

EU RO Mutual Recognition Group (Ref 17038)

PEP Overview document

Product Evaluation Tool (PEP)

The EU RO MR Group has released the new product evaluation tool (*Product Evaluation Process – PEP*), which is used to evaluate a product's eligibility to enter the Mutual Recognition Type Approval scheme.

Introduction

The new Product Evaluation Process has been developed by the EU RO MR Group over the last 3 years in replacement of the previous Simplified Risk Based Method (SRBM) to provide a technically founded evaluation tool for determining the possibility to develop EU RO MR Technical Requirements (TRs), and ultimately to test products for their eligibility to enter the Mutual Recognition scheme.

In comparison to the SRBM, the PEP has been developed as a more technically sophisticated tool in which the Classification Rules of all EU ROs are screened with respect to the product and its application cases. It distinguishes three evaluation levels (Basic, Product and System), which evaluate basic regulatory requirements, product specific requirements and then any additional requirements stemming from the application case of the product within a ship's system.

The PEP is a transparent tool, available to industry, and intended for use by the manufacturer for a preliminary check of the potential eligibility of a product being considered for *Mutual Recognition of Type Approval* against any of the EU RO's Rules. Final evaluation is carried out by the EU RO MR Group against all EU RO's Classification Rules.

The PEP and its instruction manual have undergone an industry consultation over the last year and have been fine-tuned with the help of industry participants.

Fundamentals

The PEP is structured and closely aligned with the principles of classification rules, which break down the ship into the vessel systems and determines the requirements based on each system's safety criticality (essential and non-essential service). This results in material, equipment and component specific rule requirements based on the intended use (application case) and functionality (safety criticality) of the product within a particular ship's system.

The categorization of the ship's systems in essential and non-essential service stems from SOLAS Ch II-1, Reg. 40 & 41, as interpreted in MSC/Circ.1176 and MSC.1/Circ.1464, as well as IACS UI SC134.

This has formed the foundation for the EU RO MR Group's Safety Criticality Pyramid model, which graphically illustrate certification requirements based on the safety criticality principle inherent in the classification rules.

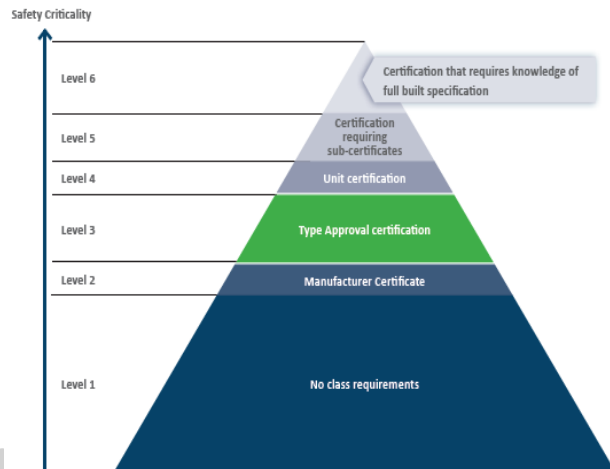


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The following distinction is made:

- Safety critical material / equipment / component, which needs to be individually design approved and/or surveyed and certificated (Level 4 to 6)
- Generic material / equipment / component, which does not need to be individually designed and surveyed (Level 1 to 3), which may be type approved



Methodology

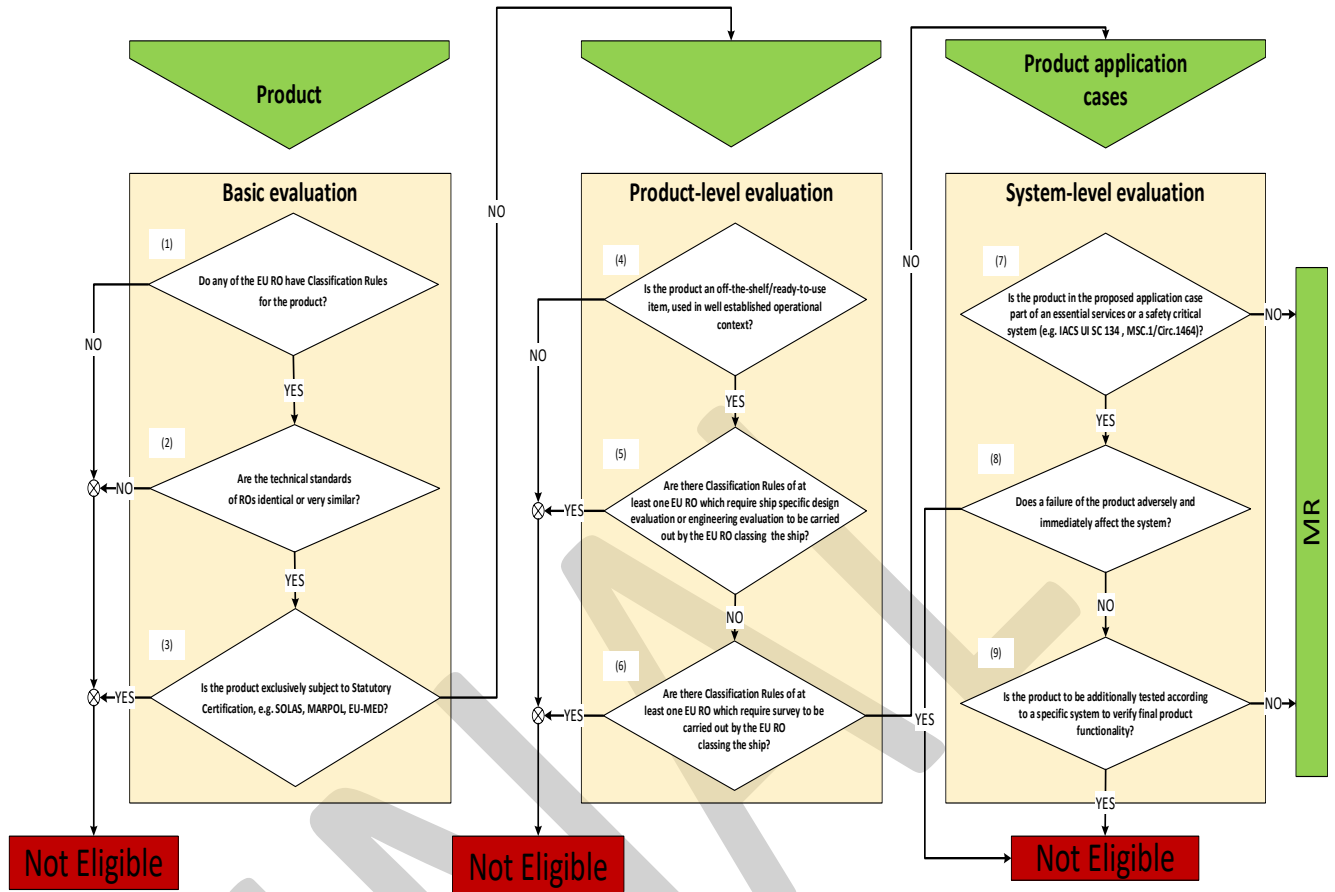
The PEP is an iterative process in which the Classification Rules of all EU ROs are screened with respect to the product and its application cases. The application cases describe the function of the product within in a ship's system.

The PEP distinguishes three evaluation levels (Basic, Product and System) which are explained below.

- a. During the *basic evaluation* the general feasibility of developing MR technical requirements (TR) for the product is assessed without investigating application cases. Products that passed the basic evaluation will be further evaluated considering the application cases.
- b. The product level evaluation considers both product and the corresponding Classification Rule requirements for the product depending on the specified application case or cases.
- c. The System-level evaluation tests products which have successfully passed the Product-level Evaluation. Here the eligibility of the product is further investigated for application cases in safety critical systems.

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Final results of PEP

The outcome of the basic level evaluation is a general verification if it is feasible to develop MR TRs for the product. Where feasibility is determined, the product level evaluation investigates the product relating to the intended application within a ship’s system (application case). Finally, the system level evaluation confirms that the product may continue to be eligible even when installed in a safety critical system.

The final outcome of the PEP evaluation for MR TR development is either:

- “Eligible” (without service limitations): TR can be developed without any restrictions with respect to application cases;
- “Eligible with Service Limitation”: TR can be developed with restrictions that will be specified in TR under Application Limitations; or,
- “Not Eligible”: no TR can be developed



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Supplementary Documents

An instruction manual was developed to supplement the PEP in order to clearly explain the principles and methodology of the tool and guide any user through the individual steps and evaluation questions when testing a product.

Furthermore, the PEP model and instruction manual are accompanied by the PEP Questionnaire Template, so that any user can note down the individual question's results and rule references during product testing against any classifications society's rules.

Finally, the definitions relevant to the PEP, as well as technical information about the EU RO MR scheme can be found in the Framework Document.

Appendixes

The official PEP document with appendixes is attached to this overview as follows:

- Appendix 1 Product Evaluation Process (PEP)
- Appendix 2 PEP Instruction Manual
- Appendix 3 PEP Questionnaire Template

Revision history:

Revision No.	Details of Change	Adoption date	Entry into force	Identifier
0	Document issued	2020-06-23	2020-07-01	17038oScc
1	Amendment to Appendix 2 Instruction Manual - Text added under General regarding tentative nature of PEP outcome Logos updated	2021-07-29	2021-08-01	21026_SCb
2	Amendments Appendices 1 and 2 by TG PEP	2022-02-25	2022-08-25	20037d
3	Minor updates to Appendix 2 suggested by AdHoc Group Material	2022-04-28	2022-05-01	21010dSCc

For general information please visit our website www.euomr.org.

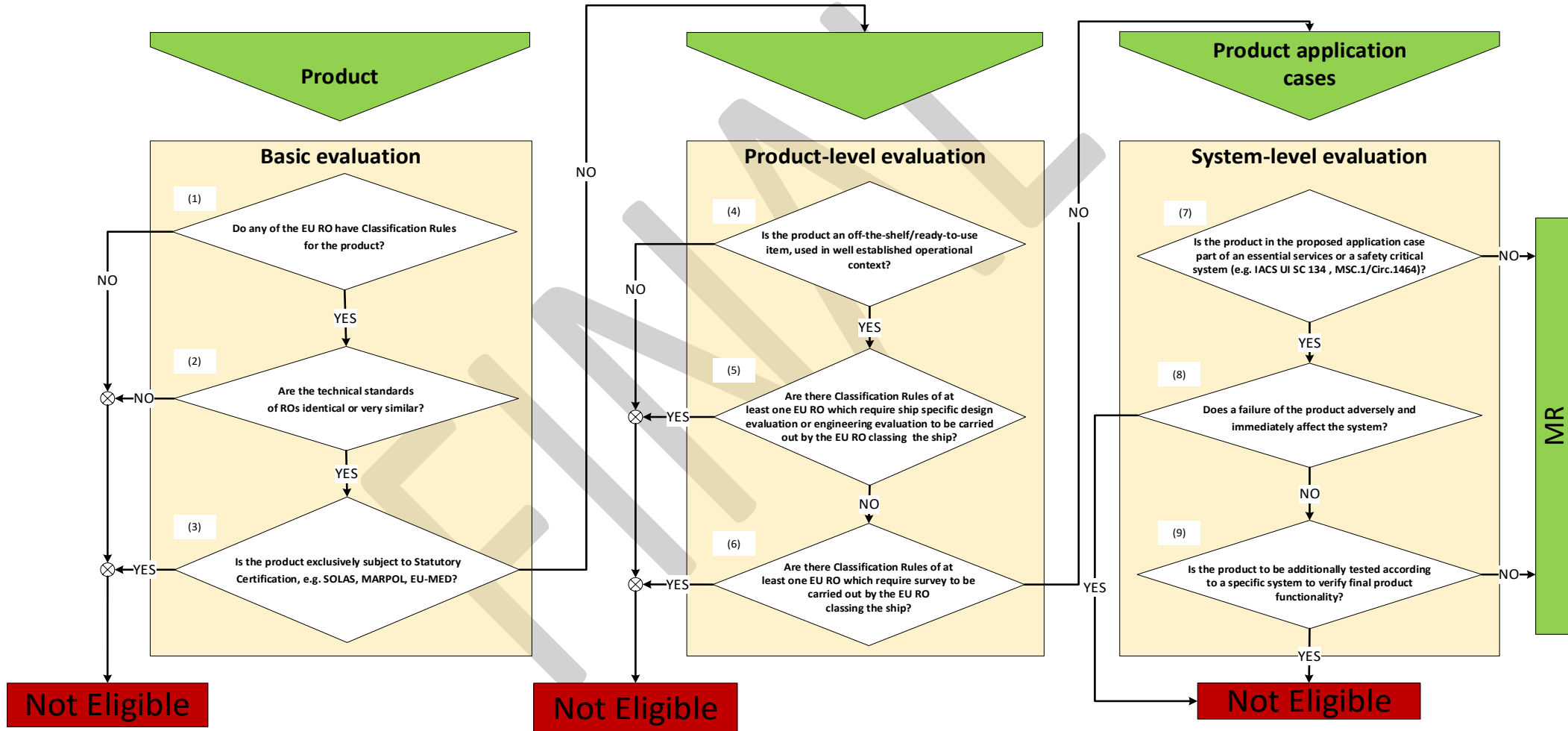
Technical information regarding the MR scheme can be found in the Framework Document (<https://www.euomr.org/technical-requirements>)

Please contact the MR Group Secretariat for any queries (<mailto:Secretariat@euomr.org>).



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Appendix 1 Product Evaluation Process (PEP)



Appendix 2

Product Evaluation Process (PEP) – Instruction Manual

General

The *Product Evaluation Process* (PEP) is a tool for determining the possibility of developing EU RO Mutual Recognition Technical Requirements (TRs) for a product. Under this assessment process the eligibility of a product in general, and considering the application cases, is evaluated by a set of questions based on Classification Rules.

The PEP is an iterative process in which the Classification Rules of all EU ROs are screened with respect to the product and its application cases. The application cases describe the function of the product within in a ship's system.

Note: A product may have to be tested several times for each of its proposed application case, i.e. in what ship's system the product is integrated, and what function it has within the system.

Fundamental prerequisite for developing EU ROs MR TR is the existence of applicable Classification Rules by at least one EU RO.

In the initial phase of testing eligibility of a product, each and every EU RO answers the PEP questions based on their own Classification Rules, with lack of knowledge of other EU RO's Classification Rules. Thus, the conclusion made in this stage is tentative and preliminary. The eligibility for MR finally confirmed during subsequent MR TR development process after a thorough and in-depth analysis by comparing the technical standards, requirements and underlying safety philosophies among all EU RO's Classification Rules.

The manufacturer may use the PEP for a preliminary check of the potential eligibility of a product being considered for *Mutual Recognition of Type Approval* against any of the EU RO's Rules. Final evaluation is carried out by the EU RO MR Group against all EU RO's Classification Rules.

Definition of terminology used in this instruction manual can be found in *EU RO Framework Document for the Mutual Recognition of Type Approval*.

The PEP distinguishes three evaluation levels (Basic, Product and System) which are explained below.

In order to facilitate an efficient application of the PEP, it is recommended to first consider the *Preparation phase* before embarking on the PEP.

Preparation phase

Before testing a product with the PEP, the following work should be considered:

- Check whether EU ROs Mutual Recognition Technical Requirements for this product already exist (<https://www.euomr.org/technical-requirements>);
- Prepare a clear product description including application cases, i.e. what ship systems is the product intended for (refer to the Classification Rules and, in particular IACS UI SC 134 and

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IMO MSC.1/Circ.1464). If applicable: provide a list of maritime related application cases for which the product is already used;

- Utilize a standard terminology as used in the maritime industry (e.g. no brand names);
- Check whether the product is currently subject to individual Survey and Certification by any EU RO, considering the application case.

FINAL



PEP

Basic evaluation

During the *basic evaluation* the general feasibility of developing MR technical requirements (TR) for the product is assessed without investigating application cases. Products that passed the basic evaluation will be further evaluated considering the application cases.

In the basic evaluation, the meaning of the term “Not Eligible” may be twofold:

- a) No specific Classification Rule requirements are applicable to the product onboard of ships, or;
- b) The product is not eligible for the development of MR TRs.

Q1 - Do any of the EU RO have Classification Rules for the product?

Mutual Recognition Technical Requirements can only be developed if at least one EU RO has Classification Rules for the product under consideration. TRs cannot be developed for a product for which none of the EU ROs have Classification Rules.

Q2 - Are the technical standards of ROs identical or very similar?

This question refers to comparability of technical standards and the underlying safety philosophy of EU RO's Classification Rules for the product under consideration. Development of MR TRs may not be possible if Classification Rules or referenced standards differ to a great extent between ROs.

Q3 - Is the product exclusively subject to Statutory Certification, e.g. SOLAS, MARPOL, EU-MED?

EU RO MR is applicable to certification under Classification Rules only. A product subject to statutory certification requirements (SOLAS, MARPOL, EU-MED, etc.) **only** is not eligible for MR if no additional Classification Rules exist.

Product-level evaluation

The product level evaluation considers both product and the corresponding Classification Rule requirements for the product depending on the specified application case or cases.

In context of the product level evaluation “Eligible” means that the product may be considered for developing MR TRs for the specified application case or cases. “Not Eligible” means that either the product or the specific product application case may not be considered. Where there are both application cases where the product may or may not be eligible for MR, the product may be considered “*Eligible with Application Limitations*”.

Q4 - Is the product an off-the-shelf/ready-to-use item and used in well established operational context?

Typically, an off-the-shelf/ready-to-use product is one that is produced in larger quantities, and does not require system specific adaptation or design considerations. When the product is applied and

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operating in a well-established context (application case), there is sufficient experience and knowledge on standard marine operational conditions and service applications, which have been considered in design, manufacturing and testing, therefore not defined based on ship specific performance or assurance requirements. In contrast, newly developed products or products used in new operational context may require individual assessment by the RO due to lack of operational experience and/or adequate evaluation and testing requirements.

Q5 - Are there Classification Rules of at least one EU RO which require ship specific design evaluation or engineering evaluation to be carried out by the EU RO classing the ship?

Classification Rules for the product in the specified application cases may require individual engineering evaluation for each product considering detailed design information. When no ship specific or individual design review requirements for a product exist, it may be eligible for MR TRs development for the specified application cases.

Q6 - Are there Classification Rules of at least one EU RO which require survey to be carried out by the EU RO classing the ship?

Classification Rules for the product may require survey of each individual product manufactured for the specified application cases. When no ship specific survey requirements for a product exist, it may be eligible for MR TRs development for the specified application cases.

Outcome: With completion of the Product-level evaluation, the product in its proposed application case will have been tested for existence of individual design review, survey and certification requirements. All product application cases not requiring individual design review, survey and certification may be considered for the development of TRs.

Any product which has not passed this stage is now tested for its application case when integrated in various ship's systems to further evaluate eligibility for Mutual Recognition.

System-level evaluation

The System-level evaluation tests products which have successfully passed the Product-level Evaluation. Here the eligibility of the product is further investigated for application cases in safety critical systems.

Q7 in conjunction with Q8 confirms whether the product continues to be “Eligible” for MR even when integrated in a safety critical systems (applications case).

An “eligible” outcome after Q8 means that the product in the proposed application case may be considered for development of TRs even when installed in safety critical systems.

Q7 - Is the product in the proposed application case part of an essential services or a safety critical system (e.g. IACS UI SC 134, MSC.1/Circ.1464)?



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Q7 needs to be considered in conjunction with Q8. Q7 focus on the identification of all cases where the product is used in a safety critical system/structure, i.e. material, components and equipment for primary and secondary essential service as defined in IACS UI SC 134 and MSC.1/Circ.1464, or as determined in accordance with the applicable Rules/Regulations. For those cases where the product is integrated in such essential services or safety critical systems/structures, evaluation continues with Q8.

Q8 - Does a failure of the product adversely and immediately affect the safety critical system?

This question considers safety criticality of the product integrated into the system/structure, i.e. the effect(s) of a product failure with respect to the operation/integrity of the safety critical system/structure. No adverse effect allows the development of MR TRs. *However, if the consequence due to adverse effect is not immediate, then evaluation may continue with Q9.*

Q9 - Is the product to be additionally tested according to a specific system to verify final product functionality?

This screens for any additional Classification Rule requirements where final product functionality can only be tested when integrated in the system, and thus final certification is only possible after completion of this in-situ testing. Product and in-situ testing need to be performed under survey by the Classification Society classing the ship. Specific in-situ testing requirements would be noted in the MR TRs.

Final results of PEP

The outcome of the basic level evaluation is a general verification if it is feasible to develop MR TRs for the product. Where feasibility is determined, the product level evaluation investigates the product relating to the intended application within a ship's system (application case). For any product found "eligible" thus far, it is confirmed that it may continue to be eligible even when installed in a safety critical system.

The final outcome of the PEP evaluation for MR TR development is either:

- "Eligible" (without service limitations): TR can be developed without any restrictions with respect to application cases;
- "Eligible with Service Limitation": TR can be developed with restrictions that will be specified in TR under *Application Limitations*; or,
- "Not Eligible": no TR can be developed



Appendix 3

Product Evaluation Process (PEP) – Test Case Template – May 2020

Product:

Classification Rules:

(Note: each question requires a reply and a rule/regulation reference and/or further explanation)

Basic evaluation

Q1 - Do any of the EU RO have Classification Rules for the product?

Q2 - Are the technical standards of ROs identical or very similar, e.g. referring to the same or to equivalent internationally recognised testing standards (like IEC, ISO etc.)?

Q3 - Is the product exclusively subject to Statutory Certification, e.g. SOLAS, MARPOL, EU-MED?

Product-level evaluation

Q4 - Is the product an off-the-shelf/ready-to-use item, used in well established operational context?

Q5 - Are there Classification Rules of at least one EU RO which require ship specific design evaluation or engineering evaluation to be carried out by the EU RO classing the ship?

Q6 - Are there Classification Rules of at least one EU RO which require survey of the product to be carried out by the EU RO classing the ship?

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System-level evaluation

Q7 - Is the product part of an essential services or a safety critical system (e.g. IACS UI SC 134, MSC.1/Circ.1464)?

Q8 - Does a failure of the product adversely and immediately affect the system?

Q9 - Is the product to be additionally tested according to a specific system to verify final product functionality?

FINAL

