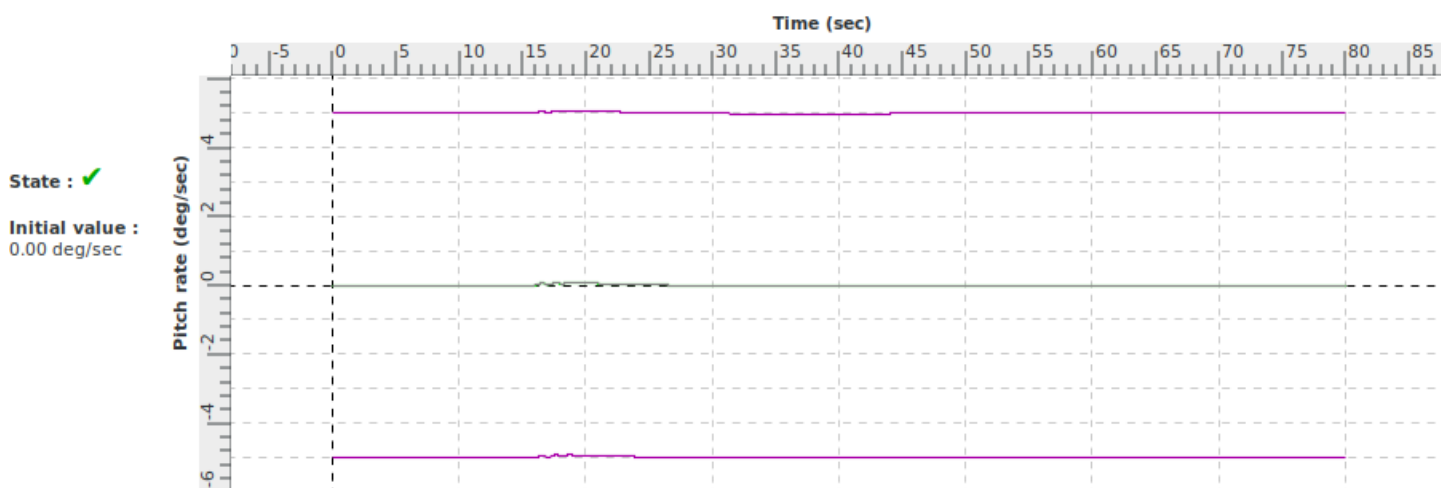
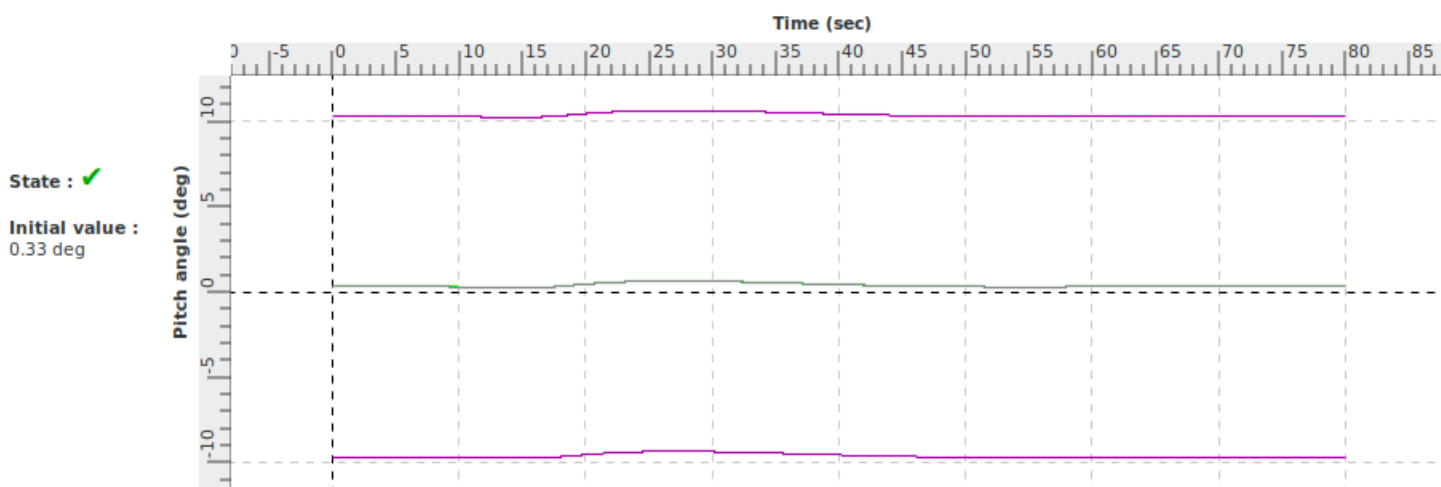
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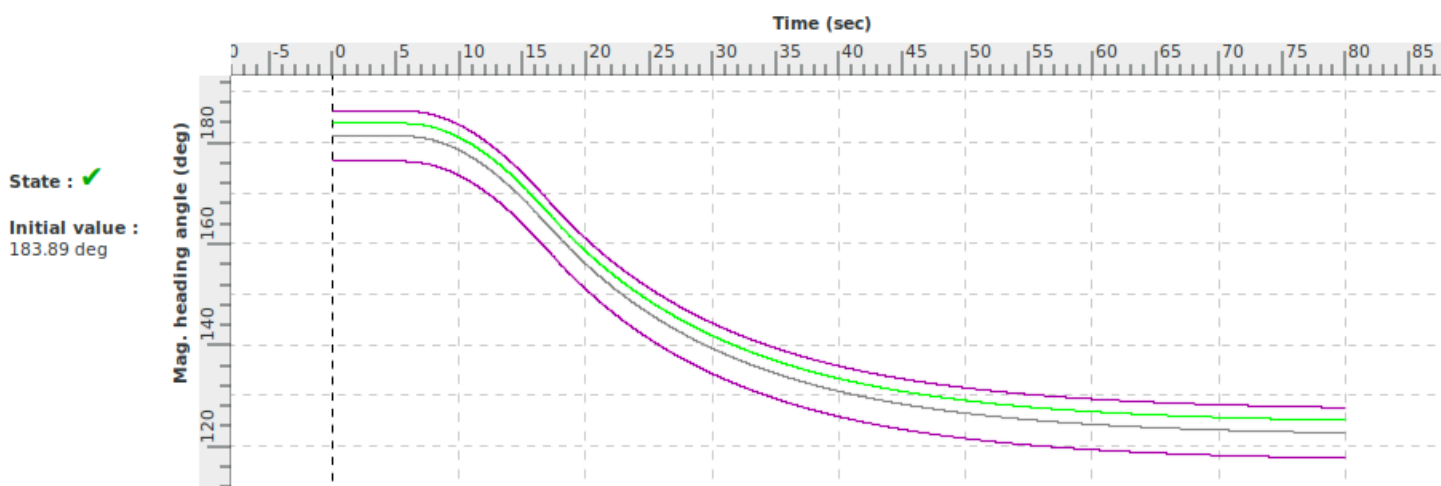
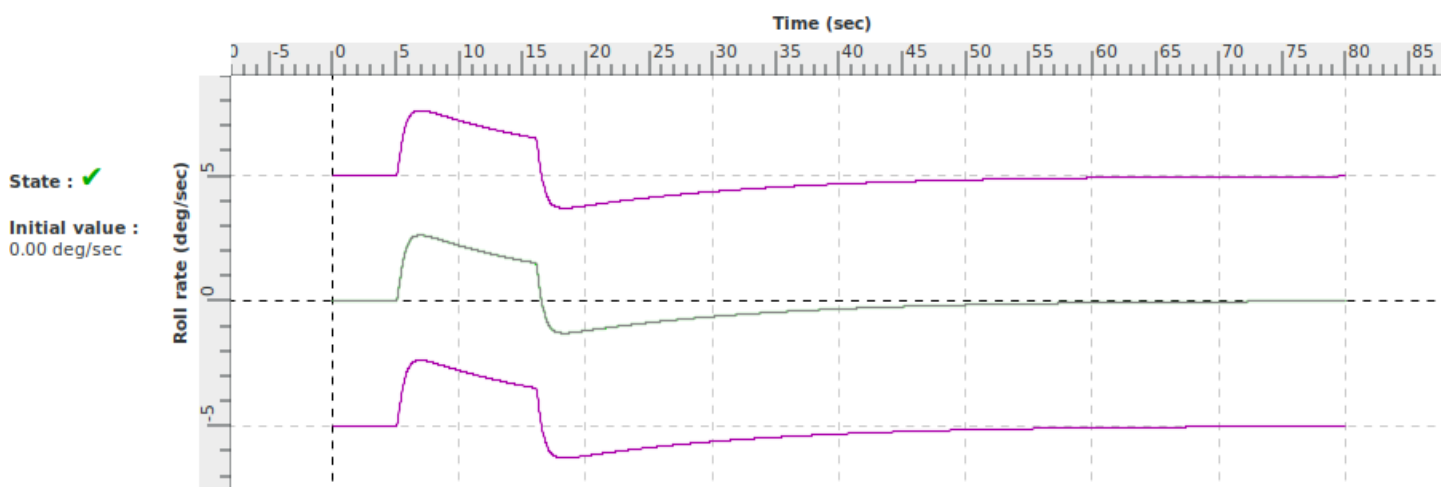
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