SimCoTest Test Plan

Number	Test Input	Expected Outcome	Pass/Fail
1.	**Form**: Main Form File -> Open Workspace From Select a path from the Open Workspaces From menu and click Ok	SimCoTest must load the workspaces from that path into the Main form	P
2.	**Form**: Main Form File -> New Workspace Select the New Workspace from the File menu	SimCoTest must show the Type of Model Under Test form.	P
3.	**Form**: Main Form Settings -> Model Settings Select the Model Settings from the Settings	SimCoTest must show the Model Settings form with the default values.	P
4.	**Form**: Main Form Shortcut Buttons Click on any of the Shortcut buttons in the main form	SimCoTest must open the corresponding form.	P
5.	**Form**: Main Form Click on the name of a workspace in the left panel of the main form	SimCoTeest must show the information related to the workspace in the right panel	P
6.	**Form**: Main Form Click on the View Results Button	SimCoTest must show the results form filled wit the information related to workspace selected in the main form	P
7.	**Form**: Main Form Click on the View Rename Button	SimCoTest must show the Rename form filled with the name of the workspace selected in the main form	P
8.	**Form**: Main Form Click on the Duplicate Button	SimCoTest must start the new test workspace wizard with the information of the workspace selected in the main form	P
9.	**Form**: Main Form Click on the Export button	SimCoTest must gives the user the option to select a path and export the results related to the workspace selected in the main form	P
10.	**Form**: Results Form Model Name The Model Name text box in the Main Form	must show the name of the Simulink model related to the results form.	P
11.	**Form**: Results Form (SL/SF controllers) Generation Algorithm Combo-box Selecting Discontinuity from the Generation Algorithm Combo-box	must show the list of test cases generated based on output discontinuity algorithm	P
12.	**Form**: Results Form (SL/SF	must show the prioritized list of test	

	controllers) Generation Algorithm Combo-box	cases generated based on output diversity algorithm	P
	Selecting Diversity from the Generation Algorithm Combo-box		
13.	**Form**: Results Form (SL/SF controllers) Generation Algorithm Combo-box	must show the list of test cases generated based on output stability algorithm	P
	Selecting Stability from the Generation Algorithm Combo-box		
14.	**Form**: Results Form (SL/SF controllers)	must show the list of input signals and configuration parameters related to that test case in the right part of the form	P
	Clicking on a test input the results form		
15.	**Form**: Results Form (SL/SF controllers)	must include the time and values related to all the steps in the input signal	P
	The information related to an input signal		
16.	**Form**: Results Form (SL/SF controllers)	must show the information about the input signal in the results form.	P
	Selecting the name of an input signal		
17.	**Form**: Results Form (SL/SF controllers)	must show the value of the configuration parameter in the results form.	P
	Selecting the name of a configuration parameter		
18.	**Form**: Results Form (SL/SF controllers)	must load Matlab/Simulink model and run the model with the selected test case.	P
	Selecting a test case and clicking the Run button		
19.	**Form**: Results Form (closed-loop controllers)	must show the name of the workspace.	P
	The Workspace Name text edit		
20.	**Form**: Results Form (closed-loop controllers)	must be able to select Smoothness requirement from the Combo-box.	P
	The user		
21.	**Form**: Results Form (closed-loop controllers)	must be able to select Stability requirement from the Combo-box.	P
	The user		
22.	**Form**: Results Form (closed-loop controllers)	must be able to select Responsiveness requirement from the Combo-box.	P
	The user		
23.	**Form**: Results Form (closed-loop controllers)	must be able to select Liveness requirement from the Combo-box.	P
	The user		
24.	**Form**: Results Form (closed-loop controllers)	must be able to select Normalized Smoothness requirement from the combobox.	P
	The user		
25.	**Form**: Results Form (closed-loop controllers)	The corresponding HeatMap diagram must be shown in the form.	P
	By selecting a requirement from		

	the Combobox		
26.	**Form**: Results Form (closed-loop controllers) The color of each region of the HeatMap	must show the average of the corresponding objective function value for test cases in that region.	P
27.	**Form**: Results Form (closed-loop controllers) Double clicking on each point in the HeatMap	must execute the closed-loop controller model with the corresponding test input.	P
28.	**Form**: Results Form (closed-loop controllers) Clicking RunModel	must execute the closed-loop controller model with the test input with ID and FD identified in the text boxes.	P
29.	**Form**: Results Form (closed-loop controllers) Clicking Run the Selected Test Case	must execute the closed-loop controller model with the worst-case test input selected in the form.	P
30.	**Form**: Type of Model Under Test Type of Model Under Test form	must give two different options to the user to generate a test workspace, including Simulink/Stateflow controller and Continuous controller	P
31.	**Form**: Type of Model Under Test In the Type of Model Under Test form	Clicking Next must shows the Model Setting Form	P
32.	**Form**: Model Settings Form Model Settings Form	must load the default model settings information into the form.	P
33.	**Form**: Model Settings Form Model Settings Form	must give the possibility to change the Matlab path.	P
34.	**Form**: Model Settings Form Model Settings Form	must give the possibility to select the Simulink model under test.	P
35.	**Form**: Model Settings Form Model Settings Form	must give the possibility to add a mode path to the list of Matlab paths.	P
36.	**Form**: Model Settings Form Model Settings Form	must give the possibility to add scripts to run before running the Matlab model.	P
37.	**Form**: Model Settings Form In the Model Settings form	Clicking Next must shows the Sanity Checks Form	P
38.	**Form**: Sanity Checks Form In the Sanity Checks form	It must be possible to check or uncheck sanity checks related to Model Blocks	P
39.	**Form**: Sanity Checks Form In the Sanity Checks form	It must be possible to check or uncheck sanity checks related to Configuration Parameters	P
40.	**Form**: Sanity Checks Form Clicking the Perform Checks button	must loads the model and perform the Sanity Check on the model and Shows the Sanity Check Results form	P

41.	**Form**: Sanity Check Results Form Clicking on each block in the list of Model Blocks in the Sanity Check Results form	must load the model and highlight the corresponding block in the model	P
42.	**Form**: Sanity Check Results Form Clicking on each configuration parameter in the list of configuration parameters in the Sanity Check Results form	must load the model and highlight the corresponding configuration parameter in the model	P
43.	**Form**: Sanity Check Results Form Clicking the Next button in the Sanity Checks form	must show the data extraction results form.	P
44.	**Form**: Data Extraction Results Form The Model Name text edit in the Data Extraction Results form	must show the name of the Model.	P
45.	**Form**: Data Extraction Results Form The Model Simulation Time text edit in the Data Extraction Results form	must show the Simulation Time extracted from the Model.	P
46.	**Form**: Data Extraction Results Form User	must be able to select All options from Variable Type Combobox.	P
47.	**Form**: Data Extraction Results Form The Variable Type Combobox	must be able to select Input options from Variable Type Combobox.	P
48.	**Form**: Data Extraction Results Form The Variable Type Combobox	must be able to select Configurations options from Variable Type Combobox.	P
49.	**Form**: Data Extraction Results Form The Variable Type Combobox	must be able to select Output options from Variable Type Combobox.	P
50.	**Form**: Data Extraction Results Form The Data Extraction Results form	must extract all the information related to input, configuration parameters and outputs of the model.	P
51.	**Form**: Data Extraction Results Form In the Data Extraction Results Form	SimCoTest must correctly extract the name, data type, data ranges for each input and output of the model.	P
52.	**Form**: Data Extraction Results Form In the Data Extraction Results Form	SimCoTest must correctly extract the name, default value, data type and data ranges for each configuration parameter of the model.	P
53.	**Form**: Data Extraction Results Form In the Data Extraction Results Form	User must be able to change the test generation ranges (min and max) for input and output variables and configuration parameters	P
54.	**Form**: Data Extraction Results Form Clicking the Highlight in Model button	must show the input/output/ configuration parameters highlighted in the model	P
55.	**Form**: Data Extraction Results Form	must run the model with the input	P

		Clicking the Run Model Under Test	information in the form	
56.	**Form**: Data Extraction Results Form Clicking the Next in the Data Extraction Results Form		must show the Test Generation Settings Form.	P
57.	**Form**: Test Generation Settings Form Selecting the Output Number from the Combo-box		must show the name of the output in the output name combo-box	P
58.	**Form**: Data Extraction Results Form Selecting the Output Name from the Combo-box		must show the number of the output in the output number combo-box	P
59.	**Form**: Test Generation Settings Form The user		must be able to identify the number of test cases generated by output diversity algorithm	P
60.	**Form**: Test Generation Settings Form The user		must be able to identify the number of test cases generated based on output stability algorithm	P
61.	**Form**: Test Generation Settings Form The user		must be able to identify the number of test cases generated based on output discontinuity algorithm	P
62.	**Form**: Test Generation Settings Form Clicking the Exclude button		must set the size of test suites for all algorithms to zero	P
63.	**Form**: Test Generation Settings Form User		must be able to identify the test generation time.	P
64.	**Form**: Closed-loop controllers model Parameters form User		must be able to identify the desired value variable.	P
65.	**Form**: Closed-loop controllers model Parameters form User		must be able to identify the actual value variable.	P
66.	**Form**: Closed-loop controllers model Parameters form User		must be able to identify the From value for desired value variable.	P
67.	**Form**: Closed-loop controllers model Parameters form User		must be able to identify the To value for desired value variable.	P
68.	**Form**: Closed-loop controllers model Parameters form User		must be able to identify the model simulation time.	P
69.	**Form**: Closed-loop controllers model Parameters form User		must be able to add configuration parameters to the form.	P
70.	**Form**: Closed-loop controllers model Parameters form User		must be able to identify the range of configuration parameters.	P
71.	**Form**: Closed-loop controllers model Parameters form User		must be able to run the model with an initial desired value and a final desired value.	P
72.	**Form**: Closed-loop controllers test		must be able to identify the number	P

	settings form	of regions in the HeatMap	
	User		
73.	**Form**: Closed-loop controllers test settings form The number of regions in the Heatmp	must immediately change when the user changes the number of Heatmap regions.	P
74.	**Form**: Closed-loop controllers test settings form User	must be able to identify the number of test cases that need to be run in a Heatmap region.	P
75.	**Form**: Closed-loop controllers test settings form User	must be able to identify the number of worst-case scenarios in each Heatmap region.	P
76.	**Form**: Closed-loop controllers test settings form User	must be able to include some of the HeatMap Regions in the search.	P
77.	**Form**: Closed-loop controllers test settings form User	must be able to exclude some of the HeatMap Regions from the search.	P
78.	**Form**: Closed-loop controllers test settings form User	must be able to exclude some of the HeatMap Regions using slidebars.	P
79.	**Form**: Closed-loop controllers test settings form User	must be able to include some of the HeatMap Regions using slidebars.	P
80.	**Form**: Closed-loop controllers test settings form User	must be able to see the approximated running time of the tests.	P
81.	**Form**: Closed-loop controllers test settings form User	must be able to see the approximated ending time of the tests.	P
82.	**Form**: In the Software Mode form User	must be able to select and start the software in the normal mode.	P
83.	**Form**: In the Software Mode form User	must be able to select and start the software in the maintenance mode.	P
84.	**Form**: When the software is run in the maintenance mode User	must be able to select and start the software in the maintenance mode.	P
85.	**Form**: In the Software Mode form User	must be able to select and start the software in the maintenance mode.	P
86.	**Form**: In the Advance Continuous Controller Settings form User	must be able to select Random Search as random exploration algorithm.	P
87.	**Form**: In the Advance Continuous Controller Settings form User	must be able to select Adaptive Random Search as random exploration algorithm.	P
88.	**Form**: In the Advance Continuous Controller Settings form User	must be able to select Adaptive Random Search as random exploration algorithm.	P
89.	**Form**: In the Advance Continuous	must be able to Check the Escape	P

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	Controller Settings form	Random Exploration.	
	User		
90.	**Form**: In the Advance Continuous Controller Settings form If the escape random exploration is checked,	SimCoTest must escape the random exploration.	P
91.	**Form**: In the Advance Continuous Controller Settings form User	must be able to select random search as the local search algorithm.	P
92.	**Form**: In the Advance Continuous Controller Settings form User	must be able to select Hill-Climbing as the local search algorithm.	P
93.	**Form**: In the Advance Continuous Controller Settings form User	must be able to select HCRR as the local search algorithm.	P
94.	**Form**: In the Advance Continuous Controller Settings form User	must be able to select Simulated Annealing as the local search algorithm.	P
95.	**Form**: In the Advance Continuous Controller Settings form User	must be able to select the number of Algorithm iterations.	P
96.	**Form**: In the Advance Continuous Controller Settings form User	must be able to select the explorative type of algorithm for search step.	P
97.	**Form**: In the Advance Continuous Controller Settings form User	must be able to select the exploitative algorithm for the search step.	P
98.	**Form**: Main Form Shortcut Buttons Click on New Test Workspace button	Should start the new test workspace wizard.	P
99.	**Form**: Main Form Shortcut Buttons Click on of Model Setting button	Should start the model setting form.	P
100.	**Form**: Main Form Shortcut Buttons Click on Simulink Testing form	Should start the Simulink Test Settings form.	P
101.	**Form**: Main Form Shortcut Buttons Continuous Controller Settings form	Should start the Continuous Controller Settings form3.	P
102.	**Form**: Main Form Shortcut Buttons Click on Advanced Simulink Testing form	Should start the Advanced Simulink Test Settings form.	P