☰ **Test Case** | TC54 Test Layline w/ Leeway and current
⋮

Belongs to Plan(s):	TP5 dashboard_tactics...
Belongs to Suite(s):	TS18 NMEA simulator ...
Case Type:	Functionality
Label(s):	windows linux
Test Quality:	☻ **EXCELLENT** Defects Closed Fixed
Assign To:	🐟 Petri Makijarvi
Case Priority:	Medium
Estimate:	180
	Is Automated

Precondition

Pre-requisite for this test is successful execution of TC53. It is recommended not to dismantle the previous test bed. In this test we use NMEA simulator http://www.kave.fi/Apps/ to create and control speed on water, it is also to make the apparent wind consistent with the heel (in this, pro-forma). It will be used also to provide SOG and COG needed in calculations. The NMEA Simulator not sending XDR-sentences for heel, they are generated with NMEA Converter plugin.

Steps

Click **"Tab"** or **"Shift + Tab"** to navigate grid ⍰

1 Let's collect the principle of the calculation for this use case from the source comment in tactics_pi.cpp

```
10              actualCog
20              diff_btw_Cog_and_Hdt (now we're on Hdt)
52 (2x26)   + 2 x TWA
10          + (abs) Leeway
                ---------
92          = predictedHdt
10⁽*⁾       + current_angle
                ======================
102         = newCog (on other tack)
```

$^{(*)}$ In TC53 we adjusted the difference between the Leeway and COG to 10 degrees, with a relatively strong current coming from starboard. It safe to suppose, in this use case, that on the other tack the effect will be approximately the same since the angle will not change considerably.

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2 Test arrangement is that of the TC53 and you should continue with this test right after having completed it. The only difference is that now you need the TWA (true wind angle). Add it into your test instrument panel:
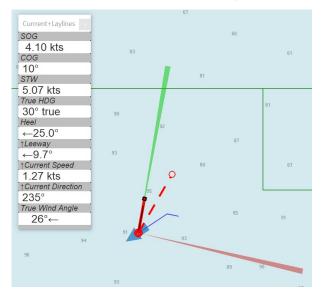

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3 👣 For this test we do not want any active damping, or only very little of it:

Laylines

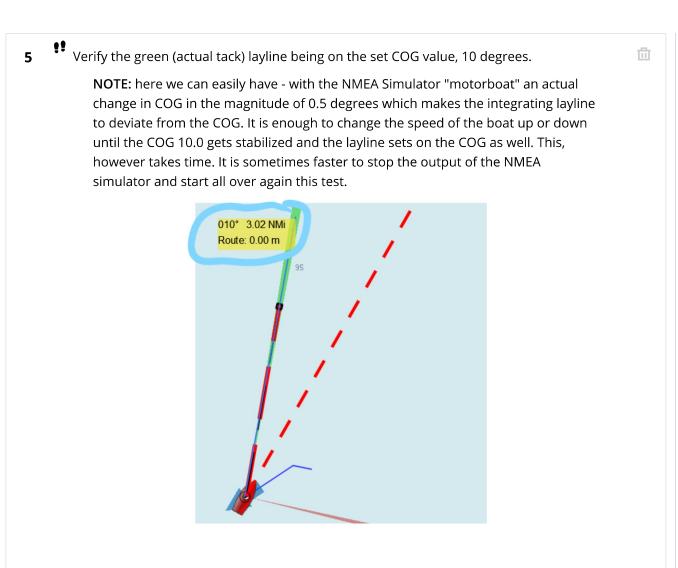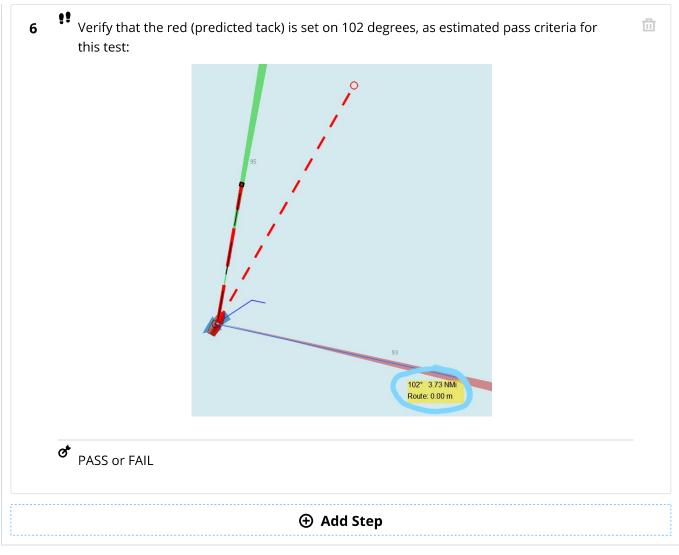|	
Layline damping factor [0.025-1]:	0.9
Layline width damping factor [0.025-1]:	0.9
Layline length on Chart [nm]:	10
Min. Layline Width [°]:	2
Max. Layline Width [°]:	30

little or no damping

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4 👣 Activate the laylines from the righ clcik on the instrument panel - "Show laylines".Observe the green layline setting itself quickly on COG and red, predicted layline to stabilize within about ten seconds. This is the global view of the test bed:

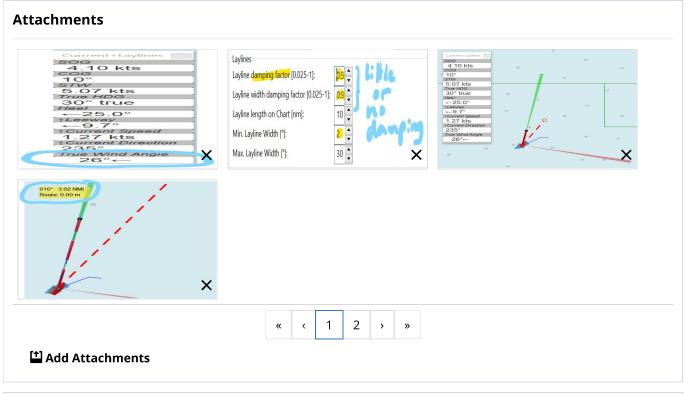| Currrent+Laylines	
SOG	4.10 kts
COG	10°
STW	5.07 kts
True HDG	30° true
Heel	←25.0°
↑*Leeway*	←9.7°
↑*Current Speed*	1.27 kts
↑*Current Direction*	235°
True Wind Angle	26°←

5 👣 Verify the green (actual tack) layline being on the set COG value, 10 degrees.

NOTE: here we can easily have - with the NMEA Simulator "motorboat" an actual change in COG in the magnitude of 0.5 degrees which makes the integrating layline to deviate from the COG. It is enough to change the speed of the boat up or down until the COG 10.0 gets stabilized and the layline sets on the COG as well. This, however takes time. It is sometimes faster to stop the output of the NMEA simulator and start all over again this test.

♂ PASS or FAIL

6 👣 Verify that the red (predicted tack) is set on 102 degrees, as estimated pass criteria for this test:

♂ PASS or FAIL

⊕ **Add Step**

Attachments

« ‹ 1 2 › »

⬆ **Add Attachments**

	RESULTS	DEFECTS	REQUIREMENTS			
Status		**Test Plan Run**	**Assigned To**	**Updated At**↑	**Actions**	
⏭ Skip		TPR36 dashboard_tactics_pi_...	🦎 Petri Makijarvi	about a year ago	☑	
⏭ Skip		TPR37 dashboard_tactics_pi_...	🦎 Petri Makijarvi	about a year ago	☑	
⏭ Skip		TPR41 dashboard_tactics_pi_...	🦎 Petri Makijarvi	about a year ago	☑	
⏭ Skip		TPR42 dashboard_tactics_pi_...	🦎 Petri Makijarvi	about a year ago	☑	
🔄 Pending		TPR43 dashboard_tactics_pi_...	🦎 Petri Makijarvi	about a year ago	☑	

« ‹ 1 2 3 4 › »

	ACTIVITY	HISTORY	COMMENTS	
TODAY				
🦎 Petri Makijarvi Updated Step S137				
less than a minute ago / Sep 23, 2020				