



Draft standards of competence for sailing with the aid of radar

Communication from the Secretariat

The CESNI working program adopted on 2 June 2016¹ foresees the drafting of a standard for competences for boatmasters sailing with the aid of radar (CESNI-2016-37). The working program refers to the proposal of the EU directive on professional qualifications (COM (2016) 82 final).

According to Article 6(c) of Directive (EU) 2017/2397 "Member States shall ensure that boatmasters hold specific authorisations (...) when (...) sailing with the aid of radar (...)".

Essential competence requirements for boatmasters sailing with the aid of radar according to Annex II 3.2 are that "the boatmaster shall be able to

- take appropriate action in relation to navigation with the aid of radar before casting off;
- interpret radar display and analyse the information supplied by radar;
- reduce interference of varying origin;
- navigate by radar taking into account the agreed set of rules applicable to inland navigation and in accordance with the regulations specifying the requirements for navigating by radar (such as manning requirements, technical requirements for vessels);
- handle specific circumstances, such as density of traffic, failure of devices, dangerous situations."

The Temporary Working Group for professional competence agreed on a draft standard during its meeting on 6 September 2017.

The text of directive (EU) 2017/2397 on professional qualifications in inland navigation and proposals to improve the draft as agreed on by the Working Group on professional qualification have been taken into account.

The Working Group has invited the Secretariat to submit the revised draft standard to the CESNI meeting on 10 April 2018.

CESNI experts examined the draft and decided to put it on the agenda of the CESNI meeting on 8 November 2018 for adoption.

Annex

¹ CESNI (16) 21 final

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1. **The boatmaster sailing with the aid of radar shall be able to take appropriate action in relation to navigation with the aid of radar before casting off.**

The boatmaster shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
1. prepare the start of a journey and use of navigational radar installations and rate-of-turn indicators for navigation especially in reduced visibility conditions.	<ol style="list-style-type: none">1. General knowledge of radio waves and knowledge of the principles of radar operation and more specifically<ul style="list-style-type: none">• the propagation velocity of radio waves,• reflection of radio waves and• key parameters of navigational radar installations (operating frequency range, transmission power, pulse duration, rate of antenna revolutions, characteristics of the antenna, display dimensions and range scales, minimum range, radial resolution and azimuthal resolution etc.).2. General knowledge of the working principle of rate-of-turn indicators and their application.3. Ability to switch on, adjust and control navigational radar installations such as Tune, Gain, Brilliance, On/Standby, Range and to use rate-of-turn indicators in inland navigation and assure correct use.

2. The boatmaster sailing with the aid of radar shall be able to interpret radar display and analyse the information supplied by radar.

The boatmaster shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
1. interpret the radar display correctly with respect to own and other craft positions;	1. Ability to interpret the radar display by correctly identifying the <ul style="list-style-type: none">• position of the antenna on the screen and heading line,• setting of position, course and turning direction of the own craft,• determining distances and reach. 2. Ability to interpret the behaviour of other traffic participants (stationary craft, oncoming craft and craft heading in the same direction).
2. analyse other information supplied by radar.	1. Ability to analyse the information supplied by radar such as heading line (HL), electronic bearing line (EBL), range rings and variable range marker (VRM), target trails, decentering, parallel lines (P-Lines) and to explain the radar picture. 2. Knowledge of the limitation of information supplied by navigational radar installations. 3. Ability to interpret stationary and moving objects displayed on the radar.

3. The boatmaster sailing with the aid of radar shall be able to reduce interference of varying origin.

The boatmaster shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
1. identify and reduce disturbances coming from the own craft;	1. Knowledge of disturbances which might be caused by break-up or split of the antenna beam, by shadowing effects (blind sectors) or by multiple reflections (e.g. in the area of the loading compartments). 2. Ability to take action to reduce disturbances coming from own craft.
2. identify and reduce disturbances coming from the environment;	1. Knowledge of disturbances from rain or waves, scattered fields (e.g. bridges), multiple reflections, false/ghost echoes, power transmission lines, radar shadowing and multipath propagation effects. 2. Ability to take action to reduce disturbances coming from the environment (by using Anti-Rain Clutter (FTC) and Anti-Sea Clutter (STC)).
3. identify and reduce disturbances coming from other radar navigation installations.	1. Knowledge of appearance of disturbances caused by other navigational radar installations. 2. Ability to take action to remove disturbances coming from other navigational radar installations (interference rejection/IR).

4. The boatmaster sailing with the aid of radar shall be able to navigate by radar taking into account the agreed set of rules applicable to inland navigation and in accordance with the regulations specifying the requirements for navigating by radar (such as manning requirements or technical requirements for vessels).

The boatmaster shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
1. apply rules governing the use of radar.	<ol style="list-style-type: none">1. Knowledge of specific rules for radar use in the agreed set of rules applicable in inland navigation and in applicable police regulation (e.g. sailing in situations with reduced visibility, use of radar when visibility is not reduced and mandatory radar use when sailing), use of VHF, sound signals and agreements on course to steer.2. Knowledge of technical requirements of craft using navigational radar installation according to the applicable technical requirements such as ES-TRIN.3. Ability to use correctly navigational radar installation, rate-of-turn indicators and Inland ECDIS combined with radar.4. Knowledge of the crewing requirements in situations with reduced visibility and good visibility.5. Ability to adequately attribute tasks to crew members and give appropriate instructions.

5. The boatmaster sailing with the aid of radar shall be able to handle specific circumstances, such as density of traffic, failure of devices, dangerous situations.

The boatmaster shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
1. react appropriately in exceptional circumstances such as high traffic density, failure of devices and other unclear or dangerous traffic situations.	<ol style="list-style-type: none">1. Knowledge of possibilities to react in high traffic density.2. Ability to take appropriate measures in high traffic density.3. Knowledge of mitigation measures and adequate reaction patterns in case of failure of devices.4. Ability to react in case of failure of devices.5. Knowledge of possible actions to be taken in case of any unclear or dangerous traffic situations.6. Ability to react in case of any unclear or dangerous traffic situation.