CIRCULAR

36 Myeongji ocean city 9-ro,
Gangseo-gu, Busan, 618-814
Republic of Korea

Phone: +82-70-8799-8792
Fax : +82-70-8799-8419
E-mail : kimhyunj@krs.co.kr
Person in charge :Kim Hyunjung

To : All Surveyors and whom it may concern

No : 2021-17-E
Date : 2021.11.09

Subject	9.153 Notice for Amendment to the KR Technical Rules - Rules and Guidance for Pt 1 - Guidance for Approval of Service Suppliers
Application	1st January 2022 (Date of which application for survey is submitted)

1. Please be informed that the amendments have been made to the following KR Technical Rules 2021 as attachment to Requests for Establishment/Revision of Classification Technical Rules.

Amended KR Technical Rules	Effective Date	Amendments
Rules and Guidance for Pt 1	1st January 2022 (Date of which application for survey is submitted)	Revised CMS requirements
		Added "PMS-CBM" notation
Guidance for Approval of Service Suppliers	1st January 2022 (Date of which application for survey is submitted)	IACS UR Z17(Rev.16 Aug 2021)
		Revised "practical demonstration"

2. Furthermore, please be informed that the establishment will be included in 2022 edition on KR Technical Rules which will be published in the first half of 2022.

Attachments : Amended KR Technical Rules (K/E) --- each 1 copy. (The End)

(Form No. : FI-03-03) (20.06.2018)

Amended Rules for the Classification of Steel Ships

(Part 1 Classification and Surveys)

Nov. 2021

- Main Amendments -

(1) Effective date : 1 January 2022(Date of which the application for survey is submitted)

◉ Revision of the requirements for accreditation of overhaul inspection by C/E

(1) Effective date : 1 January 2022

(Date of which application for survey is submitted)

Present	Amendment	Remark
CHAPTER 2 PERIODICAL AND OTHER SURVEYS **Section 9 Continuous Survey of Machinery** <omitted> **902. Survey items** 【See Guidance】 **1.** The procedure of CMS is to be complied with **Annex 1-7** of the Guidance. *(2021)* **2.** Where any machinery installations were overhauled and inspected by the Chief Engineer the overhauled inspections may substitute for the CMS in accordance with **Annex 1-7** of the Guidance. <u>However, for each part of the main internal combustion engine and internal combustion engine to drive main generator among machinery permissible for the Chief Engineer's inspection, open-up survey by the Surveyor for at least one of two CMS cycles is to be carried.</u> *(2021)* <omitted>	**CHAPTER 2 PERIODICAL AND OTHER SURVEYS** <same as present> **902. Survey items** 【See Guidance】 **1.** The procedure of CMS is to be complied with **Annex 1-7** of the Guidance. *(2021)* **2.** Where any machinery installations were overhauled and inspected by the Chief Engineer the overhauled inspections may substitute for the CMS in accordance with **Annex 1-7** of the Guidance. ~~However, for each part of the main internal combustion engine and internal combustion engine to drive main generator among machinery permissible for the Chief Engineer's inspection, open-up survey by the Surveyor for at least one of two CMS cycles is to be carried.~~ *(2022)* <same as present>	(Amendment) - Revision of the requirements for accreditation of overhaul inspection by C/E

Amended Guidance Relating to the Rules for the Classification of Steel Ships

(Part 1 Classification and Surveys)

Nov. 2021

- Main Amendments -

(1) Effective date : 1 January. 2022 (Date of which the application for survey is submitted)

◉ Revision of the requirements for accreditation of overhaul inspection by C/E

◉ Added new notation for CBM application

(1) Effective date : 1 January 2022

(Date of which application for survey is submitted)

Present	Reason

Annex 1-7 Continuous Machinery Survey Procedure (CMS)

Table 2 Machinery Permissible for the Chief Engineers Inspection, etc.

	Items	Remarks
Machinery permissible for the Chief Engineers inspection	1. Main diesel engine 2. Auxiliary diesel engine(Refer to remarks) 3. Forced draft fans & burning pumps for main boiler 4. Auxiliary machinery (1) Air compressor (2) Auxiliary blower (3) Pump (4) Heat exchanger (5) Portable fuel oil tank (6) Fresh water generator (7) Deck machinery (8) Hydraulic pumps of steering gears ※ However, for each part of the main internal combustion engine and internal combustion engine to drive main generator among machinery permissible for the Chief Engineer's inspection, open-up survey by the Surveyor for at least one of two CMS cycles is to be carried.	The Chief Engineer's inspection for auxiliary diesel engines ● The engine is completely opened up and a careful examination is made on all cylinder units, cylinder liners, cylinder covers, cylinder cover valves, pistons, piston rings, connecting rods and top and lower bearings, piston pins, camshaft driving gears, turbo-chargers, air-inter-coolers, crankcase and crankcase doors, engine foundation bolts, and crank case safety valves. ● The top halves of all main bearings are removed and two bottom halves are taken out for examination. ● An examination is made on all crankpins and journals to detect cracks, especially at fillet and areas in the vicinity of oil holes and crank shaft oil grooves. ● Crank web deflections are measured and recorded. ● Wear downs of the cylinder liners are measured and recorded. ● The L.O. cooler attached to the engine, L.O. pumps, cooling water pumps, etc. of direct driven-type are opened up and examined. ● Verify through performance tests that safety devices are in good operating condition. ● The service hours of crank pin bolts are checked and recorded.

Amendments	Reason
	- Revision of the requirements for accreditation of overhaul inspection by C/E

Annex 1-7 Continuous Machinery Survey Procedure (CMS)

Table 2 Machinery Permissible for the Chief Engineers Inspection, etc. *(2022)*

	Items	Remarks
Machinery permissible for the Chief Engineers inspection	1. Main diesel engine 2. Auxiliary diesel engine(Refer to remarks) 3. Forced draft fans & burning pumps for main boiler 4. Auxiliary machinery (1) Air compressor (2) Auxiliary blower (3) Pump (4) Heat exchanger (5) Portable fuel oil tank (6) Fresh water generator (7) Deck machinery (8) Hydraulic pumps of steering gears ~~※ However, for each part of the main internal combustion engine and internal combustion engine to drive main generator among machinery permissible for the Chief Engineer's inspection, open-up survey by the Surveyor for at least one of two CMS cycles is to be carried.~~	The Chief Engineer's inspection for auxiliary diesel engines ● The engine is completely opened up and a careful examination is made on all cylinder units, cylinder liners, cylinder covers, cylinder cover valves, pistons, piston rings, connecting rods and top and lower bearings, piston pins, camshaft driving gears, turbo-chargers, air-inter-coolers, crankcase and crankcase doors, engine foundation bolts, and crank case safety valves. ● The top halves of all main bearings are removed and two bottom halves are taken out for examination. ● An examination is made on all crankpins and journals to detect cracks, especially at fillet and areas in the vicinity of oil holes and crank shaft oil grooves. ● Crank web deflections are measured and recorded. ● Wear downs of the cylinder liners are measured and recorded. ● The L.O. cooler attached to the engine, L.O. pumps, cooling water pumps, etc. of direct driven-type are opened up and examined. ● Verify through performance tests that safety devices are in good oper-ating condition. ● The service hours of crank pin bolts are checked and recorded.

Present	Reason
1.2 Additional Installations Notations The following Additional Installations Notations may be appended to ships complying with the relevant requirements.	

Additional Installations Notations		Relevant Requirements
Machinery Items	UMA	to ships where the Operating Systems for Periodically Unattended Machinery Spaces specified in **Pt 9, Ch 3** of the Rules are provided onboard.
	UMA1, UMA2, UMA3	to ships where the Automation Equipment specified in **Pt 9, Ch 3** of the Rules is provided onboard.
	CMA	to ships where the Centralized Monitoring and Control System for Main Propulsion and Essential Auxiliary Machinery specified in **Pt 9, Ch 3** of the Rules is provided onboard.
	PMS	to ships where the Planned Maintenance System specified in **Pt 1, Ch 2, 903.** of the Rules is applied.
	〈Newly added〉	*〈Newly added〉*
	STCM *(2017)*	to ships where the Stern Tube Condition Monitoring System specified in **Ch 2, 701. 3** of Guidance is provided onboard.
	DPS(0), DPS(1), DPS(2), DPS(3)	to ships where the Dynamic Positioning System specified in **Pt 9, Ch 4** of the Rules is provided onboard.
	NBS, NBS1, NBS2	to ships where Bridge Layouts and Bridge Working Environments, Navigation Equipments, Accident Prevention Systems and Bridge Work Assist Systems specified in Pt 9, Ch 5 of the Rules are provided.
	HVSC	to ships where the High Voltage Shore Connection Systems specified in **Pt 9, Ch 8** of the Rules are provided onboard.
	HVSC-Partial	to ships where a part of high voltage shore connection systems specified in **Pt 9, Ch 8** of the Guidance are provided onboard.

Amendments	Reason
1.2 Additional Installations Notations The following Additional Installations Notations may be appended to ships complying with the relevant requirements.	Added new notation for CBM application (MRD4800-225-2021)

Additional Installations Notations		Relevant Requirements
Machinery Items	UMA	to ships where the Operating Systems for Periodically Unattended Machinery Spaces specified in **Pt 9, Ch 3** of the Rules are provided onboard.
	UMA1, UMA2, UMA3	to ships where the Automation Equipment specified in **Pt 9, Ch 3** of the Rules is provided onboard.
	CMA	to ships where the Centralized Monitoring and Control System for Main Propulsion and Essential Auxiliary Machinery specified in **Pt 9, Ch 3** of the Rules is provided onboard.
	PMS	to ships where the Planned Maintenance System specified in **Pt 1, Ch 2, 903.** of the Rules is applied.
	PMS-CBM *(2022)*	to ships where the Condition Based Maintenance System specified in **Pt 1, Ch 2, 903. 3** of the Rules is applied.
	STCM *(2017)*	to ships where the Stern Tube Condition Monitoring System specified in **Ch 2, 701. 3** of Guidance is provided onboard.
	DPS(0), DPS(1), DPS(2), DPS(3)	to ships where the Dynamic Positioning System specified in **Pt 9, Ch 4** of the Rules is provided onboard.
	NBS, NBS1, NBS2	to ships where Bridge Layouts and Bridge Working Environments, Navigation Equipments, Accident Prevention Systems and Bridge Work Assist Systems specified in Pt 9, Ch 5 of the Rules are provided.
	HVSC	to ships where the High Voltage Shore Connection Systems specified in **Pt 9, Ch 8** of the Rules are provided onboard.
	HVSC-Partial	to ships where a part of high voltage shore connection systems specified in **Pt 9, Ch 8** of the Guidance are provided onboard.

Amended Guidance for Approval of Service Suppliers

Nov. 2021

- Main Amendments -

(1) Effective date : 1 Jan. 2022 (Date of which the application for survey is submitted)

◉ Reflected IACS UR Z17(Rev.16 Aug 2021)

◉ Revised the "practical demonstration" requested by the Survey Team

(1) Effective date : 1 Jan. 2022

(Date of which application for survey is submitted)

Present	Amendments
INTRODUCTION 1. ~ 3. 〈omitted〉 4. Application (1) This procedure applies to the approval of the following categories of Service Suppliers: (A) Statutory services (a) Firms engaged in servicing life saving appliances (b) Firms engaged in inspections and maintenance of fire extinguishing equipment & system and self contained breathing apparatus (c) Firms engaged in inspections and testing of radio communication equipment (d) Firms engaged in annual performance testing of Voyage Data Recorders(VDR) and simplified Voyage Data Recorders(S-VDR) (e) Firms engaged in sound pressure level measurements of public address and general alarm systems on board ships (f) Firms engaged in inspections of low location lighting systems using photo luminescent materials and evacuation guidance systems used as an alternative to low-location lighting systems 〈newly added〉 <omitted>	INTRODUCTION 1. ~ 3. 〈same as the current Guidances〉 4. Application (1) This procedure applies to the approval of the following categories of Service Suppliers: (A) Statutory services (a) Firms engaged in servicing life saving appliances (b) Firms engaged in inspections and maintenance of fire extinguishing equipment & system and self contained breathing apparatus (c) Firms engaged in inspections and testing of radio communication equipment (d) Firms engaged in annual performance testing of Voyage Data Recorders(VDR) and simplified Voyage Data Recorders(S-VDR) (e) Firms engaged in sound pressure level measurements of public address and general alarm systems on board ships (f) Firms engaged in inspections of low location lighting systems using photo luminescent materials and evacuation guidance systems used as an alternative to low-location lighting systems (g) Firms engaged in commissioning Testing of Ballast Water Management System(BWMS) *(2022)* <same as the current Guidances>

Present	Amendments
5. Procedure for approval and certification (1) Submission of documents (A) The following documents are to be submitted to the Society for review. General requirements concerning Service Suppliers are given in (2), and specific requirements as relevant, in **Appendix Part A or Part B or Part C.** *(2020)* (a) ~ (c) 〈omitted〉 (d) For categories of Service Suppliers that require authorization from manufacturers, manufacturer's documentary evidence that the Service Supplier has been authorized or licensed to service the particular makes and models of equipment for which approval is sought shall be provided. (e) ~ (m) 〈omitted〉 (n) Record of customer claims and of corrective actions requested by certification bodies 〈newly added〉 (o) Other data deemed necessary by the Society for the approval 〈hereafter, omitted〉	5. Procedure for approval and certification (1) Submission of documents (A) The following documents are to be submitted to the Society for review. General requirements concerning Service Suppliers are given in (2), and specific requirements as relevant, in **Appendix Part A or Part B or Part C.** *(2020)* (a) ~ (c) 〈same as the current Guidances〉 (d) For categories of Service Suppliers that require certification ~~authorization~~ from manufacturers, manufacturer's documentary evidence that the Service Supplier has been certified ~~authorized~~ or licensed to service the particular makes and models of equipment for which approval is sought shall be provided. *(2022)* (e) ~ (m) 〈same as the current Guidances〉 (n) Record of customer claims and of corrective actions requested by certification bodies (o) Operators/technicians/inspectors documentation they have acknowledged the code of conduct *(2022)* ~~(p)~~ (o) Other data deemed necessary by the Society for the approval 〈hereafter same as the current Guidances〉

Present	Amendments
(4) Certification is conditional on a practical demonstration of the performance of the specific service as well as satisfactory reporting being carried out. At renewal audits, evidence of performance, verified by class Surveyor, since the previous audit is sufficient to satisfy this requirement. 〈newly added〉	(4) Certification is conditional on a "practical demonstration" of the performance of the specific service as well as satisfactory reporting being carried out. At renewal audits, evidence of performance, verified by class Surveyor, since the previous audit is sufficient to satisfy this requirement. *(2022)* Note : practical demonstration *(2022)* Practical demonstration, including satisfactory reporting, shall be carried out at the presence of society's surveyor to verify that the supplier provides adequate service competence specified in the documentations submitted. However, in case of renewal audit, a part or the whole of it may be dispensed with subject to confirm the evidence of performance verified by class surveyor. In case that the service supplier which have various scope of services(Example : NDT COMPANY(MT, PT, UT, RT)), the individual practical demonstration shall be conducted for each scope of services which are to be approved, and the service report for them shall be written. The assigned surveyor submits the following data as a result of practical demonstration to survey team with a copy of the checklist, non-conformity report. (a) Initial audit : Pictorial data(a photo or a movie), A sample of service report In case of initial audit, if it is difficult to carry out the practical demonstration, a result of practical demonstration verified by IACS members, which was verified its conformity to QSCS, may be accepted. Furthermore, if the company used to be approved by KR, the practical demonstration may be exempted based on the evidences which are required in renewal audit. When a result of practical demonstration verified by IACS members is not confirmed at the initial audit for firm engaged in thickness measurement on ships or mobile offshore unit, the practical demonstration shall be conducted onboard KR classed vessel. (b) Renewal audit : A copy of the latest previousservicereport which was provided to KR classed vessel within recent 3 years In case of renewal audit, if the service report does not exists due to the service supplier has provided no services, the assigned surveyor accepts the service report verified by IACS members, which was verified its conformity to QSCS, or requires the service supplier a practical demonstration and submits the data in (a)of the above to survey team and keep the original data in the branch office.
(5) ~ (6) 〈omitted〉	(5) ~ (6) 〈same as the current Guidance〉
6.~ 9. 〈omitted〉	**6.~ 9. 〈same as the current Guidance〉**

Present	Amendments
Appendix Part A – Approval of Service Suppliers listed in IACS UR Z17	**Appendix Part A – Approval of Service Suppliers listed in IACS UR Z17**
1. ~ 7. 〈omitted〉	**1. ~ 7. 〈same as the current Guidances〉**
8. Firms engaged in annual performance testing of Voyage Data Recorders(VDR) and simplified Voyage Data Recorders(S-VDR) (Z17 Annex 1-9)	**8. Firms engaged in annual performance testing of Voyage Data Recorders(VDR) and simplified Voyage Data Recorders(S-VDR) (Z17 Annex 1-9)**
8.1 Extent of engagement Testing and servicing of Voyage Data Recorders(VDR) and Simplified Voyage Data Recorders(S-VDR) in accordance with **SOLAS Ch V Reg. 18.8** and IMO MSC.1/Circular.1222 – Guidelines on Annual Testing of Voyage Data Recorders(VDR) and Simplified Voyage Data Recorders(S-VDR), as applicable.	8.1 Extent of engagement Testing and servicing of Voyage Data Recorders(VDR) and Simplified Voyage Data Recorders(S-VDR) in accordance with **SOLAS Ch V Reg. 18.8** and **IMO MSC.1/Circular.1222/Rev.1** – Guidelines on Annual Testing of Voyage Data Recorders(VDR) and Simplified Voyage Data Recorders(S-VDR), as applicable. *(2022)*
8.2 Extent of Approval (1) 〈omitted〉	8.2 Extent of Approval (1) 〈same as the current Guidances〉
(2) Where the Service Supplier is also the Manufacturer of the Voyage Data Recorder(VDR) or Simplified Voyage Data Recorder(S-VDR) and has elected to apply IMO MSC.1/Circ.1222 – Guidelines on Annual Testing of Voyage Data Recorders(VDR) and Simplified Voyage Data Recorders(S-VDR) in its entirety for the purpose of acting as a Service Supplier engaged in annual performance testing, the following is to apply:	(2) Where the Service Supplier is also the Manufacturer of the Voyage Data Recorder(VDR) or Simplified Voyage Data Recorder(S-VDR) and has elected to apply **IMO MSC.1/Circ.1222/Rev.1** – Guidelines on Annual Testing of Voyage Data Recorders(VDR) and Simplified Voyage Data Recorders(S-VDR) in its entirety for the purpose of acting as a Service Supplier engaged in annual performance testing, the following is to apply: *(2022)*
(A) ~ (C) 〈omitted〉	(A) ~ (C) 〈same as the current Guidance)
(D) The Manufacturer is to demonstrate that IMO MSC.1/Circ.1222 – Guidelines on Annual Testing of Voyage Data Recorders(VDR) and Simplified Voyage Data Recorders(S-VDR) is applied in its entirety	(D) The Manufacturer is to demonstrate that **IMO MSC.1/Circ.1222 /Rev.1** – Guidelines on Annual Testing of Voyage Data Recorders(VDR) and Simplified Voyage Data Recorders(S-VDR) is applied in its entirety *(2022)*

Present	Amendments
8.3 Procedures (1) 〈omitted〉 (2) Where the Service Supplier is also the Manufacturer of the Voyage Data Recorder(VDR) or Simplified Voyage Data Recorder(S-VDR) and has selected to apply IMO MSC.1/Circ.1222 - Guidelines on Annual Testing of Voyage Data Recorders(VDR) and Simplified Voyage Data Recorders(S-VDR) in its entirety for the purpose of acting as a Service Supplier engaged in annual performance testing, the following is to apply: (A) ~ (C) 〈omitted〉	8.3 Procedures (1) 〈same as the current Guidances〉 (2) Where the Service Supplier is also the Manufacturer of the Voyage Data Recorder(VDR) or Simplified Voyage Data Recorder(S-VDR) and has selected to apply IMO MSC.1/Circ.1222/Rev.1 - Guidelines on Annual Testing of Voyage Data Recorders(VDR) and Simplified Voyage Data Recorders(S-VDR) in its entirety for the purpose of acting as a Service Supplier engaged in annual performance testing, the following is to apply: *(2022)* (A) ~ (C) 〈same as the current Guidances〉
8.4 Reference Documents (1) The Service Supplier is to have access to the following documents: (A) 〈omitted〉 (B) IMO MSC.1/Circ.1222 - Guidelines on Annual Testing of Voyage Data Recorders(VDR) and Simplified Voyage Data Recorders(S-VDR) - (11 December 2006) 〈omitted〉	8.4 Reference Documents (1) The Service Supplier is to have access to the following documents: (A) 〈same as the current Guidances〉 (B) IMO MSC.1/Circ.1222/Rev.1 - Guidelines on Annual Testing of Voyage Data Recorders(VDR) and Simplified Voyage Data Recorders(S-VDR) - (11 December 2006) *(2022)* 〈same as the current Guidances〉
8.6 Reporting(Test Report) (1) 〈omitted〉 (2) Annual Performance Test of VDR and S-VDR should be recorded in the form of the model test report given in the Appendix to MSC.1/Circ.1222, signed and stamped by the Service Supplier and attached to the annual performance test certificate. (3) Where the Service Supplier is also the Manufacturer of the Voyage Data Recorder(VDR) or Simplified Voyage Data Recorder(S-VDR) and has selected to apply IMO MSC.1/Circ. 1222 - Guidelines on Annual Testing of Voyage Data Recorders(VDR) and Simplified Voyage Data Recorders(S-VDR) in its entirety for the purpose of acting as a Service Supplier engaged in annual performance testing, the Manufacturer is to make arrangements for the following: 〈herein after, omitted〉	8.6 Reporting(Test Report) (1) 〈same as the current Guidances〉 (2) Annual Performance Test of VDR and S-VDR should be recorded in the form of the model test report given in the Appendix to MSC.1/Circ.1222/Rev.1, signed and stamped by the Service Supplier and attached to the annual performance test certificate. *(2022)* (3) Where the Service Supplier is also the Manufacturer of the Voyage Data Recorder(VDR) or Simplified Voyage Data Recorder(S-VDR) and has selected to apply IMO MSC.1/Circ. 1222/Rev.1 - Guidelines on Annual Testing of Voyage Data Recorders(VDR) and Simplified Voyage Data Recorders(S-VDR) in its entirety for the purpose of acting as a Service Supplier engaged in annual performance testing, the Manufacturer is to make arrangements for the following: *(2022)* 〈herein after, same as the current Guidances〉

Present	Amendments
14. Firms engaged in inspection using Remote Inspection Techniques (RIT) as an alternative means for Close-up Survey of the structure of ships and mobile offshore units(Z17 Annex 1-16)	**14. Firms engaged in inspection using Remote Inspection Techniques (RIT) as an alternative means for Close-up Survey of the structure of ships and mobile offshore units(Z17 Annex 1-16)**
14.1 ~ 14.2 〈omitted〉	14.1 ~ 14.2 〈same as the current Guidances〉
14.3 Training and qualification of operators The Service Supplier is responsible for the training and qualification of its operators to undertake the remote inspections. UAV Pilots are to be qualified and licensed in accordance with applicable national requirements or an equivalent industrial standard acceptable to the Society. Knowledge of the following shall be documented: (1) Marine and/or offshore nomenclatures. (2) The structural configuration of relevant ships types and MOUs, including internal structure. (3) The remote inspection equipment and its operation. (4) Survey plans for examination of hull spaces of various configurations, including appropriate flight plans if using a UAV. (5) Thickness measurement(TM) and non-destructive examination(NDE) in accordance with a recognised National or International Industrial NDE Standard when these are part of the Service Suppliers undertaking TMs are to hold separate approval as a 'Firm engaged in thickness measurements on ships' 〈herein after, omitted〉	14.3 Training and qualification of operators The Service Supplier is responsible for the training and qualification of its operators to undertake the remote inspections. UAV Pilots are to be qualified and licensed in accordance with applicable national requirements or an equivalent industrial standard acceptable to the Society. Knowledge of the following shall be documented: (1) Marine and/or offshore nomenclatures. (2) The structural configuration of relevant ships types and MOUs, including internal structure. (3) The remote inspection equipment and its operation. (4) Survey plans for examination of hull spaces of various configurations, including appropriate flight plans if using a UAV. (5) Thickness measurement(TM) and non-destructive test ~~examination~~(NDTE) in accordance with a recognised National or International Industrial NDTE Standard when these are part of the Service Suppliers undertaking TMs are to hold separate approval as a 'Firm engaged in thickness measurements on ships'. *(2022)* 〈herein after, same at the current Guidances〉

Present	Amendments
15. Firms engaged in Cable Transit Seal Systems Inspection on Ships and Mobile Offshore Units. ***(2021)***	**15. Firms engaged in Watertight Cable Transit Seal Systems Inspection on Ships and Mobile Offshore Units.** ***(2022)***
15.1 Extent of engagement (1) Inspection of the Cable Transit Seal Systems for compliance with the relevant approval certificates and product installation manuals, (types of penetrating cables, dimensions, fill ratio, insulation details and self-verification plan for watertightness, as applicable).	15.1 Extent of engagement (1) Inspection of the Watertight Cable Transit Seal Systems for compliance with the relevant approval certificates and product installation manuals, (types of penetrating cables, dimensions, fill ratio, insulation details and self-verification plan for watertightness, as applicable). *(2022)*
15.2 Extent of Approval (1) 〈omitted〉 (2) Any Service Supplier engaged in the inspections of cable transit seal systems shall be qualified in these inspections for each make and type of equipment for which they provide the inspection, and provide manufacturers documentary evidence that they have been so authorized or they are certified in accordance with an established system for training and authorization. Such qualification shall include, as a minimum: 〈omitted〉	15.2 Extent of Approval (1) 〈same as the current Guidances〉 (2) Any Service Supplier engaged in the inspections of wateright cable transit seal systems shall be qualified in these inspections for each make and type of equipment for which they provide the inspection, and provide manufacturers documentary evidence that they have been so authorized or they are certified in accordance with an established system for training and authorization. *(2022)* Such qualification shall include, as a minimum: 〈same as the current Guidances〉
15.3 Qualifications and Training of Personnel (1) 〈omitted〉 (2) The education for initial certification of personnel shall be documented and addressed, as a minimum: - Procedures and instructions for the inspection of the cable transit seal systems - Common problems found with the initial installation and in-service inspections of cable transit seal systems - Relevant rules and regulations, including International Conventions - Procedures for reporting on initial installation and in-service inspections of cable transit seal systems in the Cable Transit Seal Systems Register.	15.3 Qualifications and Training of Personnel (1) 〈same as the current Guidances〉 (2) The education for initial certification of personnel shall be documented and addressed, as a minimum: - Procedures and instructions for the inspection of the watertight cable transit seal systems *(2022)* - Common problems found with the initial installation and in-service inspections of watertight cable transit seal systems *(2022)* - Relevant rules and regulations, including International Conventions - Procedures for reporting on initial installation and in-service inspections of watertight cable transit seal systems in the Cable Transit Seal Systems Register. *(2022)*

Present	Amendments
(3) The education and training for the personnel shall include practical technical training on actual inspection using the cable transit seal systems for which the personnel are to be certified. The technical training shall include disassembly, reassembly and adjustment of the equipment. Classroom training shall be supplemented by field experience in the inspections for which certification is sought, under the supervision of an experienced senior certified person.	(3) The education and training for the personnel shall include practical technical training on actual inspection using the watertight cable transit seal systems for which the personnel are to be certified. The technical training shall include disassembly, reassembly and adjustment of the equipment. Classroom training shall be supplemented by field experience in the inspections for which certification is sought, under the supervision of an experienced senior certified person. *(2022)*
(4) ~ (5) 〈omitted〉	(4) ~ (5) 〈same as the current Guidances〉
15.4 Reference Documents The Service Supplier is to have access to the following documents: - Manufacturer's servicing manuals, servicing bulletins, instructions and training manuals as appropriate. - Type Approval certificate showing any conditions that may be appropriate during the installation or maintenance of the cable transit seal system.	15.4 Reference Documents The Service Supplier is to have access to the following documents: - Manufacturer's servicing manuals, servicing bulletins, instructions and training manuals as appropriate. - Type Approval certificate showing any conditions that may be appropriate during the installation or maintenance of the watertight cable transit seal system. *(2022)*
15.5 〈omitted〉	15.5 〈same as the current Guidances〉
15.6 Reporting On completion of inspection, the Service Supplier will issue a report confirming the condition of the Cable Transit Seal System. They will also record the results of their inspection in the Cable Transit Seal System Register. ⚓	15.6 Reporting *(2022)* On completion of inspection, the Service Supplier will issue a report confirming the condition of the watertight Cable Transit Seal System. They will also record the results of their inspection in the Cable Transit Seal System Register.

Present	Amendments
〈Newly added〉	**16. Firms engaged in Commissioning Testing of Ballast Water Management Systems (BWMS)** ***(2022)*** 16.1 Extent of engagement Sampling and Analysis of ballast water and Verification of the self-monitoring equipment during Commissioning Testing of Ballast Water Management Systems (BWMS), for Statutory purposes. 16.2 Procedure (1) Service suppliers are to have documented procedures including: (A) Procedures for sampling collection and handling, analysis, assessment of BWMS correct operations and documenting and reporting. The procedures are to outline how the ballast water sampling and analysis is conducted with respect to each size class of organisms; (B) Operating procedures for the ballast water test equipment specified including calibration, adjustment and maintenance (2) Service Suppliers are to be familiar with the BWMS operation including features and limits of each treatment technology, and self-monitoring parameters. (3) Service Suppliers are to be accredited to relevant standards such as ISO/IEC 17025 or equivalent, as applicable. (4) Service Suppliers are to be independent of the BWMS manufacturer or supplier including shipyards. 16.3 Operators (1) Service Suppliers are expected to be able to perform both the biological sampling and assessment of self-monitoring parameters and has responsibility for document that the requirements to the operator are satisfied. Therefore, operators who conduct commissioning testing are to: (A) Demonstrate knowledge in the use of different ballast water testing equipment for the purpose of assessing biological efficacy; (B) Have documented evidence of sufficient engineering and biological knowledge to conduct the commissioning testing; (C) Have knowledge of IMO BWM.2/Circ.70/Rev.1, as may be amended – 'Guidance for the Commissioning Testing of Ballast Water Management Systems' and IMO BWM.2/Circ.42/Rev.2 – 'Guidance on Ballast Water Sampling and Analysis for Trial Use in accordance with the BWM Convention and Guidelines (G2)', as may be amended;

Present	Amendments
〈Newly added〉	(D) (*) be trained in the proper use of portable indicative analysis equipment. Review of training records and/or interviews should be conducted to confirm the equipment will be properly used during testing; (E) (*) be familiar with and understand the design concepts of the Guidelines G2 sampling devices installed on the vessel's water ballast system. Personnel shall understand the need to maintain the G2 sampling devices clean and free of contaminants and the importance of controlling the ballast water sample flow rates from the G2 device (to avoid organism mortality in the sample); (F) (*) be familiar with the technologies utilized by the indicative sampling equipment and understand water quality issues that are both conducive to successful use of the equipment and circumstances that could challenge the use of the equipment; (G) (*) be trained in the proper disposal procedures for water samples following testing. (H) (⊿) have knowledge of the system design limitations of the BWMS (as stated in the BWMS type approval certificate) and knowledge of the BWMS self-monitoring parameters, such as flow rate, pressure, TRO concentration, UV transmittance/intensity, etc, and how the BWMS notifies the operator in case he operates BWMS outside its system design limitations. This knowledge is relevant for evaluating whether the self-monitoring equipment of the BWMS indicates correct operation of the BWMS. In case Service Supplier are not present during ballasting operations, the Service Supplier shall have knowledge of how to access the BWMS log to evaluate that the BWMS operated correctly during ballasting operations; (I) (⊿) have the procedures and knowledge to be able to assess the applicable self-monitoring parameters (e.g., flow rate, pressure, TRO, UV intensity, etc.) of the BWMS, taking into account the System Design Limitations of the BWMS; Notes: (1) the points marked with (*) are qualifications for operators performing sampling and analysis of ballast water; (2) the points marked with (⊿) are the qualifications for operators performing verification of the self-monitoring equipment; (3) the points above without symbol are the common qualifications for service supplier. 16.4 Equipment and facilities Equipment, procedures and methods for detailed analysis, where applicable, are to be in accordance with relevant International standard and/or accepted Industry standards. Laboratories conducting sample enumeration are to be certified to ISO/IEC 17025 standard, or equivalent. Testing should be conducted using indicative analysis equipment accepted by Society. information and reference to the acceptance documents for the equipment used should be submitted to the Society in the report which includes the results from the commissioning test as per IMO BWM.2/Circ.70/Rev.1, as may be amended. In case the indicative analysis equipment used has not been previously accepted by the Society, the following information is to be submitted to the Society;

Present	Amendments
〈Newly added〉	(1) Equipment information – type, model, technology used, evidence of calibration, detection range, Organism type/size classes that can be analyzed. (2) Test results conduct for the verification of accuracy, detection range and repeatability. (3) Certificate of standards, if available. For indicative analysis equipment planned to be used, the equipment OEM instruction manuals shall be available. The manuals shall include, at least, clear guidance for the proper storage, handling, operation, maintenance, repair, and calibration. Note: Each Service Supplier applicant will present the Surveyor their confidential internal procedures for conducting the indicative testing. Not all the equipment listed in the references will be used. For all equipment planned to be used, the instruction manuals shall be available. The Service Supplier will need to use specialty devices (e.g., sieves, screens, etc.) to separate the different organism sizes classes (i.e., ≥ 10 μm to 〈 50 μm, and ≥ 50 μm, and indicator microbes) to support analysis of each size class. Equipment used for the analysis of other physical-chemical water parameters is to be suitable for the intended use. Indicative analysis equipment should be properly stored or transported to avoid damage and disturbance to calibrations, etc. when transporting from the Service Suppliers facilities to the vessels. 16.5 Sampling and Analysis Service Suppliers are to follow relevant guidelines on sampling of ballast water. A standard operating procedure is to be defined for sampling of uptake water. Discharge sampling shall follow the IMO's 'Guidelines for Ballast Water Sampling (G2)'. The representative samples shall be analyzed as a minimum for the two size classes of organisms, namely ≥ 50 μm and ≥ 10 μm to 〈 50 μm, specified in IMO Circular BWM.2/ Circ.70/Rev.1 – Guidance for the Commissioning Testing of Ballast Water Management Systems using indicative analysis methods. Detailed analysis of all organism type/size classes or combination of detail and indicative analysis can also be performed. Service Suppliers shall maintain a record of: (1) Operation of the BWMS during test period, including any recorded data or operator observations associated with the performance deviations, alarms or abnormal/unexpected operations. (2) Applicable self-monitoring parameters. In case the commissioning testing requires the Service Supplier's personnel to work in hazardous areas (e.g., pump room for tankers, etc.), the Service Supplier shall either have equipment certified for the spaces or provide the Surveyor with a list of vessels for which they would not be able to conduct testing.

Present	Amendments
〈Newly added〉	16.6 Reporting Service Suppliers are to provide reports detailing the results of sampling and analysis of ballast water and assessment of self-monitoring parameters during commissioning testing. The format is to be acceptable to Society. The report, as a minimum, will contain the following: (1) Manufacturer's name (2) Model name (3) BWMS Technology limiting operating conditions and system design limitations (4) Operation required, e.g., ballasting, de-ballast, circulation, one pass, in tank, etc (5) Treatment rated capacity (TRC) in m3/h (6) Relevant performance parameters (e.g. TRO, UV dose, UVI, flow rate or other relevant performance parameter). (7) Alarms developed during operation. (8) Installation location. (9) Type Approval issued by and Certificate No (10) Date installed (11) Results of Sample analysis (12) Pump flow rate, ballast tanks and volume (13) Comments/Options: Filter and other major components, Process measurements. 16.7 Reference Documents (1) The Service Supplier is to have access to the following documents, as may be amended: (A) IMO Resolution MEPC.300(72) - Code for Approval of Ballast Water Management Systems (BWMS Code) (B) IMO Resolution MEPC.173(58) — Guidelines for Ballast Water Sampling (G2) (C) IMO Circular BWM.2/Circ.42/Rev. 2 — Guidance on Ballast Water Sampling and Analysis for Trial Use in accordance with the BWM Convention and Guidelines (G2) (D) IMO Circular BWM.2/Circ.70/Rev.1 - Guidance for the Commissioning Testing of Ballast Water Management Systems (E) IMO Circular BWM.2/Circ.61 - Guidance on Methodologies that may be used for Enumerating Viable Organisms for Type Approval of Ballast Water Management Systems (F) IMO Circular BWM.2/Circ.69 - Guidance on System Design Limitations of Ballast Water Management Systems and their Monitoring (G) IMO Resolution MEPC.279(70) - 2016 Guidelines for Approval of Ballast Water Management Systems (G8) (H) IMO Resolution A.1120(30) - Survey Guidelines under the Harmonized System of Survey and Certifications (HSSC), 2017 (for BWMS that were Type Approved to the 2016 G8) ⚓