



**BUREAU
VERITAS**

Additional Service Feature SMART

October 2021

**Rule Note
NR 675 DT R01 E**



1. INDEPENDENCE OF THE SOCIETY AND APPLICABLE TERMS

- 1.1 The Society shall remain at all times an independent contractor and neither the Society nor any of its officers, employees, servants, agents or subcontractors shall be or act as an employee, servant or agent of any other party hereto in the performance of the Services.
- 1.2 The operations of the Society in providing its Services are exclusively conducted by way of random inspections and do not, in any circumstances, involve monitoring or exhaustive verification.
- 1.3 The Society acts as a services provider. This cannot be construed as an obligation bearing on the Society to obtain a result or as a warranty. The Society is not and may not be considered as an underwriter, broker in Unit's sale or chartering, expert in Unit's valuation, consulting engineer, controller, naval architect, designer, manufacturer, shipbuilder, repair or conversion yard, charterer or shipowner; none of the above listed being relieved from any of their expressed or implied obligations as a result of the interventions of the Society.
- 1.4 Only the Society is qualified to apply and interpret its Rules.
- 1.5 The Client acknowledges the latest versions of the Conditions and of the applicable Rules applying to the Services' performance.
- 1.6 Unless an express written agreement is made between the Parties on the applicable Rules, the applicable Rules shall be the Rules applicable at the time of entering into the relevant contract for the performance of the Services.
- 1.7 The Services' performance is solely based on the Conditions. No other terms shall apply whether express or implied.

2. DEFINITIONS

- 2.1 "Certificate(s)" means classification or statutory certificates, attestations and reports following the Society's intervention.
- 2.2 "Certification" means the activity of certification in application of national and international regulations or standards ("Applicable Referential"), in particular by delegation from different governments that can result in the issuance of a Certificate.
- 2.3 "Classification" means the classification of a Unit that can result or not in the issuance of a classification Certificate with reference to the Rules. Classification (or Certification as defined in clause 2.2) is an appraisalment given by the Society to the Client, at a certain date, following surveys by its surveyors on the level of compliance of the Unit to the Society's Rules and/or to Applicable Referential for the Services provided. They cannot be construed as an implied or express warranty of safety, fitness for the purpose, seaworthiness of the Unit or of its value for sale, insurance or chartering.
- 2.4 "Client" means the Party and/or its representative requesting the Services.
- 2.5 "Conditions" means the terms and conditions set out in the present document.
- 2.6 "Industry Practice" means international maritime and/or offshore industry practices.
- 2.7 "Intellectual Property" means all patents, rights to inventions, utility models, copyright and related rights, trade marks, logos, service marks, trade dress, business and domain names, rights in trade dress or get-up, rights in goodwill or to sue for passing off, unfair competition rights, rights in designs, rights in computer software, database rights, topography rights, moral rights, rights in confidential information (including know-how and trade secrets), methods and protocols for Services, and any other intellectual property rights, in each case whether capable of registration, registered or unregistered and including all applications for and renewals, reversions or extensions of such rights, and all similar or equivalent rights or forms of protection in any part of the world.
- 2.8 "Parties" means the Society and Client together.
- 2.9 "Party" means the Society or the Client.
- 2.10 "Register" means the public electronic register of ships updated regularly by the Society.
- 2.11 "Rules" means the Society's classification rules (available online on veristar.com), guidance notes and other documents. The Society's Rules take into account at the date of their preparation the state of currently available and proven technical minimum requirements but are not a standard or a code of construction neither a guide for maintenance, a safety handbook or a guide of professional practices, all of which are assumed to be known in detail and carefully followed at all times by the Client.
- 2.12 "Services" means the services set out in clauses 2.2 and 2.3 but also other services related to Classification and Certification such as, but not limited to: ship and company safety management certification, ship and port security certification, maritime labour certification, training activities, all activities and duties incidental thereto such as documentation on any supporting means, software, instrumentation, measurements, tests and trials on board. The Services are carried out by the Society according to the Rules and/or the Applicable Referential and to the Bureau Veritas' Code of Ethics. The Society shall perform the Services according to the applicable national and international standards and Industry Practice and always on the assumption that the Client is aware of such standards and Industry Practice.
- 2.13 "Society" means the classification society 'Bureau Veritas Marine & Offshore SAS', a company organized and existing under the laws of France, registered in Nanterre under number 821 131 844, or any other legal entity of Bureau Veritas Group as may be specified in the relevant contract, and whose main activities are Classification and Certification of ships or offshore units.
- 2.14 "Unit" means any ship or vessel or offshore unit or structure of any type or part of it or system whether linked to shore, river bed or sea bed or not, whether operated or located at sea or in inland waters or partly on land, including submarines, hovercrafts, drilling rigs, offshore installations of any type and of any purpose, their related and ancillary equipment, subsea or not, such as well head and pipelines, mooring legs and mooring points or otherwise as decided by the Society.

3. SCOPE AND PERFORMANCE

- 3.1 Subject to the Services requested and always by reference to the Rules, and/or to the Applicable Referential, the Society shall:
 - review the construction arrangements of the Unit as shown on the documents provided by the Client;
 - conduct the Unit surveys at the place of the Unit construction;
 - class the Unit and enter the Unit's class in the Society's Register;
 - survey the Unit periodically in service to note whether the requirements for the maintenance of class are met.The Client shall inform the Society without delay of any circumstances which may cause any changes on the conducted surveys or Services.
- 3.2 The Society will not:
 - declare the acceptance or commissioning of a Unit, nor its construction in conformity with its design, such activities remaining under the exclusive responsibility of the Unit's owner or builder;
 - engage in any work relating to the design, construction, production or repair checks, neither in the operation of the Unit or the Unit's trade, neither in any advisory services, and cannot be held liable on those accounts.

4. RESERVATION CLAUSE

- 4.1 The Client shall always: (i) maintain the Unit in good condition after surveys; (ii) present the Unit for surveys; and (iii) inform the Society in due time of any circumstances that may affect the given appraisalment of the Unit or cause to modify the scope of the Services.
- 4.2 Certificates are only valid if issued by the Society.
- 4.3 The Society has entire control over the Certificates issued and may at any time withdraw a Certificate at its entire discretion including, but not limited to, in the following situations: where the Client fails to comply in due time with instructions of the Society or where the Client fails to pay in accordance with clause 6.2 hereunder.
- 4.4 The Society may at times and at its sole discretion give an opinion on a design or any technical element that would 'in principle' be acceptable to the Society. This opinion shall not presume on the final issuance of any Certificate nor on its content in the event of the actual issuance of a Certificate. This opinion shall only be an appraisalment made by the Society which shall not be held liable for it.

5. ACCESS AND SAFETY

- 5.1 The Client shall give to the Society all access and information necessary for the efficient performance of the requested Services. The Client shall be the sole responsible for the conditions of presentation of the Unit for tests, trials and surveys and the conditions under which tests and trials are carried out. Any information, drawing, etc. required for the performance of the Services must be made available in due time.
- 5.2 The Client shall notify the Society of any relevant safety issue and shall take all necessary safety-related measures to ensure a safe work environment for the Society or any of its officers, employees, servants, agents or subcontractors and shall comply with all applicable safety regulations.

6. PAYMENT OF INVOICES

- 6.1 The provision of the Services by the Society, whether complete or not, involves, for the part carried out, the payment of fees thirty (30) days upon issuance of the invoice.
- 6.2 Without prejudice to any other rights hereunder, in case of Client's payment default, the Society shall be entitled to charge, in addition to the amount not properly paid, interest equal to twelve (12) months LIBOR plus two (2)

per-cent as of due date calculated on the number of days such payment is delinquent. The Society shall also have the right to withhold Certificates and other documents and/or to suspend or revoke the validity of Certificates.

- 6.3 In case of dispute on the invoice amount, the undisputed portion of the invoice shall be paid and an explanation on the dispute shall accompany payment so that action can be taken to resolve the dispute.

7. LIABILITY

- 7.1 The Society bears no liability for consequential loss. For the purpose of this clause consequential loss shall include, without limitation:
 - Indirect or consequential loss;
 - Any loss and/or deferral of production, loss of product, loss of use, loss of bargain, loss of revenue, loss of profit or anticipated profit, loss of business and business interruption, in each case whether direct or indirect.The Client shall defend, release, save, indemnify, defend and hold harmless the Society from the Client's own consequential loss regardless of cause.
- 7.2 Except in case of wilful misconduct of the Society, death or bodily injury caused by the Society's negligence and any other liability that could not be, by law, limited, the Society's maximum liability towards the Client is limited to one hundred and fifty per-cent (150%) of the price paid by the Client to the Society for the Services having caused the damage. This limit applies to any liability of whatsoever nature and howsoever arising, including fault by the Society, breach of contract, breach of warranty, tort, strict liability, breach of statute.
- 7.3 All claims shall be presented to the Society in writing within three (3) months of the completion of Services' performance or (if later) the date when the events which are relied on were first discovered by the Client. Any claim not so presented as defined above shall be deemed waived and absolutely time barred.

8. INDEMNITY CLAUSE

- 8.1 The Client shall defend, release, save, indemnify and hold harmless the Society from and against any and all claims, demands, lawsuits or actions for damages, including legal fees, for harm or loss to persons and/or property tangible, intangible or otherwise which may be brought against the Society, incidental to, arising out of or in connection with the performance of the Services (including for damages arising out of or in connection with opinions delivered according to clause 4.4 above) except for those claims caused solely and completely by the gross negligence of the Society, its officers, employees, servants, agents or subcontractors.

9. TERMINATION

- 9.1 The Parties shall have the right to terminate the Services (and the relevant contract) for convenience after giving the other Party thirty (30) days' written notice, and without prejudice to clause 6 above.
- 9.2 The Services shall be automatically and immediately terminated in the event the Client can no longer establish any form of interest in the Unit (e.g. sale, scrapping).
- 9.3 The Classification granted to the concerned Unit and the previously issued Certificates shall remain valid until the date of effect of the termination notice issued, or immediately in the event of termination under clause 9.2, subject to compliance with clause 4.1 and 6 above.
- 9.4 In the event where, in the reasonable opinion of the Society, the Client is in breach, or is suspected to be in breach of clause 16 of the Conditions, the Society shall have the right to terminate the Services (and the relevant contracts associated) with immediate effect.

10. FORCE MAJEURE

- 10.1 Neither Party shall be responsible or liable for any failure to fulfil any term or provision of the Conditions if and to the extent that fulfillment has been delayed or temporarily prevented by a force majeure occurrence without the fault or negligence of the Party affected and which, by the exercise of reasonable diligence, the said Party is unable to provide against.
- 10.2 For the purpose of this clause, force majeure shall mean any circumstance not being within a Party's reasonable control including, but not limited to: acts of God, natural disasters, epidemics or pandemics, wars, terrorist attacks, riots, sabotages, impositions of sanctions, embargoes, nuclear, chemical or biological contaminations, laws or action taken by a government or public authority, quotas or prohibition, expropriations, destructions of the worksite, explosions, fires, accidents, any labour or trade disputes, strikes or lockouts.

11. CONFIDENTIALITY

- 11.1 The documents and data provided to or prepared by the Society in performing the Services, and the information made available to the Society, will be treated as confidential except where the information:
 - is properly and lawfully in the possession of the Society;
 - is already in possession of the public or has entered the public domain, other than through a breach of this obligation;
 - is acquired or received independently from a third party that has the right to disseminate such information;
 - is required to be disclosed under applicable law or by a governmental order, decree, regulation or rule or by a stock exchange authority (provided that the receiving Party shall make all reasonable efforts to give prompt written notice to the disclosing Party prior to such disclosure).
- 11.2 The Parties shall use the confidential information exclusively within the framework of their activity underlying these Conditions.
- 11.3 Confidential information shall only be provided to third parties with the prior written consent of the other Party. However, such prior consent shall not be required when the Society provides the confidential information to a subsidiary.
- 11.4 Without prejudice to sub-clause 11.1, the Society shall have the right to disclose the confidential information if required to do so under regulations of the International Association of Classification Societies (IACS) or any statutory obligations.

12. INTELLECTUAL PROPERTY

- 12.1 Each Party exclusively owns all rights to its Intellectual Property created before or after the commencement date of the Conditions and whether or not associated with any contract between the Parties.
- 12.2 The Intellectual Property developed by the Society for the performance of the Services including, but not limited to drawings, calculations, and reports shall remain the exclusive property of the Society.

13. ASSIGNMENT

- 13.1 The contract resulting from to these Conditions cannot be assigned or transferred by any means by a Party to any third party without the prior written consent of the other Party.
- 13.2 The Society shall however have the right to assign or transfer by any means the said contract to a subsidiary of the Bureau Veritas Group.

14. SEVERABILITY

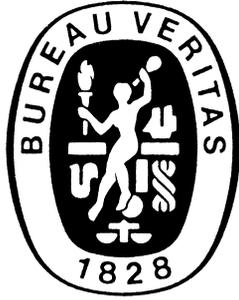
- 14.1 Invalidation of one or more provisions does not affect the remaining provisions.
- 14.2 Definitions herein take precedence over other definitions which may appear in other documents issued by the Society.
- 14.3 In case of doubt as to the interpretation of the Conditions, the English text shall prevail.

15. GOVERNING LAW AND DISPUTE RESOLUTION

- 15.1 These Conditions shall be construed in accordance with and governed by the laws of England and Wales.
- 15.2 Any dispute shall be finally settled under the Rules of Arbitration of the Maritime Arbitration Chamber of Paris ("CAMP"), which rules are deemed to be incorporated by reference into this clause. The number of arbitrators shall be three (3). The place of arbitration shall be Paris (France). The Parties agree to keep the arbitration proceedings confidential.
- 15.3 Notwithstanding clause 15.2, disputes relating to the payment of the Society's invoices may be submitted by the Society to the *Tribunal de Commerce de Nanterre*, France, or to any other competent local Court, at the Society's entire discretion.

16. PROFESSIONAL ETHICS

- 16.1 Each Party shall conduct all activities in compliance with all laws, statutes, rules, economic and trade sanctions (including but not limited to US sanctions and EU sanctions) and regulations applicable to such Party including but not limited to: child labour, forced labour, collective bargaining, discrimination, abuse, working hours and minimum wages, anti-bribery, anti-corruption, copyright and trademark protection, personal data protection (<https://personaldataprotection.bureauveritas.com/prv-acvpolicy>).
- Each of the Parties warrants that neither it, nor its affiliates, has made or will make, with respect to the matters provided for hereunder, any offer, payment, gift or authorization of the payment of any money directly or indirectly, to or for the use or benefit of any official or employee of the government, political party, official, or candidate.
- 16.2 In addition, the Client shall act consistently with the Bureau Veritas' Code of Ethics and, when applicable, Business Partner Code of Conduct both available at <https://group.bureauveritas.com/group/corporate-social-responsibility/operational-excellence>.



RULE NOTE NR 675

NR 675 ADDITIONAL SERVICE FEATURE SMART

SECTION 1 ADDITIONAL SERVICE FEATURE SMART

Section 1 Additional Service Feature SMART

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SECTION 1

ADDITIONAL SERVICE FEATURE SMART

1 General

1.1 Definitions

1.1.1 A smart system is defined as a computer based system that incorporate functions for the collection, the transmission, the analysis and the visualisation of data.

1.1.2 A function is a defined objective or characteristic action of a system or component (ISO/IEC/IEEE 24765).

1.1.3 Smart functions may include monitoring, decision making support, remote monitoring, maintenance from shore or remote operation of the system.

1.2 Application

1.2.1 Ships fitted with a smart system and assigned with an additional service feature **SMART()** as defined in NR467, Pt A, Ch 1, Sec 2 are to comply with the requirements of this Rule Note.

Note 1: NR467, Rules for the classification of Steel Ships.

1.2.2 The scope of the additional service feature **SMART()** is limited to computer based systems installed on board ships. Ship-shore communication systems and computer based systems not on board (e.g. on cloud or on shore) are out of scope of these requirements.

1.2.3 The additional service feature **SMART()** is completed between brackets by at least one of the following notations **H1** or **H2**, **M1** or **M2** and **N1** or **N2**, indicating:

- the scope of application of the smart function:
 - H** for Hull
 - M** for Machinery
 - N** for Navigation.
- the level of the smart function:
 - 1** for Tier 1 function
 - 2** for Tier 2 function.

Examples:

SMART(H1)

SMART(M2,N2)

Note 1: According to the requirements for assignment of the notations **H2**, **M2** and **N2** as defined respectively in [3.2], [4.2] and [5.2], the level Tier 2 can only be assigned uniformly to all notations.

For example, **SMART(H1,M2)** cannot be assigned.

Indeed, as the additional class notations **CYBER MANAGED** or **CYBER SECURE** are assigned to a ship and not to a particular sys-

tem, as soon as a ship is assigned with one of these additional Cyber class notations, all notations **H1**, **M1** or **N1** assigned to this ship for Tier 1 smart functions may be upgraded to notations **H2**, **M2** or **N2** respectively.

1.3 Requirements

1.3.1 The general requirements for assignment of the additional service feature **SMART()** are defined in Article [2].

1.3.2 The additional requirements for assignment of the notations **H1** or **H2** relative to Hull smart functions are defined in Article [3].

1.3.3 The additional requirements for assignment of the notations **M1** or **M2** relative to Machinery smart functions are defined in Article [4].

1.3.4 The additional requirements for assignment of the notations **N1** or **N2** relative to Navigation smart functions are defined in Article [5].

1.3.5 The scope of application and corresponding requirements of each notation are summarized in Tab 1.

1.3.6 Granting of notations **H1** or **H2**, **M1** or **M2** and **N1** or **N2** is subject to compliance with requirements for assignment of specific additional class notations and/or additional service features as defined in Articles [3], [4] or [5].

The applicable requirements for assignment and maintenance of these additional class notations and/or additional service features are listed in NR467, Pt A, Ch 1, Sec 2.

2 General requirements for additional service feature SMART()

2.1 Documents to be submitted

2.1.1 In addition to the documents to be submitted for assignment of the additional class notations and/or additional service features as defined in Articles [3], [4] or [5], the documents to be submitted in the scope of the additional service feature **SMART()** are listed in Tab 2.

2.1.2 Additional documentation may be required upon request.

Table 1 : Additional service feature SMART()

| Scope of application | |
|---|---|
| Tier 1 notation | Tier 2 notation |
| HULL (see Article [3]) | |
| H1 (see [3.1]) | H2 (see [3.2]) |
| Smart functionality for operation: <ul style="list-style-type: none"> compliance with the requirements for granting one of the additional class notations LI-S3, LI-S4, LI-HG-S3 or LI-HG-S4 or Smart functionality for maintenance: <ul style="list-style-type: none"> compliance with the requirements for granting additional class notation MON-HULL | Compliance with the requirements for granting: <ul style="list-style-type: none"> notation H1 and <ul style="list-style-type: none"> one of the additional class notations: CYBER MANAGED or CYBER SECURE |
| MACHINERY (see Article [4]) | |
| M1 (see [4.1]) | M2 (see [4.2]) |
| Smart functionality for operation: <ul style="list-style-type: none"> compliance with the requirements for granting additional class notation AUT-IMS, see also [4.3] or <ul style="list-style-type: none"> compliance with the requirements for granting additional class notation ULEV in the case of electronically controlled engines or Smart functionality for maintenance: <ul style="list-style-type: none"> compliance with the requirements for granting additional class notation MON-SHAFT and compliance with the applicable requirements of the additional service feature CBM , see also [4.1.5] | Compliance with the requirements for granting: <ul style="list-style-type: none"> notation M1 and <ul style="list-style-type: none"> one of the additional class notations: CYBER MANAGED or CYBER SECURE |
| NAVIGATION (see Article [5]) | |
| N1 (see [5.1]) | N2 (see [5.2]) |
| Smart functionality for operation: <ul style="list-style-type: none"> compliance with the requirements for granting additional class notation DYNAPOS (DP Class 1, 2 or 3) or <ul style="list-style-type: none"> compliance with the requirements for granting additional class notation SYS-IBS, see also [5.3] and Integrated Navigation System (INS) in accordance with IMO MSC.252 (83) requirements | Compliance with the requirements for granting: <ul style="list-style-type: none"> notation N1 and <ul style="list-style-type: none"> one of the additional class notations: CYBER MANAGED or CYBER SECURE |
| Note 1: See Article [2] about general requirements for the additional service feature SMART() | |

2.2 Computer based systems

2.2.1 The design, construction, commissioning and maintenance of computer based systems where they depend on software for the proper achievement of the smart functions are to be in accordance with NR467, Pt C, Ch 3, Sec 3 requirements for Category I systems.

2.2.2 In addition to the requirements defined in [2.2.1], the following requirements are to be complied with:

a) software functional description and associated hardware description are to be submitted for information

b) test program for on board tests, including wireless network testing, are to be submitted for information

c) on board integration tests, including wireless network testing, are to be witnessed by the Surveyor.

2.3 Components

2.3.1 The components of the smart systems, as indicated in NR467, Pt C, Ch 2, Sec 15, [2], are to be chosen from among the list of type approved products.

They are to be approved on the basis of the applicable requirements of the Society Rules.

Table 2 : Documents to be submitted

| N° | Description | A/I/W (1) |
|---|---|-----------|
| 1 | List of computer based systems involved in smart functions. This list is to include: <ul style="list-style-type: none"> • designation of system involved • manufacturer of system (if available) • supplier of control system (if available) | I |
| 2 | Documentation as required in NR467, Pt C, Ch 3, Sec 3, Tab 2 for Category I systems | A/I |
| 3 | Software modules functional description and associated hardware description | I |
| 4 | Test program for on board tests (including wireless network testing) | I |
| 5 | On board integration tests (including wireless network testing) | W |
| 6 | List of machinery items surveyed under a Condition Based Maintenance scheme, when applicable (2) | A |
| 7 | Approval certificate of the Computerised Maintenance Management System (CMMS), when applicable (2) | I |
| 8 | Description of the Integrated Navigation System, when applicable (3) | A |
| 9 | Description of the machinery health digital solutions, when applicable (4) | I |
| 10 | Description of the energy efficiency digital solutions for machinery or for navigation, when applicable (4) | I |
| <p>(1) A = to be submitted for approval I = to be submitted for information W = tests to be witnessed by the Surveyor</p> <p>(2) See [4.1.5]</p> <p>(3) See [5.1.1]</p> <p>(4) See [4.3] and [5.3]</p> <p>Further documentation may be requested for approval or for information by the Society on a case by case basis</p> | | |

2.3.2 Case by case approval may also be granted at the discretion of the Society, based on submission of adequate documentation and subject to the satisfactory outcome of any required tests.

2.4 Electromagnetic susceptibility

2.4.1 Electronic type components of a smart system are to comply with the requirements covering electromagnetic susceptibility as defined in NR467, Pt C, Ch 2, Sec 2, [3].

2.5 Testing

2.5.1 Before a new installation, or any alteration or addition to an existing installation, is put into service, the electrical equipment of a smart system is to be tested in accordance with the requirements as defined in NR467, Pt C, Ch 2, Sec 15 to the satisfaction of the Surveyor in charge.

2.5.2 Hardware type approval of smart systems is obtained subject to the successful outcome of the tests as defined in NR467, Pt C, Ch 3, Sec 6, [2].

3 Additional requirements for Hull smart functions

3.1 Hull smart functions - Tier 1

3.1.1 The additional service feature **SMART()** is completed by the notation **H1** when the ship complies with the

requirements for granting of at least one of the following notations:

- hull smart functionalities dedicated to operation:

LI-S3, LI-S4, LI-HG-S3 or LI-HG-S4

or

- hull smart functionalities dedicated to hull maintenance:

MON-HULL

3.1.2 The additional class notation **LI-S3** may be assigned to ships equipped with a loading instrument performing intact stability calculations and direct damage stability calculations based on pre-programmed damage cases.

When this loading instrument performs hull girder and stability calculations, the additional class notation **LI-HG-S3** may be assigned.

3.1.3 The additional class notation **LI-S4** may be assigned to ships equipped with a loading instrument performing damage stability calculations associated with an actual loading condition and actual flooding case, using direct application of user defined damage, for the purpose of providing operational information for Safe Return To Port (SRTP).

When this loading instrument performs hull girder and stability calculations, the additional class notation **LI-HG-S4** may be assigned.

3.1.4 The additional class notation **MON-HULL** may be assigned to ships which are fitted with equipment continuously monitoring ship's dynamic loads through measurements of motions in waves and stresses/deformations in the hull structure.

3.1.5 The applicable requirements for assignment and maintenance of the additional class notations **LI-S3**, **LI-S4**, **LI-HG-S3**, **LI-HG-S4** or **MON-HULL** are defined in NR467, Pt A, Ch 1, Sec 2.

3.2 Hull smart functions - Tier 2

3.2.1 The additional service feature **SMART()** is completed by the notation **H2** when, in addition to the requirements defined in [3.1], the ship complies with the requirements for granting of at least one of the following notations:

- **CYBER MANAGED**

or

- **CYBER SECURE**

3.2.2 The additional class notations **CYBER MANAGED** or **CYBER SECURE** may be assigned to ships whose systems and equipment comply with the requirements of NR659 Rules on Cyber Security for the Classification of Marine Units.

4 Additional requirements for Machinery smart functions

4.1 Machinery smart functions - Tier 1

4.1.1 The additional service feature **SMART()** is completed by the notation **M1** when the ship complies with the requirements for granting of at least one of the following notations:

- machinery smart functionalities dedicated to operation:
AUT-IMS
or
ULEV in the case of electronically controlled engines

or

- machinery smart functionalities dedicated to machinery maintenance:
MON-SHAFT and **CBM**

4.1.2 The additional class notation **AUT-IMS** may be assigned to ships which are fitted with automated installations enabling machinery spaces to remain periodically unattended in all sailing conditions including manoeuvring, and additionally provided with integrated systems enabling to handle control, safety and monitoring of machinery.

Note 1: The additional class notation **AUT-IMS** may be complemented by the notation **-HWIL** when the control system has been verified according to the requirements of NR632, Hardware-in-the-loop Testing.

4.1.3 The additional class notation **ULEV** may be assigned to ships which are fitted with internal combustion engines having the capacity to emit gaseous pollutants and particular pollutants at a very low level.

4.1.4 The additional class notation **MON-SHAFT** may be assigned to ships fitted with oil or water lubricated systems for tailshaft bearings.

The additional service feature **CBM** may be assigned to ships where a Planned Maintenance Survey system for machinery (PMS) is implemented and on which at least one machinery item is to be surveyed under a Condition Based Maintenance scheme.

4.1.5 The applicable requirements for assignment and maintenance of the additional class notations **AUT-IMS**, **ULEV**, **MON-SHAFT** and the additional service feature **CBM** are defined in NR467, Pt A, Ch 1, Sec 2.

4.1.6 For ships assigned with the additional service feature **CBM**, the following additional requirements are to be complied with:

- a) the list of machinery items to be surveyed under a Condition Based Maintenance scheme is to include at least the following items:
 - main diesel engines
 - electric motors and alternators for energy production.
- b) the Computerised Maintenance Management System (CMMS) used to program and maintain the PMS is to be approved by the Society
- c) the Condition Monitoring systems are to be in accordance with the requirements of the Rule Note NR674.

4.2 Machinery smart functions - Tier 2

4.2.1 The additional service feature **SMART()** is completed by the notation **M2** when, in addition to the requirements defined in [4.1], the ship complies with the requirements for granting of at least one of the following notations:

- **CYBER MANAGED**

or

- **CYBER SECURE**

4.2.2 The additional class notations **CYBER MANAGED** or **CYBER SECURE** may be assigned to ships whose systems and equipment comply with the requirements of NR659 Rules on Cyber Security for the Classification of Marine Units.

4.3 Other machinery digital solutions

4.3.1 As a complement to the additional class notation **AUT-IMS**, the following machinery digital solutions may be considered by the Society on a case by case basis in the scope of the notations **M1** or **M2**:

- Machinery health digital solutions (e.g. monitoring of the state of health and operating conditions of machines and on-board systems)
- Energy efficiency digital solutions for machinery (e.g. monitoring and optimisation of the energy consumption of machines and on-board systems)

4.3.2 In this case, these machinery digital solutions are to comply with the general requirements for smart systems as defined in Article [2].

4.3.3 Any other machinery digital solutions considered in the scope of the additional service feature **SMART()** are to be indicated in a memoranda.

5 Additional requirements for Navigation smart functions

5.1 Navigation smart functions - Tier 1

5.1.1 The additional service feature **SMART()** is completed by the notation **N1** subject to compliance with the following conditions:

- the ship complies with the requirements for granting the notation **DYNAPOS** (DP Class 1, 2 or 3)

or

- the ship complies with the requirements for granting the notation **SYS-IBS**

and

the ship is equipped with an Integrated Navigation System (INS) in accordance with the requirements of the Resolution from the eighty-third session of the Maritime Safety Committee at the International Maritime Organization IMO.MSC.252(83) "Adoption of the revised performance standards for Integrated Navigation Systems (INS)".

5.1.2 The additional class notation **DYNAPOS** may be assigned to ships fitted with dynamic positioning installations.

The scope of the additional class notation **DYNAPOS**, including the additional notations for the description of capability of the installation (**SAM, AM, AT, AM/AT**) completed when applicable by the notations **R, RS, (xx;xx), -EI, -HWIL, -DDPS**), and the requirements for the assignment of these notations are defined in NR467, Pt A, Ch 1, Sec 2.

5.1.3 The additional class notation **SYS-IBS** may be assigned to ships fitted with an integrated bridge system which allows simplified and centralised bridge operation of the main functions of navigation, manoeuvring and communication, as well as monitoring from bridge of other

functions related to passage execution, route control and monitoring and control and monitoring of machinery installation.

Note 1: The additional class notation **SYS-IBS** may be complemented by the notation **-HWIL** when the control system has been verified according to the requirements of NR632, Hardware-in-the-loop Testing.

5.2 Navigation smart functions - Tier 2

5.2.1 The additional service feature **SMART()** is completed by the notation **N2** when, in addition to the requirements defined in [5.1], the ship complies with the requirements for granting of at least one of the following notations:

- CYBER MANAGED**

or

- CYBER SECURE**

5.2.2 The additional class notations **CYBER MANAGED** or **CYBER SECURE** may be assigned to ships whose systems and equipment comply with the requirements of NR659 Rules on Cyber Security for the Classification of Marine Units.

5.3 Other navigation digital solutions

5.3.1 As a complement to the addition class notation **SYS-IBS**, the following navigation digital solutions may be considered by the Society on a case by case basis in the scope of the notations **N1** or **N2**:

- energy efficiency digital solutions for navigation (e.g. monitoring and optimisation of the speed and the route of the ship).

5.3.2 In this case, these navigation digital solutions are to comply with the general requirements for smart systems as defined in Article [2].

5.3.3 Any other navigation digital solutions considered in the scope of the additional service feature **SMART()** are to be indicated in a memoranda.



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