Concept Compliance Matrix

Competition procedure with negotiation (application phase) for IWT Vessel Handling Simulator for STC Group

ATTENTION: This concept of the Compliance Matrix is intended only for information of participants in this current tender. The intention is that anyone will be able to inform themselves in broad terms as to what will be asked of the candidates who will be invited to participate in the second phase (the award phase) of this tender in accordance with the assessment procedure described in the selection guideline. STC Group explicitly reserves the right to further adjust the contents of the Compliance Matrix. The new draft version will be made available only to the selected candidates at the start of the award phase in accordance with the Selection Guideline. The final version will be sent to the selected candidates after delivery of the first draft and after the negotiations.

Introduction

This document contains a concept compliance matrix which lists the items STC Group considers the IWT Vessel Handling Navigation simulator classroom to comply with.

All items in the compliance matrix that are indicated as "must" should be part of the final delivery. All items listed as either "nice to have" or "might have" will be part of further discussions with the parties selected.

Requirements as set by ES-QIN – Resolution CESNI 2018-II-14

The delivered solution must comply to and cover all individual technical and functional requirements applicable to a vessel-handling simulator as stated in the European Standard for Qualifications in Inland Navigation (ES-QIN) – Resolution CESNI 2018-II-14.

These requirements can be found as part of the standards adopted by CESNI:
https://www.cesni.eu/nl/documents/es-qin-2019/

Introduction to Compliance Matrix

The tables below list the items STC Group wishes the desktop rail simulator classroom to comply with. These items are either additional to the requirements listed in the standard as explained in the previous section or are requirements from STC Group regarding the (method of) implementation of individual items in this standard. This difference is always listed in the tables.

These individual items are divided into three (3) categories:

- Must: This is a minimum requirement STC Group believes the setup should comply with;
- Nice to have: This is a requirement that would greatly increase the (didactical) use of the simulator to STC Group.
- Might Have: This is a requirement that may increase the (didactical) use of the simulator to STC Group

The list of items is divided into several topics. Some of the items in certain topics will have connections to items in other topics.
The topics are:

- Entire system
- Ship models – (IWT) ownship vessels operated by a student/from a student workstation and target vessels operated by the instructor from the instructor workstation;
- Sailing areas;
- Student workstation;
- Instructor workstation;
- Debriefing station;
- Testing station.

Remarks to completing the Compliance Matrix

The following should be noted while completing the Compliance Matrix:

- A Functional System Description/Scope of Delivery will be part of the attachments to be delivered as part of the tender.
- The 'Reference' column indicates relevant references of the listed item with respect to Resolution CESNI 2018-II-14. In case there is no direct reference applicable, this is indicated by 'N/A';
- A positive mark in the 'Compliant and included' column states the listed requirement is included in the Tendered solution and included in the Total price as stated on the Price sheet;
- If a requirement is offered as an optional delivery, this can be indicated in the Remark section and its offered price can be stated in the lower part the Price sheet. These items should NOT be indicated as 'Compliant and included';

1. Entire System

ID	Wish	Objective	Reference	Compliant & included	Remark
0	Must	The entire system complies to all Technical and functional requirements as stated in the European Standard for Qualifications in Inland Navigation (ES-QIN) - Resolution CESNI 2018-II-14	all		

2. Ownship models

ID	Wish	Objective	Reference	Compliant & included	Remark
A1	Must	Minimum of three (3) ownship vessel models, including at least: • One (1) model of a 110m long vessel that also has a wheelhouse that can be raised and lowered; • One (1) model of a 83m long vessel; • One (1) small craft of aprox. 20-30m length with a max speed of 45 km/h NOT being a tug	No.7 and No. 34		
A2	Nice to have	An IWT passenger cruise vessel model of (at least) 110m length	N/A		
A3	Nice to have	An ownship vessel model with its bridge located at/near the bow	N/A		
A4	Might have	One (1) push-barge combination with four (4) barges	No.7		
A5	Must	At least two (2) ownship models with conventional propulsion and steering	No.19 and No.20		
A6	Nice to have	At least one ownship model with azimuth propulsion and steering	No.19 and No.20		
A7	Might have	Ownship models are equipped with a realistic 'fuel consumption' model that calculates fuel consumption based on how the vessel is operated	N/A		
A8	Must	Different ownship models equipped with single and dual engine configurations	No.19		

ID	Wish	Objective	Reference	Compliant & included	Remark
A9	Must	At least seventeen (17) target vessels, including at least: • A vessel from each of the seven (7) IWT-classes as listed in Table 1; • Ten (10) seagoing vessels of different lengths between 90m and 380m. Or the tools and knowledge to allow Customer to develop some of these itself	No.9 and No.38		
A10	Might have	It is possible for Customer personnel to create new ownship models including all required files for both the hydrodynamic and visual model	N/A		

Table 1: List of IWT-target vessel categories

CEMT-class	RWS-class[1]	Type	Length (m)	Breadth (m)	Draught (m)	Air Draft (m)
I	M1	Péniche /Spits	38,5	5.05	2.5	4.65/3.35
II	M2	Kempenaar	50-55	6.6	2.6	5.8/4.6
III	M4	Dortmunder/ Dortmund-Eems canal vessel	67-73	8.2	2.7	6.3/5.1
Iva	M6	Rijn-Herne vessel/ Rijn-Herne canal vessel	80-105	9.5	2.9	6.7/5.3
Va	M8	Large Rhein vessel	110	11.4	3.5	7.1/5.4
VIa	M12	Rhein max vessel	135	17	4	7-9.1
VIb	N/A	Push-barge 2×2 convoy	185-195	22.8	3.5-4.0	7-9.1

[1] For more information on 'Rijkswaterstaat' (RWS) classes, please see the following Dutch webpage: https://nl.wikipedia.org/wiki/CEMT-klasse

3. Sailing areas

ID	Wish	Objective	Reference	Compliant & included	Remark
B1	Must	Minimum of six (6) sailing areas, including at least: • Port of Rotterdam, including the 'Hartelkanaal' and the 'Nieuwe Maas' up to 'Krimpen aan de Lek' • The Dutch area 'Drechtsteden'- covering the rivers between Heinenoor and Rotterdam to the west, to Bergambacht and Sliedrecht to the east and 's Gravendeel to the south. • Parts of the German 'Rhein' including at least the area from Mainz to Koblenz; • The 'Westerschelde' as an estuary.	No.4, No.60 and No.64 to 70		
B2	Nice to have	A sailing area of the Waal river km 810-840- (Haaften) – zie Waal Diomedea	No.4, No.60 and No.64 to 70		
B3	Might have	A sailing area of the Maas-Waalkanaal river km (Bemmel-Weurt)_	No.4, No.60 and No.64 to 70		
B4	Might have	A sailing area of the Lek (Vreeswijk-Ameide)	No.4, No.60 and No.64 to 70		
B5	Nice to have	Water in locks can change in height real-time	No.28		
B6	Might have	It is possible for Customer personnel to create new sailing areas including all required files for the instructor; relevant files containing information regarding depth, buoys, navigational lights; for generating the radar picture; and the visual outside world	N/A		

4. Student workstation

ID	Wish	Objective	Reference	Compliant & included	Remark
C1	Must	For each different available own ship model all controls and indicators relevant for the type of model are presented to the student	No.13 and No.14		
C2	Must	All controls for propulsion and steering are physically present. These include: • Two (2) telegraph handles • One (1) rudder handle functioning both as manual rudder control and river pilot input	No.19 and No.20		
C3	Nice to have	For vessels with multiple radars in the model a student can select which radar its signal is displayed on the bridge radar screen	No.1		
C4	Nice to have	The ROT indicator on the radar screen changes scale depending on the maximum ROT-value of the ownship being used	No.1		
C5	Must	The angle of the rudder handle has a maximum physically rotation of 90 degrees in either direction	No.20		
C6	Must	In case an ownship model with azimuth propulsion and steering is present, the following controls are physically present: • Two (2) azimuth controls • River pilot rudder handle	No.20		
C7	Must	All required controls and indicators are either physically present or are emulated on a screen	No.13 and No.14		
C8	Must	All physical and emulated controls and indicators show realistic behaviour	No.13 and No.14		
C9	Nice to Have	Emulated controls can be operated via a touchscreen	N/A		
C10	Nice to Have	Faults with the propulsion systems, including the engines, result in audible and visual alarms	No.13, No.19 and No.52		
C11	Nice to Have	A Fire alarm is present, including audible and visual signals	No.13 and No.52		

ID	Wish	Objective	Reference	Compliant & included	Remark
C12	Nice to Have	Faults with the Steering system result in audible and visual alarms	No.13, No.21 and No. 52		
C13	Must	The workstation is equipped with individual physical foot-pedals for: • One (1) VHF radio push-to-talk • One (1) intercom push-to-talk • One (1) sound horn	No.2 and No.5		
C14	Must	The VHF-radio interface shows Channel 10 as 'default' or 'quick selection'	No.2		
C15	Must	The visual environment is displayed with the following requirements: • a continuous horizontal visual view of at least 210 degrees with 105 degrees to either side of the bridge centreline • a monitor located at the rear of the bridge for a fixed view over the shoulder of the student	No.43 and No.44		
C16	Nice to Have	The fuel consumption and still available fuel levels are presented to the student	N/A		
C17	Must	Applications other than those required for the simulation shall not be accessible during simulation to the student	N/A		
C18	Must	Hot keys normally giving access to other functions shall be disabled during simulation to the student	N/A		
C19	Must	Quitting of main simulator application shall be disabled to the student	N/A		
C20	Must	The student should not have access to configuration files during normal operation	N/A		
C21	Must	User manuals for the simulator equipment and operational controls shall be available to the students for use during exercises either electronically or in hardcopy	N/A		
C22	Must	Operational information of relevant ownship parameters are available to the student either electronically or in hardcopy	N/A		

5. Instructor workstation

ID	Wish	Objective	Reference	Compliant & included	Remark
D1	Must	Creating new exercises and save them for future use	No.11 and No.78		
D2	Must	Create exercises with pre-determined and –programmed actions, faults and calamities	No.11 and No.78		
D3	Nice to have	Faults can be applied to the engine(s) resulting in alarms for the student and observable malfunctions/equipment behaviour for the student	N/A		
D4	Nice to have	Fires can be set in several different locations of the ship resulting in a fire alarm for the student	N/A		
D5	Nice to have	Faults can be applied to the steering system(s) resulting in alarms for the student and observable malfunctions/equipment behaviour for the student	N/A		
D6	Must	Can insert and control traffic vessels while preparing an exercise	No.11		
D7	Must	Can monitor and control traffic vessels during an exercise	No.39		
D8	Nice to have	Can insert new/additional traffic vessels during an exercise	No.39		
D9	Must	Allow for starting, stopping, pausing and restarting exercises	No.78		
D10	Must	Run an exercise where: • All student workstations acting in the same exercise can be at the same location in the area without seeing each other (‘separate’ ownships) • All student workstations acting in the same exercise can interact with each other in the area	No.12 and No.79		
D11	Must	Monitor the performance and actions of all students during an active exercise	No.78		
D12	Must	A slave image of each individual students radar is available to or the image is selectable by the instructor	No.15		
D13	Must	A CCTV system is present where both audio and video are recorded and in which the instructor has an overview showing all students and can select individual students/images for more detail	No.53 and No.54		

ID	Wish	Objective	Reference	Compliant & included	Remark
D14	Must	Activate actions, faults, disturbances and malfunctions during an active exercise	No.78		
D15	Nice to Have	Insert actions, faults, disturbances and malfunctions during an active exercise	No.78		
D16	Must	Communicate over VHF with students during an exercise in 'separate mode': • Individually, so only one student at a time can receive the instructors voice; Collectively, so all students hear the instructor at the same time.	No.10, No.12 and No.15		
D17	Must	• Can see which VHF-channels a student is using for communication	No.15		
D18	Nice to Have	Can observe which channel the student has selected on both VHF-radios	No.15		
D19	Nice to have	Place bookmarks during an exercise, to enable navigation while debriefing	N/A		
D20	Must	The possibility to save exercises conducted by students for examination purposes, including all relevant data	No.80		
D21	Must	The possibility to connect to and project the instructor screen on a separate smartboard or projector, provided by Customer	N/A		

6. Debriefing station

#	Wish	Objective	Reference	Compliant & included	Remark
E1	Must	Debriefing of an exercise that has been run can be done on either the instructor station or on a separate debriefing station	No.16		
E2	Must	Load a replay of an exercise that has been run for debriefing purposes	No.16		
E3	Must	The most relevant data in a saved run is shown in a graphical, logical, intuitive and user-friendly manner	No.16		
E4	Must	Start, pause and stop a replay	No.16		
E5	Must	Go forward and back in time during a replay	N/A		
E6	Nice to Have	Replay in time other than real time (i.e. slow motion and rapid speed)	N/A		
E7	Nice to Have	Navigate in time to bookmarks made during an exercise	N/A		
E8	Must	The possibility to connect to and project the Debriefing screen on a separate smartboard or projector, provided by Customer	N/A		
E9	Must	Be able to copy or export specific logs/replays to an external drive for (exam) archiving	N/A		
E10	Nice to Have	Report per student the fuel consumed over time and the amount of fuel left at the end of an exercise	N/A		

7. Testing station

ID	Wish	Objective	Reference	Compliant & included	Remark
F1	Nice to have	Only in case large New developments are required that require STC Group to validate (partial) developments: During the development and prior to installation a test platform will be available on location in Rotterdam to allow for intermediate developments to be tested and validated before final delivery of the simulator	N/A		