2022

Guidance for Approval of Service Suppliers

GC-27-E

KR

APPLICATION OF GUIDANCE FOR APPROVAL OF SERVICE SUPPLIERS

1. Unless expressly specified otherwise, the requirements in the Guidances apply to services suppliers for which the application is submitted to the Society on or after 1 July. 2022.

2. The amendments to the Guidance for 2021 version and their effective date are as follows;

Effective Date 1 Jan. 2022

INTRODUCTION

- 4. (1) (A) (g) has been newly added.
- 5. (1) (A) (d) has been amended and (o) have been newly added.
- 5. (4) has been amended.

Appendix Part A Approval of Service Suppliers listed in IACS UR Z17

- 8.1, 8.2 (2), 8.3 (2), 8.4 (1), 8.6 (2) & (3) have been newly added.
- 14.3 (5) has been amended.
- 15.1, 15.2 (2), 15.3 (2) & (3) 15.4 and 15.6 have been amended.
- Section 16 Firms engaged in Commission Testing of Ballast Water Management Systems(BWMS) has been newly added.

GENERAL TERMS AND CONDITIONS

1. Cooperation Duties of the client

1) It is incumbent upon the Client to maintain the condition of the unit after assessment and to inform KR without delay of circumstances which may affect the given appraisement or cause to modify its scope.
2) Any information required for the performance of the Services must be made available in due time.
3) The Client is to give to KR all access and information necessary for the safe and efficient performance of the requested Services. The Client is the sole responsible for the conditions of presentation of the unit for the assessment.

2. Cooperation of assessment

1) All such preparations as required for field assessment and the assessment necessary for the maintenance of unit are to be made by the applicant of the assessment in accordance with the requirements of the Rules. To permit safe and effective survey, such preparations are to include the provision of the work environment and safety measures in the way of suitable lighting, ventilation and access condition.
2) The (On behalf of) representative is to attend the assessment according to the items to be examined and are to give necessary assistances.
3) When the unit is to be assessed, it is the duty of the representative to inform the Surveyor of the correct place and items of the assessment
4) The applicant of the assessment is to ensure that there is no falsehood in the description on the application form, the notice and the presented data, etc. to KR.
5) As the **ISO 37001**(Anti-Bribery Management System) certified organization, KR has been promoting the international standard established for the practice of anti-bribery, integrity and ethical management. Employees of KR shall not accept or request any illegal solicitation or any improper requests from customers.

3. Health, Safety and Environment

1) Client shall inform KR without under delay of:
   (i) Any actual or potential HSE risk which Client is aware of and which is reasonably relevant to the performance of the Work; and
   (ii) Any of Client's implemented or planed measures against such risk that Client requires KR's personnel to adhere to.

2) Whenever KR's performance of the services involves visits to or work on Client controlled facilities or sites, Client is responsible for the adequacy, stability, safety and legal compliance of the working environment, including responsible measures to mitigate or control relevant risks.
3) Whenever KR's personnel shall adhere to Client's HSE instructions.
4) KR or its personnel may refuse to carry out any activity, or visit any area or site, if KR or its personnel in their sole discretion consider that relevant risks are unacceptable or not adequately addressed, contained or otherwise mitigated.

4. The work and execution of work

1) When providing services KR does not assess compliance with any standard other than the ap plicable KR Rules, international conventions and/or flag administration requirements and other standards, to the extent agreed in writing.
2) KR only is qualified to apply its Rules and to interpret them. Any reference to them has no effect unless it involves KR's intervention.
3) The Services of KR are carried out by qualified Surveyor according to the applicable Rules and to the Code of Ethics of KR.
4) KR will provide suitably qualified personnel to carry out the Work. Unless otherwise agreed, KR may at any time substitute personnel assigned to the Work, provided that any replacement personnel are suitably qualified.

5) KR accepts no responsibility for the use of information related to its Services which was not provided for the purpose by KR or with its assistance.

5. Fees

1) When the assessment is carried out by the Surveyor, fees will be charged for the assessment and the certificates issued in accordance with separately established Tariff of Fees.
2) When travelling is required on account of an assessment, the travelling expenses, communication expenses, and other expenses incurred by such travel will be charged.
3) When the attendance of an assessment is required to suit the convenience of the representative, outside of normal working hours or on holidays, an extra fee will be charged.
4) In the event of non-payment of fees, the certificate may be cancelled in accordance with KR's cancellation procedure.

6. Competence of Surveyors

1) The Surveyor can attend the assessment place at all reasonable times.
2) The Surveyor may suspend the assessment when the necessary preparations required in the Rules have not been made or any appropriate attendant is not present.
3) The Surveyor may, if deemed necessary by the condition of unit, request additional assessment of a part though such part may not fall under the assessment items.
4) The surveyor may require the representative to rectify non conformity of the service which is being provided if the unit is in conflict with the requirement of the rules. Upon this requirement the representative is to carry out the rectification to the satisfaction of the Surveyor.

7. Liability of Classification Society

1) (Liability) KR shall be responsible for damage or loss incurred by the unit arising from a negligence of KR. The liability will be limited to an amount equal to 10 times the sum actually paid for services alleged to be deficient
2) The limitation on liability specified in Par. 1 does not apply in case of a willful act or imprudent feasance despite being cognizant of the fact that there is a concern for damage, or nonfeasance.
3) (Time bar) Rights of claims against the assessment and other contracted services provided by KR shall become nullified after 6 months from the date when the representative had notice of the damage.
4) (Jurisdiction and Governing laws) All disputes which may arise from the services by KR shall be subject to the exclusive jurisdiction of Korean court and be governed by the Laws of Korea.
5) Personal liability of the organs of KR or persons to whom KR resorts to perform its obligations is excluded except in case of their wilful misconduct or gross negligence.
6) KR is only responsible for the Work it has performed directly.
7) Client shall indemnify and hold harmless KR from and against any Claims in respect of:
   (i) Client's breach of Obligations
   (ii) Any abuse of the Deliverable issued under this contract.

8. Force Majeure

1) Neither party shall be in breach of this Contract, nor liable for any failure or delay in performance hereunder if the cause of such failure or delay is attributable to events beyond the reasonable control of the affected party, including but not limited to armed conflict, terrorist attack, civil war, riots, toxic hazards, epidemics, natural disasters, extreme weather, fire, explosion, failure of utility service, labour disputes, breakdown of infrastructure, transport delays, or any public restrictions following any of the incidents above, or any other force majeure occurrence.
2) In the event of a force majeure occurrence, the affected party shall notify the other party without undue delay of the particulars of the situation and the estimated duration. Either party shall be entitled to terminate the Contract with immediate effect should the force majeure occurrence endure for more than thirty(30) days.
3) KR shall continue to be entitled to payment and its remuneration, i.e. all fees, additional expenses and costs incurred up to the date of termination.

9. Independence of Classification Society

KR and its staff shall not be affected by designer, manufacturer, supplier, installer, purchaser, owner, user, maintainer and any other individuals of the item subject to the service and shall perform its works for the Clients fairly from independent position.

10. Use of unit's information

KR may release unit's specific information related to the certification status. This information may be published on KR's web-site or by other media and may include the information related the approval status of unit.

CONTENTS

INTRODUCTION

1. General *(2020)*

To approve firms providing services, such as measurements, tests or maintenance of safety systems and equipment, the Society is to apply procedures in this requirements and relevant **Appendix Part A or Part B or Part C.**

2. Objective

The objective of this procedure is to set minimum requirements for approval and certification of Service Suppliers and is applicable to both initial and renewal audits.

3. Definitions

(1) **Manufacturer** : A company that manufactures equipment required to be periodically serviced and/or maintained.
(2) **Service Supplier** : A person or company, not employed by an IACS Member, who at the request of and equipment manufacturer, shipyard, vessel's owner or other client acts in connection with inspection work and provides services for a ship or a mobile offshore unit such as measurements, tests or maintenance of safety systems and equipment, the results of which are used by Surveyors in making decisions affecting classification or statutory certifications and services.
(3) **Agent** : A person or company authorized to act for or to represent a manufacturer or approved/recognized Service Supplier.
(4) **Subsidiary** : A company partly or wholly owned by a manufacturer or approved/recognized Service Supplier.
(5) **Subcontractor** : A person or company providing services to a manufacturer or approved/recognized Service Supplier, with a formal contract defining the assumption of the obligations of the Service Supplier.

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)*

  (B) Classification and/or Statutory services:
    (a) Firms engaged in thickness measurements on ships or mobile offshore unites except
      (i) non-ESP ships less than 500 gross tonnage and
      (ii) all fishing vessels
    (b) Firms carrying out an in-water survey of on ships and mobile offshore units by diver or Remotely Operated Vehicle(ROV).
    (c) Firms engaged in tightness testing of closing appliances such as hatches, doors, etc. with ultrasonic equipment
    (d) Firms engaged in measurements of noise level on board ships
    (e) Firms engaged in examination of Ro-Ro ship's bow, stern, side and inner doors
    (f) Firms engaged in testing of coating systems in accordance with **IMO Res.MSC.215(82)**

(Performance Standard for Protective Coatings for Dedicated Seawater Ballast Tanks in All Type of Ships and Double-side Skin Spaces of Bulk Carriers), as amended, and **IACS UI SC223** (For Application of **SOLAS Reg.II-1/3-2** Performance Standard for Protective Coatings(PSPC) for Dedicated Seawater Ballast Tanks in All Types of Ships and Double-side Skin Spaces of Bulk Carriers, adopted by **Res.MSC.215(82)**) and/or **IMO Res.MSC.288(87)**(Performance Standard for Protective Coatings for Cargo Oil Tanks of Crude Oil Tankers), as amended

(g) Firms engaged in tightness testing of primary and secondary barriers of gas carriers with membrane cargo containment systems for vessels in service

(h) Firms engaged in survey using Remote Inspection Techniques(RIT) as an alternative means for Close-up Survey of the structure of ships and mobile offshore units.

(i) Firms engaged in Cable Transit Seal Systems inspection on ships and Mobile Offshore Units. *(2021)*

(j) Firms engaged in vibration measurement in relation to habitability of ship

(k) Firms engaged in visual and/or sampling checks for preparation of inventory of hazardous materials

(l) Firms providing NDT(Non-destructive Testing) services on ship and offshore structure and component

(m) Firms engaged in measurement of URN(Underwater Radiated Noise) from ships

(C) Where a Society accepts work of a third party(eg., Service Supplier) approved by itself, the Society shall verify the performance of such services. For statutory service, the flag State may increase the scope of verification to be applied to these services. The process shall be defined within the Society's quality management system. For the purpose of accountability to the flag State, the work performed by the third party(eg., Service Supplier) constitutes the work of the Society and shall be subject to the requirements incumbent upon the Society under the **RO Code IMO MSC.349(92) and MEPC.237(65).**

(2) Where the results of the following Service Suppliers are used by a Surveyor or the Society in making decisions affecting classification services then that Service Suppliers must be approved and verified by the Society

(A) Firms engaged in thickness measurements on ships or mobile offshore unites except

(a) non-ESP ships less than 500 gross tonnage and

(b) all fishing vessels

(B) Firms carrying out an in-water survey of on ships and mobile offshore units by diver or Remotely Operated Vehicle(ROV).

(C) Firms engaged in tightness testing of closing appliances such as hatches, doors, etc. with ultrasonic equipment

(D) Firms engaged in survey using Remote Inspection Techniques(RIT) as an alternative means for Close-up Survey of the structure of ships and mobile offshore units.

(3) Where such services are used by Surveyors in making decisions affecting statutory certification and service, the firms are subject to approval and verification by the Society where the Society is so authorized by the relevant flag Administration(i.e. the flag of the ship on which the servic-ing is to be done or the service equipment is to be used). For such services the Society may accept approvals done by:

(A) The flag Administration itself,

(B) Duly authorized organizations acting on behalf of the flag Administration, or

(C) Other organizations those are acceptable to the flag Administration(e.g. other governments, etc.).

However, in case of the ship which is applied the Ship Safety Act of Republic of Korea, the Society may accept approvals done by: *(2020)*

(A) Flag Administration

(B) Duly authorized organizations acting on behalf of the flag Administration

(C) The classification society which was recognized by the Administration and has an agreement with KR

(4) Use of the approved Service Suppliers is not mandatory for the following services, unless instructed otherwise by the flag Administration with respect to statutory certification

(A) Firms engaged in inspections of low location lighting systems using photo luminescent mate-

rials and evacuation guidance systems used as an alternative to low-location lighting systems
(B) Firms engaged in sound pressure level measurements of public address and general alarm systems on board ships
(C) Firms engaged in measurements of noise level onboard ships
(D) Firms engaged in testing of coating systems in accordance with **IMO Res. MSC.215(82)** as amended and **IACS UI SC223** and/or **MSC.288(87)** as amended
(E) Firms engaged in examination of Ro-Ro ships bow, stern, side and inner doors
(F) Firms engaged in visual and/or sampling checks for preparation of inventory of hazardous materials

(5) Detailed requirements specific to the various categories of Service Suppliers are given in **Appendix Part A or Part B or Part C**. National and/or international requirements may given additional requirements. References to such national and/or international requirements are given in **Appendix Part A or Part B or Part C**.

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) Outline of company, e.g. organization and management structure, including subsidiaries to be included in the approval/certification
(b) List of nominated agent, subsidiaries and subcontractors
(c) Experience of the company in the specific service area
(d) For categories of Service Suppliers that require certification from manufacturers, manufacturer's documentary evidence that the Service Supplier has been certified or licensed to service the particular makes and models of equipment for which approval is sought shall be provided. *(2022)*
(e) List of operators/technicians/inspectors documenting training and experience within the relevant service area, and qualifications according to recognised national, international or industry standards, as relevant
(f) Description of equipment used for the particular service for which approval is sought
(g) A guide for operators of such equipment
(h) Training programmes for operators/technicians/inspectors
(i) Check lists and record formats for recording results of the services referred to in **Appendix Part A or Part B or Part C**. *(2020)*
(j) Quality Manual and/or documented procedures covering requirements in (5)
(k) Documented procedures for communication with the crew prior to commencing work, so that it is safe to decommission the equipment being maintained, and to provide a safe system of work in place
(l) Evidence of approval/acceptance by other bodies, if any
(m) Information on the other activities which may present a conflict of interest
(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) Other data deemed necessary by the Society for the approval

(2) General requirements:
(A) Extent of approval
The Service Supplier shall demonstrate, as required by (B) to (L), that it has the competence and control needed to perform the services for which approval is sought.
(B) Training of personnel
The Service Supplier is responsible for the qualification and training of its personnel to a recognized national, international or industry standard as applicable. Where such standards do not exist, the Service Supplier is to define standards for the training and qualification of its personnel relevant to the functions each is authorized to perform. The personnel shall also have adequate experience and be familiar with the operation of any necessary equipment.
Operators/technicians/inspectors shall have had a minimum of one year tutored on-the-job training. Where it is not possible to perform internal training, a program of external training

may be considered as acceptable.

(C) Supervision

The Service Supplier shall provide supervision for all services provided. The responsible supervisor shall have had a minimum of two years of experience as an operator/technician/inspector within the activity for which the Service Supplier is approved. For a Service Supplier consisting of one person, that person shall meet the requirements of a supervisor.

(D) Personnel records

The Service Supplier shall keep records of the approved operators/technicians/inspectors. The record shall contain information on age, formal education, training and experience for the services for which they are approved.

(E) Equipment and facilities

The Service Supplier shall have the necessary equipment and facilities for the service to be supplied. A record of the equipment used shall be kept and available. The record shall contain information on maintenance and results of calibration and verifications. The Society shall assess and record the validity of previous measuring results when the equipment is found not to conform to requirements. The Society shall take appropriate action on the equipment affected.

(F) Control of data

When computers are used for the acquisition, processing, recording, reporting, storage, measurement, assessment and monitoring of data, the ability of computer software to satisfy the intended application shall be documented and confirmed by the Service Supplier. This shall be undertaken prior to initial use and reconfirmed as necessary.

NOTE: Commercial off-the-shelf software(e.g. word processing, database and statistical programmes) in general use within their designed application range may be considered to be sufficiently validated and do not require any subsequent confirmation.

(G) Where several servicing stations are owned by a given company, each station is to be assessed and approved except as specified in (5) (C).

(H) Procedures

The Service Supplier shall have documented work procedures covering all services supplied.

(I) Subcontractors

The Service Supplier shall give information of agreements and arrangements if any parts of the services provided are subcontracted. Particular emphasis shall be given to quality management by the Service Supplier in following-up such subcontracts. Subcontractors providing the services of the approval service supplier shall also meet the requirements of 5. *(2021)*

(J) Verification

The Service Supplier shall verify that the services provided are carried out in accordance with approved procedures.

(K) Reporting

The report shall be prepared in a form acceptable to the Society. The report should detail the results of inspections, measurements, tests, maintenance and/or repairs carried out. Special guidelines may be given in **Appendix Part A or Part B or Part C**. The report shall include a copy of the Certificate of Approval. *(2020)*

(L) Documented procedures and instructions should be available for the recording of damages and defects found during inspection, servicing and repair work. This documentation is to be made available upon request.

(3) Auditing of the Service Supplier

Upon reviewing the submitted documents with satisfactory result, the Service Supplier is audited in order to ascertain that the Service Supplier is duly organised and managed in accordance with the submitted documents, and that it is considered capable of conducting the services for which approval/certification is sought.

(A) Initial audit

(a) Upon satisfactory outcome of the assessment of the documentation, a visit is made to evaluate the Service Supplier's workshop(laboratory. etc.) & demonstration test and to verify the followings

(i) The Service Supplier is duly organised and managed in accordance with the submitted documents.

(ii) It is considered in conformity with requirements in (2), (5) & (6) and capable of conducting the services for which approval/certification is sought.

(b) When parts of services are produced by subcontractors, the Society may request the as-

sessment of them for the purpose of confirming their Quality Control Standard.

(c) When an external person takes part in a service relating to quality of products at works, the Society may request the assessment of that person.

(d) When deficiencies are found, the Service Supplier who is informed of such by documentation is to take the corrective action and report to the Society. Where deemed necessary, a visit by the Surveyor may be made to evaluate the validity of the corrective action.

(B) Renewal audit

(a) Renewal audit is to be carried out in accordance with (A) above before the expiry date of the Approval Certificate.

(b) Where deemed acceptable, the part of data to be submitted and an audit including the demonstration test may be reduced.

(C) Occasional audit

(a) The Society may request the occasional audit if any of the following condition occurs:

(i) When important changes are made to the approved quality system

(ii) When services which were approved are changed or added

(b) In the occasional audit, it is to be confirmed by the Society that all the necessary requirement are in a satisfactory condition.

(D) Preparations for assessment and Others

(a) When the assessment is performed in accordance with the requirements specified in (A) through (C) above, the preparations are to be made by the Service Supplier. On such occasions, Service Suppliers is also to be present at the assessment.

(b) In case necessary preparations have not been made or in case no responsible person is present at the assessment, the Society may suspend the assessment.

(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) Quality system
  (A) The Service Supplier shall have a documented system covering at least the following:
    (a) code of conduct for the relevant activity
    (b) maintenance and calibration of equipment
    (c) training programmes for operators/technicians/inspectors
    (d) supervision and verification to ensure compliance with operational procedures
    (e) recording and reporting of information
    (f) quality management of subsidiaries, agents and subcontractors
    (g) job preparation
    (h) periodic review of work process procedures, complaints, corrective actions, and issuance, maintenance and control of documents
  (B) A documented quality system complying with the most current version of **ISO 9000** series and including the above items, would be considered acceptable.
  (C) If a manufacturer of equipment(and/or its Service Supplier) applies to the Society for inclusion of its nominated agents and/or subsidiaries(excluding any subcontractor), in the approval, then it must have implemented a quality system certified in accordance with the most current version of **ISO 9000** series. The quality system must contain effective controls of the manufacturer's(and/or its Service Supplier's) agents and/or subsidiaries. The nominated agents/subsidiaries must also have in place an equally effective quality system complying with the most current version of **ISO 9000** series. Such approvals shall be based upon an evaluation of the quality system implemented by the parent company against the most current version of **ISO 9000** series. The Society may require follow-up audits on such agents or subsidiaries against the most current version of **ISO 9000** series to confirm adherence to this quality system. *(2021)*

(6) Service Suppliers relations with the equipment manufacturer
  (A) A company which works as a station for manufacturer(s) of equipment(and as a Service Supplier in this field), shall be assessed by the manufacturer(s) and nominated as their agent. The manufacturer shall ensure that appropriate instruction manuals, material etc. are available for the agent as well as proper training for the agent's technicians. Such Service Suppliers shall be approved either on a case by case basis, or in accordance with (5) (C).

6. Certification

(1) Upon satisfactory completion of both the audit of the Service Supplier and the demonstration test, the Society may issue a Certificate of Approval stating that the Service Supplier's service operation system has been found to be satisfactory and that the results of services performed in accordance with that system may be accepted and utilized by the Society's Surveyors in making decisions affecting classification certification. The Certificate shall clearly state the type and scope of services and any limitations or restrictions imposed including type of equipment and/or names of manufacturers of equipment where this is a limiting restraint. The Service Supplier may also be included in the Society's record of approved Service Suppliers.

(2) Renewal or endorsement of the Certificate is to be made at intervals not exceeding three(3) years by verification through audits that approved conditions are maintained or, where applicable, on expiry of the Service Supplier's approval received from an equipment manufacturer, whichever comes first. In the latter case, the Society is to be informed in due course by the Service Supplier. The Society may requires renewal or endorsement of the Certificate at intervals shorter than three(3) years and may requires intermediate audits.

7. Information regarding alterations to the certified service operating system

(1) When any alteration to the certified service operating system of the Service Supplier is made, such alteration is to be immediately informed to the Society. Re-audit may be required when deemed necessary by the Society.

8. Cancellation of approval

(1) The Society reserves the right to cancel the approval and to inform the IACS Members accordingly

(For firms engaged in thickness measurements refer to **IACS PR23**(Procedure for reporting cancellation of approval of a thickness measurement firm)

(2) Approval may be cancelled in the following cases:
(A) Where the service was improperly carried out or the results were improperly reported.
(B) Where a Surveyor finds deficiencies in the approval service operating system of the Service Supplier and appropriate corrective action is not taken.
(C) Where alterations have been made to the company's quality system relevant to the Service Supplier certificates, without written notification to the Society.
(D) Where the intermediate audit, if requested as per **6** (2), has not been carried out.
(E) Where wilful acts or omissions are ascertained.
(F) Where any deliberate misrepresentation has been made by the Service Supplier.

(3) A Service Supplier whose approval was cancelled, may apply for re-approval provided it has corrected the non-conformities which resulted in cancellation, and the Society is able to confirm it has effectively implemented the corrective action.

(4) Expiration or cancellation of the Service Supplier's parent company approval automatically invalidates approval of all agents and subsidiaries if these are certified according to **5** (5) (C).

9. Existing approvals *(2020)*

Approvals for the categories of Service Suppliers granted before the date of implementation of this **Appendix Part A or Part B or Part C** by the Society may remain valid as stated in the respective certificates for a period up to but not exceeding 3 years. Renewals of such certificates must be carried out in accordance with this **Appendix Part A or Part B or Part C**. ⚓

Appendix Part A - Approval of Service Suppliers listed in IACS UR Z17

1. Firms engaged in thickness measurements on ships or mobile offshore units (Z17 Annex 1-1)

1.1 Extent of engagement

Thickness measurement of structural material of ships or mobile offshore units except
(1) Non-ESP ships less than 500 gross tonnage and
(2) All fishing vessels.

1.2 Supervisor

The responsible supervisor shall be qualified according to a recognized national or international industrial NDT standard(e.g. **ISO 9712** level II as amended).

1.3 Operators

The operators carrying out the measurements shall be certified to a recognised national or international industrial standard(e.g. **ISO 9712** level II as amended) and shall have adequate knowledge of ship structures sufficient to elect a representative position for each measurement.

1.4 Equipment

On coated surfaces, instruments using pulsed echo technique(either with oscilloscope or digital instruments using multiple echoes, single crystal technique) are required. Single echo instruments may be used on un-coated surfaces, which have been cleaned and ground.

1.5 Procedures

Documented work procedures are at least to contain information on inspection preparation, selection and identification of test locations, surface preparation, protective coating preservation, calibration checks, and report preparation and content.

1.6 Reporting

The report shall be based on the **Annex 1-5** of the Guidance Pt 1.

1.7 Verification

The Service Supplier must have the Surveyor's verification of each separate job, documented in the report by the attending Surveyor(s) signature.

2. Firms engaged in tightness testing of closing appliances such as hatches, doors, etc. with ultrasonic equipment(Z17 Annex 1-2)

2.1 Extent of engagement

Ultrasonic tightness testing of closing appliances such as hatches, doors, etc.

2.2 Operators

The operator is to have the following qualifications:

(1) Have knowledge of different closing appliances such as hatches, doors, etc. including their design, functioning and sealing features
(2) Have experience with the operation and maintenance of different closing appliances such as hatches, doors, etc.
(3) Be able to document theoretical and practical training onboard in using the ultrasonic equipment specified

2.3 It shall be demonstrated to the Surveyor that the ultrasonic equipment is fit for the purpose of detecting leakages in closing appliances.

2.4 Procedures

The Service Supplier shall have documented work procedures which shall include the manual for the ultrasonic equipment specified, its adjustment, its maintenance, its operation and approval criteria.

3. Firms carrying out an in-water inspection on ships and mobile offshore units by diver or Remotely Operated Vehicle(ROV)(Z17 Annex 1-3)

3.1 Extent of engagement

In-water survey in lieu of a docking survey and/or the internal hull survey of compartments filled with water on ships and mobile offshore units by diver or Remotely Operated Vehicle(ROV)

3.2 Training of personnel

The Service Supplier is responsible for the qualification of its divers, Remotely Operated Vehicle (ROV) operators and supervisors and for their training in the use of the equipment utilized when carrying out inspection. Knowledge of the following shall be documented:

(1) Ship's underwater structure and appendages, propeller shafts, propeller, rudder and its bearings, etc.
(2) Non-destructive testing in accordance with a recognised national or international industrial NDT standard. This requirement only applies if an in-water survey firm performs non-destructive testing.
(3) Certification as a thickness measurement firm when conducting thickness measurements under water.
(4) Bearing clearance measurements on rudders and propeller shafts.
(5) Under-water video monitoring with TV-monitors on deck, as well as still picture work
(6) Operation of under-water communication system
(7) Any special equipment necessary for the work carried out.

3.3 A plan for training of personnel in the reporting system, minimum rule requirements for relevant ship or unit types, ship's or unit's underwater structure, measuring of bearing clearances, the recognition of corrosion damage, buckling and deteriorated coatings, etc. shall be included.

3.4 Supervisor

(1) Diving Supervisor
Diving supervisor shall be qualified according to the Service Supplier's general requirements and shall have a minimum of two years' experience as a diver carrying out inspection.

(2) ROV Supervisor
ROV supervisor shall have a minimum of two(2) years of experience conducting inspections with ROVs.

3.5 Diver and Operators

(1) Diver carrying out inspection
The diver carrying out the inspection shall have had at least one year's experience as an assistant diver carrying out inspections(including participation in a minimum of 10 different assignments).

(2) ROV operators
ROV operators shall have at least one year of experience working with ROVs conducting inspections on vessels.

3.6 Equipment

(1) The following shall be available:
(A) Closed circuit colour television with sufficient illumination equipment
(B) Two-way communication between diver and surface staff
(C) Video recording device connected to the closed circuit television
(D) Still photography camera
(E) Equipment for carrying out thickness gauging, non-destructive testing and measurements, e.g. clearances, indents, etc., as relevant to the work to be performed.
(F) Equipment for cleaning of the hull

(2) In addition to above 3.6.(1), the following shall be available for firms carrying out survey by ROV:
(A) Remotely Operated Vehicle
(B) Adequate controls or programming for the ROV functions required

3.7 Procedures and guidelines

(1) The Service Supplier shall have documented operational procedures and guidelines for how to carry out the inspection and handle the equipment. These shall include:
(A) Two-way communication between diver and surface
(B) Video recording and closed circuit television operation
(C) Guidance of the diver along the hull to provide complete coverage of the parts to be inspected

(2) In addition to above 3.7.(1), documented operational procedures and guidelines for firms carrying out in-water survey by ROV shall also include:
(A) Guidance for the operation and maintenance of the Remotely operated vehicle, if applicable
(B) Methods and equipment to ensure the ROV operator can determine the ROV's location and orientation in relation to the vessel.

3.8 Verification

The Service Supplier must have the Surveyor's verification of each separate job, documented in the report by the attending Surveyor(s) signature.

4. Firms engaged in inspection and maintenance of fire extinguishing equipment & systems and self contained breathing apparatus

4.1 Firms engaged in inspection and maintenance of fire extinguishing equipment and systems(Z17 Annex 1-4)

4.1.1 Extent of engagement

Inspections and maintenance of fire-extinguishing equipment and systems such as fixed fire extinguishing systems, portable fire extinguishers and fire detection and alarm systems.

4.1.2 Extent of Approval

(1) Service Suppliers are to have professional knowledge of fire theory, fire-fighting and fire-extinguishing appliances sufficient to carry out the maintenance and/or inspections, and to make the necessary evaluations of the condition of the equipment
(2) In demonstrating professional knowledge, Suppliers are to have an understanding of the various types of fires and the extinguishing media to be used on them
(3) For fixed fire-extinguishing systems, Service Suppliers are to demonstrate an understanding of the principles involved with gas, foam, deluge, sprinkler and water mist systems, as relevant for the approval being sought
(4) In case of conducting periodical controls of foam concentrates of foam fire-extinguishing systems by supplier's itself, the supplier should have testing equipment for sedimentation, pH value, expansion ratio, drainage time and volumic mass. In case of protein-based alcohol-resistant foam concentrates, small scale fire test and chemical stability test should be applied additionally. Test reports should include result of above tests.(Refer to **MSC/Circ.670, 798** and **1312**, for more details)

4.1.3 Procedures

(1) Service Suppliers are to have documented procedures and instructions on how to carry out the servicing of the equipment and/or system. These are to either contain or make reference to the Manufacturer's servicing manuals, servicing bulletins, instructions and training manuals, as appropriate, and to international requirements
(2) Additionally they are to make reference to any requirements(e.g. what markings should be appended to the equipment/system)

4.1.4 Reference Documents

The Service Supplier is to have access to the following documents:

(1) Manufacturer's servicing manuals, servicing bulletins, instructions and training manuals, as appropriate
(2) Type Approval certificates showing any conditions that may be appropriate during the servicing and/or maintenance of fire-extinguishing equipment and systems
(3) **SOLAS, MSC.1/Circular.1318**(Guidelines for the Maintenance and Inspections of Fixed Carbon Dioxide Fire-Extinguishing Systems), International Code for **FSS Code**, **ISO 6406** (Periodic inspection and testing of seamless steel gas cylinders), and any documentation specified in the authorization or license from the equipment manufacturer
(4) **MSC/Circ.670**(Guidelines for the Performance and Testing Criteria and Surveys of High Expansion Foam Concentrates for fixed Fire-Extinguishing Systems)
(5) **MSC/Circ.798**(Guidelines for the Performance and Testing Criteria and Surveys of Medium Expansion Foam Concentrates for fixed Fire-Extinguishing Systems)
(6) **MSC/Circ.799**(Guidelines for the Performance and Testing Criteria and Surveys of Expansion Foam Concentrates for fixed Fire-Extinguishing Systems of Chemical Tankers)
(7) **MSC.1/Circ.1312**(Revised Guidelines for the Performance and Testing Criteria and Surveys of Foam Concentrates for fixed Fire-Extinguishing Systems as corrected by **MSC/Circ.1312/Corr.1**)
(8) **MSC.1/Circ.1432**(Revised Guidelines for the maintenance and Inspection of Fire Protection Systems and Appliances)
(9) **IMO Res. A. 951(23)** - Improved guidelines for marine portable fire extinguishers
(10) **MSC.1/Circ.1370** - Guidelines for the design, construction and testing of fixed hydrocarbon gas detection systems
(11) Guidelines adopted by IMO for fire extinguishing equipment and systems specifically intended

for service by Service Suppliers

4.1.5 Equipment and Facilities

(1) General Requirements

(A) If Service Suppliers undertake shore-based inspecting and maintenance, they should maintain and implement procedures for workshop cleanliness, ventilation and arrangement, with due cognizance of the spares and extinguishing media being stored, to ensure safe and effective working procedures

(B) Service Suppliers undertaking inspecting and maintenance of equipment and systems onboard are to provide the appropriate facilities to either complete the work onboard or remove the necessary items to their workshops

(2) Equipment

Sufficient and appropriate spares and tools are to be available as applicable, which should include:

(A) Various scales to weigh items

(B) Means to hydrostatically pressure test components/systems/storage bottles

(C) Liquid/gas, flow meters, as appropriate

(D) Pressure gauges or manometers

(E) In the cases of foam concentrates and portable fire-extinguishers, chemical analysis equipment and a testing bay, respectively; and

(F) Specific equipment/spares as may be specified by Manufacturer

(G) Level measuring equipment for bottles

(H) Recharging facilities for pressurized bottles, extinguishers and cartridges

4.2 Firms engaged in inspections and maintenance of self contained breathing apparatus (Z17 Annex 1-7)

4.2.1 Extent of Engagement

Inspections and maintenance of self-contained breathing apparatus, Emergency Escape Breathing Devices(EEBD)

4.2.2 Extent of Approval

(1) The Service Supplier shall document and demonstrate that it has knowledge of the equipment and systems sufficient to carry out the inspections and testing of self-contained breathing apparatus to identify standards and to make the necessary evaluation of the condition of the equipment

(2) In demonstrating professional knowledge, Service Suppliers are to have an understanding of the operational requirements involved with self-contained breathing apparatus and how these are to be maintained

(3) Additionally, Service Suppliers are to demonstrate the necessary safety requirements applicable to such equipment

4.2.3 Procedures

(1) Service Suppliers are to have documented procedures and instructions on how to carry out the servicing of the equipment and/or system. These are to either contain or make reference to the Manufacturer's servicing manuals, servicing bulletins, instructions and training manuals, as appropriate

(2) Additionally they are to make reference to any requirements(e.g. what markings should be appended to the equipment/system) and how they should be applied

4.2.4 Reference Documents

The Service Supplier is to have access to the following documents:

(1) Manufacturers' servicing manuals, servicing bulletins, instructions and training manuals, as appropriate

(2) Type Approval certificates showing any conditions which may be appropriate during the servicing and/or maintenance of self-contained breathing apparatus

4.2.5 Equipment and Facilities

(1) General Requirements

(A) If Service Suppliers undertake shore-based inspecting and maintenance, they should

maintain and implement procedures for workshop cleanliness, ventilation and arrangement, with due cognizance of the spares and pressurized bottles being stored, to ensure safe and effective working procedures

(B) Service Suppliers undertaking inspecting and maintenance of equipment and systems onboard are to provide the appropriate facilities to either complete the work onboard or remove the necessary items to their workshops

(2) Equipment

(A) Sufficient and appropriate spares and tools are to be available for repair, maintenance and servicing of self-contained breathing apparatus in accordance with the requirements of the Manufacturers

(B) These are to include, as required by the self-contained breathing apparatus equipment and/or systems:

(a) Various scales to weigh items
(b) Means to hydrostatically pressure test components/systems/storage bottles
(c) Flow meters; and
(d) Pressure gauges or manometers
(e) Equipment for checking air quality
(f) Recharging facilities for breathing apparatus

5. Firms engaged in servicing life saving appliances

5.1 Firms engaged in servicing inflatable liferafts, inflatable lifejackets, hydrostatic release units, inflatable rescue boats, marine evacuation systems(Z17 Annex 1-5)

5.1.1 Extent of engagement

(1) Servicing of inflatable liferafts, inflatable lifejackets, hydrostatic release units and/or inflatable rescue boats

(2) Servicing of marine evacuation systems

5.1.2 Equipment and facilities

IMO Res.A.761(18) as amended by **MSC.55(66)** gives recommendations on conditions for the approval of servicing stations for inflatable liferafts which shall be observed as relevant. Where inflatable liferafts are subject to extended service intervals, **MSC.1/Circ.1328** should also be followed.

5.1.3 Procedures and instructions

The Service Supplier shall have documented procedures and instructions for how to carry out service of equipment. Where inflatable liferafts are subject to extended service intervals in accordance with the requirements of **SOLAS Reg.III/20.8.3, MSC.1/Circ.1328** should be followed in addition to **Res.A.761(18)** as amended by **MSC.55(66)**.

5.1.4 The Service Supplier shall provide evidence that it has been authorized or licensed to service the particular makes and models of equipment for which approval is sought by the equipment's manufacturer.

5.1.5 Reference Documents

The Service Supplier is to have access to the following documents:

(1) **IMO Res.A.761(18)** - Recommendation on Conditions for the Approval of Servicing Stations for Inflatable Liferafts - (adopted on 4 November 1993), amended by **Res. MSC.55(66)**

(2) **IMO Res. MSC.55(66)**

(3) **IMO MSC.1/Circ.1328** - Guidelines for the Approval of Inflatable Liferafts Subject to Extended Service Intervals Not Exceeding 30 Months

(4) Manufacturer's servicing manuals, servicing bulletins, instructions and training manuals, as appropriate

(5) Type Approval certificates, showing any conditions that may be appropriate during the servicing and/or maintenance of inflatable liferafts, inflatable rescue boats, inflatable lifejackets, and hydrostatic release units

(6) **LSA code/Chap.IV, 1995 SOLAS** Conference Resolution 4 regarding marine evacuation systems

5.2. Firms engaged in maintenance, thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances and release gear (Z17 Annex 1-13) *(2020)*

5.2.1 Extent of engagement

Maintenance, thorough examination, operational testing, overhaul and repair of:

1. Lifeboats(including free-fall lifeboats), rescue boats and fast rescue boats; and

2. Launching appliances and on-load and off-load release gear for lifeboats(including primary and secondary means of launching appliances for free- fall lifeboats), rescue boats, fast rescue boats and davit-launched liferafts.

5.2.2 Extent of Approval

(1) The contents of this procedure apply equally to manufacturers or ship's operator when they are acting as Service Suppliers.

(2) Any Service Supplier engaged in maintenance, thorough examination, operational testing, overhaul

and repair of lifeboats and rescue boats, launching appliances and release gear carried out in accordance with **SOLAS Reg. III/20** shall be approved for these operations for each make and type of equipment for which they provide the service in accordance with **IMO Res. MSC.402(96)/Corr.1**(annex, section7).

(3) Such approval shall include, as a minimum:
- employment and documentation of personnel certified in accordance with a recognized national, international or industry standard as applicable, or an equipment manufacturer's established certification program. In either case, the certification program shall be based on the paragraph 5.2.3 for each make and type of equipment for which service is to be provided; and,
- compliance with provisions of paragraphs 5.2.4, 5.2.5 and 5.2.6.

(4) In cases where an equipment manufacturer is no longer in business or no longer provides technical support, Service Suppliers may be approved for the equipment on the basis of prior approval for the equipment and/or long term experience and demonstrated expertise as an approved Service Supplier.

5.2.3 Certification of Personnel

(1) Personnel for the work specified in 5.2.1 shall be certified by the manufacturer or the Service Supplier for each make and type of the equipment to be worked on. Approved Service Supplier is allowed to certify its own personnel(i.e. employed by the same Service Supplier) only.

(2) The education for initial certification of personnel should be documented and address, as a minimum:
(A) Causes of lifeboat and rescue boat accidents
(B) Relevant rules and regulations, including International Conventions
(C) Design and construction of lifeboats(including free-fall lifeboats), rescue boats and fast rescue boats, including on load release gear and launching appliances
(D) Education and practical training in the procedures specified in section 6 of the annex to **IMO Res. MSC.402(96)/Corr.1** for which certification is sought
(E) Detailed procedures for thorough examination, operational testing, repair and overhaul of lifeboats (including free-fall lifeboats), rescue boats and fast rescue boats, launching appliances and on load release gear, as applicable;
(F) Procedures for issuing a report of service and statement of fitness for purpose based on **IMO Res. MSC.402(96)/Corr.1**(annex, paragraph 5.3); and
(G) Work, health and safety issues while conducting activities on board.

(3) The training for the personnel shall include practical technical training on thorough examination, operational testing, maintenance, repair and overhaul techniques using the equipment for which the personnel are to be certified. The technical training shall include disassembly, reassembly, correct operation and adjustment of the equipment. Classroom training shall be supplemented by field experience in the operations for which certification is sought, under the supervision of certified person.

(4) Prior to issuance of personnel certification, a competency assessment shall be satisfactorily completed, using the equipment for which the personnel are to be certified.

(5) Upon completion of training and competency assessment, a certificate shall be issued defining the level of qualification and the scope of the certification (i.e. makes and types of equipment and specifically state which activities (annual thorough examination and operational tests; 5-year thorough examination, overhaul; overload operational tests; repairs) are covered by the certification). The expiry date shall clearly be written on the certificate and shall be three years from the date of issue. The validity of any certificate shall be suspended in the event of any shortfall in performance and only revalidated after a further competency assessment.

(6) A competency assessment shall be conducted to renew the certification. In cases where refresher training is found necessary a further assessment shall be carried out after completion.

5.2.4 Reference Documents

The Service Supplier is to have access to the following documents:

(1) **IMO Res. MSC.402(96)/Corr.1**, Requirements for Maintenance, Thorough Examination, Operational Testing, Overhaul and Repair of Lifeboats and Rescue Boats, Launching Appliances and Release Gear

(2) **IMO Res.A.689(17),** recommendation on testing of life-saving appliances and, for life-saving appliances installed on board on or after 1 July 1999,

(3) **IMO Res. MSC.81(70),** as amended revised recommendation on testing of life-saving appliances

(4) Manufacturer's instructions(including updates, amendments and safety notices) for repair work involving disassembly or adjustment of on-load release mechanisms and davit winches.

(5) Type Approval certificate showing any conditions that may be appropriate during the servicing and/or maintenance of lifeboats, launching appliances and on-load release gear

5.2.5 Equipment and Facilities

The Service Supplier is to have the following:

(1) Sufficient tools, and in particular any specialized tools specified in the equipment manufacturer's instructions, including portable tools as needed for work to be carried out on board ship

(2) Access to appropriate parts and accessories as specified by the equipment manufacturer for maintenance and repair

(3) For servicing and repair work involving disassembly or adjustment of on-load release mechanisms, availability of genuine replacement parts as specified or supplied by the equipment manufacturer

5.2.6 Reporting

The report shall conform to the requirements of **IMO Res. MSC. 402(96)/Corr.1**(annex, paragraph 5.3). When repairs, thorough examinations and annual servicing are completed, statement confirming that the lifeboat arrangements remain fit for purpose should be promptly issued by the Service Supplier that conducted the work. A copy of valid documents of certification and authorization as appropriate shall be included with the statement.

6. Firms engaged in inspections and testing of radio communication equipment (Z17 Annex 1-6)

6.1 Extent of engagement

(1) Surveys, inspection, testing, and/or measurement of radio equipment aboard ships or mobile offshore units for compliance with SOLAS regulations
(2) Annual testing of 406 MHz satellite EPIRBs for compliance with **SOLAS Reg. IV/15.9**
(3) The principles of this section also apply to Service Suppliers involved in inspection, performance testing and maintenance of Automatic Identification Systems (AIS). The Supplier is to be familiar with the equipment with which it will be involved, such as being a service agent for the equipment manufacturer

6.2 Reference documents

The Service Supplier shall have access to the following documents:
(1) **SOLAS 1974 as amended**
(2) **IMO Res.MSC.349(92)**: Code for Recognized Organizations(RO Code).
(3) **MSC/Circ.1040/Rev.1** - Guidelines on Annual Testing of 406 MHZ Satellite EPIRBs
(4) **MSC.1/Circ.1252** - Guidelines on Annual Testing of the Automatic Identification System(AIS)
(5) **SN/Circ.227, SN/Circ.227/Corr.1 and 245** - Guidelines for the Installation of a Shipborne Automatic Identification System(AIS) and amendments thereto
(6) ITU Radio Regulations
(7) IMO Performance Standards for the equipment for which the Service Supplier is approved
(8) Flag State Administration requirements
(9) Relevant parts, if any, of the Society's Rules and Guidelines

6.3 Radio technicians

This applies unless provided otherwise by the Administration.

6.3.1 Supervisor

The supervisor shall have a minimum two years education from a technical school, experience as inspector, and should preferably hold a General Operator's Certificate(GOC) or a GMDSS Radioelectronic Certificate(REC), recognised by the ITU, to operate or test radio transmitters.
He should be aware of any local conditions for radio signal propagation, of regional radio stations and their facilities, and of the GMDSS infrastructure.

6.3.2 Radio inspector

The inspector carrying out the inspection shall have passed the internal training of the Service Supplier in Radiotelephony, GMDSS, and initial and renewal surveys, as applicable. The inspector shall also have at least one year's technical school training or as alternative hold evidence that he followed a technical course approved by the relevant Administration, at least one year's experience as an assistant radio inspector and should preferably hold an appropriate National Radio Operators Certificate, recognised by the ITU, such as a GMDSS General Operator's Certificate(GOC) or a GMDSS Radioelectronic Certificate(REC). He should be aware of any local conditions for radio signal propagation, of regional radio stations and their facilities, and of the GMDSS infrastructure.

6.4 Equipment and facilities

(1) The Service Supplier shall have the major and auxiliary equipment required for correctly performing the inspection. A record of the equipment used shall be kept. The record shall contain information on manufacturer and type of equipment, and a log of maintenance and calibrations.
(2) A standard which is relevant to the radio equipment to be tested shall be available for the equipment and shall be cited in the inspection report.
(3) For equipment employing software in conjunction with the testing/examination, this software shall be fully described and verified.
(4) Minimum required instruments:
(A) Equipment for measuring frequency, voltage, current and resistance

(B) Equipment for measuring output and reflect effect on VHF and MF/HF
(C) Equipment for measuring modulation on MF/HF and VHF(AM, FM, PM)
(D) Acid tester for checking specific gravity of lead batteries
(E) Tester for checking of correct output from Free-Float Satellite EPIRB
(F) Equipment for testing the performance of Automatic Identification Systems(AIS)

6.5 Procedures and instructions

The Service Supplier shall have documented procedures and instructions for how to carry out testing and examination of radio equipment. Procedures and instructions for operating each item of the testing/inspection equipment shall also be kept and be available at all times.

7. Firms engaged in examination of Ro-Ro ships bow, stern, side and inner doors (Z17 Annex 1-8)

7.1 Extent of engagement

Inspection of securing and locking devices, hydraulic operating system, electric control system for the hydraulics, electric indicator systems, and supporting, securing and locking devices and tightness testing

7.2 The Service Supplier is to be certified to the most current version of **ISO 9000** series.

7.3 Supervision

In addition to **INTRODUCTION Sec. 5** (2) (C) of the Guidance, the requirement to have had a minimum of two years experience as operator/technician/inspector within the activity, a supervisor is to have a minimum two years related education from a technical school.

7.4 Training of personnel

Operators carrying out NDT are to be qualified to a recognised national or international standard for the methods used.

7.5 Reference documents

The Service Supplier shall have access to the following reference documents:

(1) **IMO SOLAS 74/78**, as amended
(2) **ISO 9002:1994** - Quality systems-Model for quality assurance in production, installation and servicing
(3) **IACS UR Z24** - Survey Requirements for Shell and Inner Doors of Ro-Ro ships, or its equivalent, by the Society

7.6 Required equipment

(1) For inspection of supporting securing and locking devices, hinges and bearings:
  (A) Equipment for measuring clearances(i.e. feeler gauges, vernier calipers, micrometers)
  (B) NDT(i.e. dye penetrant, magnetic particle inspection)

(2) For tightness testing:
  (A) Ultrasonic leak detector or equivalent

(3) For inspection of hydraulic operating system:
  (A) Pressure gauges
  (B) Particle counter for analysis the quality of hydraulic fluid

(4) For inspection of electric control system and indication system:
  (A) Digital multi-meter
  (B) Earth fault detector

7.7 Procedures and instructions

(1) The Service Supplier shall have access to drawings and documents, including the operating and inspection manual.
(2) The Service Supplier shall have access to the service history of the doors
(3) The Service Supplier should use, complete and sign a checklist which has been found acceptable by the Society.

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/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) The Service Supplier shall provide evidence that he has been authorized or licensed by the equipment's manufacturer to service the particular makes and models of equipment for which approval is sought.

(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) The Manufacturer is responsible for appointing Manufacturer's Authorized Service Stations to carry out annual performance testing

(B) The Manufacturer is required to be an Approved Service Supplier and is to satisfy the requirements for Service Suppliers engaged in annual performance testing of Voyage Data Recorders(VDR) and Simplified Voyage Data Recorders(S-VDR), as applicable

(C) The Manufacturer's Authorized Service Station is not required to be an Approved Service Supplier

(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)*

8.3 Procedures

(1) The Service Supplier shall have documented procedures and instructions.

(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) The Manufacturer is to have documented procedures for the assessment and authorization of Manufacturer's Authorized Service Stations who carry out annual performance testing

(B) The Manufacturer is to have documented procedures for the review of Manufacturer's Authorized Service Stations annual performance test reports, analysis of the Voyage Data Recorder(VDR) and Simplified Voyage Data Recorder(S-VDR) 12 hour log and the issue of annual performance test certificates to the Owner/Operator

(C) The Manufacturer is to maintain a list of Manufacturer's Authorized Service Stations that can be accessed(by any available means, e.g. via a nominated contact point or from the Manufacturer's website) upon request

8.4 Reference Documents

(1) The Service Supplier is to have access to the following documents:

(A) **IMO SOLAS, 74/78, Ch V, Reg 18.8.** - Approval, surveys and performance standards of navigational systems and equipment and voyage data recorder

(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)*

(C) **IMO Res.A.861(20)**(adopted on 27 November 1997) as amended by **IMO Res. MSC. 214(81)** and revised by **IMO Res. MSC.333(90)** – Performance Standards for Shipborne Voyage Data Recorders(VDRs)
(D) **IMO Res. MSC.163(78)** – Performance Standards for Shipborne Simplified Voyage Data Recorders(S-VDRs) – (adopted on 17 May 2004), as amended by **IMO Res. 214(81)**

(2) The Service Supplier is to have access to applicable industry performance standards, e.g.:
(A) **IEC 61996** – Maritime navigation and radiocommunication equipment and systems – Shipborne voyage data recorder(VDR)
(B) **IEC 61996-2** – Maritime navigation and radio communication equipment and systems – Shipborne voyage data recorder(VDR) – Part 2: Simplified voyage data recorded(S-VDR) – Performance requirements, method of testing and required test results

(3) The Service Supplier is also to have access to any documentation specified in the authorization or license from the equipment manufacturer.

8.5 Equipment and Facilities

In addition, the Service Supplier shall have equipment as specified in the authorization or license from the equipment Manufacturer.

8.6 Reporting(Test Report)

(1) The Service Supplier shall issue a certificate of compliance as specified in the **SOLAS 1974, as amended, Ch V, Reg 18.8.**

(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)*
(A) Review of the Manufacturer's Authorized Service Station annual performance test report
(B) Analysis of the recorder's 12 hour log
(C) Checking of the master record/database for the recorder

(4) Issue of the annual performance test certificate to the Owner/Operator within 45 days of completion of the annual performance test.

9. Firms engaged in inspections of low location lighting systems using photo luminescent materials and evacuation guidance systems used as an alternative to lowlocation lighting systems(Z17 Annex 1-10)

9.1 Extent of engagement

Luminance measurements on board ships of low location lighting systems using photo luminescent materials.

9.2 Operators

The operator is to have the following qualifications:

(1) Have adequate knowledge of the applicable international requirements(namely **SOLAS Reg. II-2 /13.3.2.5**, **IMO Res. A.752(18)** - Guidelines for the Evaluation, Testing and Application of Low-Location Lighting on Passenger Ships, **ISO 15370-2010**, **FSS Code Ch 11**)

(2) Be able to document theoretical and practical training onboard in using equipment specified

9.3 Equipment

The measuring instrument shall incorporate a fast-response photometer head with CIE(International Commission on Illumination) photopic correction and have a measurement range of at least 10-4 cd/m2 to 10 cd/m2.

9.4 Procedures

Documented work procedures are at least to contain information on inspection preparation, selection and identification of test locations.

9.5 Reporting

The report shall conform to Annex C of **ISO 15370-2010**.

9.6 Verification

The Service Supplier must have the Surveyor's verification of each separate job, documented in the report by the attending Surveyor's signature.

9.7 Reference Documents

The Service Supplier is to have access to the following documents:

(1) **IMO SOLAS, 74/78 Ch II-2, Pt D, Reg 13.3.2.5** - Marking of escape routes
(2) **IMO FSS Code, Ch 11** - Low-location lighting systems
(3) **IMO Res.A.752(18)** - Guidelines for the Evaluation, Testing and Application of Low-Location Lighting on Passenger Ships - (adopted on 4 November 1993)
(4) **ISO 15370:2010** - Ships and marine technology - Low-location lighting on passenger ships - Arrangement
(5) **MSC/Circ.1168** - Interim guidelines for the testing, approval and maintenance of evacuation guidance systems used as an alternative to low-location lighting systems

10. Firms engaged in sound pressure level measurements of public address and general alarm systems on board ships(Z17 Annex 1-11)

10.1 Extent of engagement

Sound pressure level measurements of public address and general alarm systems on board ships.

10.2 Operators

The operator is to have the following qualifications:

(1) Have adequate knowledge of the applicable international requirements(**SOLAS Reg. III/4** and **III/6, LSA CODE Ch VII/7.2, IMO Code** on alarms and indicators, 1995)

(2) Be able to document theoretical and practical training onboard in using equipment specified

10.3 Equipment

The measuring instrument shall be an integrating sound level meter with frequency analyser capabilities complying with **IEC**(International Electrotechnical Commission) **60651** and **IEC 61672**, type 1 precision class with, at least an A-weighting frequency response curve and 1/3 octave and 1 octave band filters, complying to **IEC 61260**, as appropriate for the measurements to be carried out. In addition microphones shall be of the random incidence type[1], complying with **IEC 60651**.

10.4 Procedures

Documented work procedures are at least to contain information on inspection preparation, calibration, selection and identification of test locations.

10.5 Reporting

The report shall describe, as a minimum, the environmental conditions of the tests and, for each test location, the ambient noise level or the speech interference level, as appropriate for the measurements to be carried out. The report shall conform to any other specific requirement of the Society.

10.6 Verification

The Service Supplier must have the Surveyor's verification of each separate job, documented in the report by his signature.

10.7 Reference documents

The Service Supplier is to have access to the following documents:

(1) **SOLAS 74/78, Ch III, Pt A, Reg. 4**(Evaluation, testing and approval of life-saving appliances and arrangements)
(2) **SOLAS 74/78, Ch III, Pt B, Reg. 6**(Communications)
(3) **LSA Code, Ch VII, Reg. 7.2**(General alarm and public address system)
(4) **IMO Code** on Alarms and Indicators, 1995 as amended
(5) **IEC 60651(2001-10)**(Sound level meters)
(6) **IEC 61672**(Electroacoustics - Sound level meters)
(7) **IEC 61260**(Electroacoustics - Octave-band and fractional-octave-band filters)

(Note)

1) A microphone designed to respond uniformly to sounds arriving simultaneously from all directions.

11. Firms engaged in testing of coating systems in accordance with IMO Res. MSC. 215(82) as amended and IACS UI SC223 and/or IMO Res.MSC.288(87) as amended (Z17 Annex 1-12)

11.1 Laboratories

(1) Extent of engagement
Testing of coating systems according to **IMO Res.MSC.215(82)**, as corrected by **IMO MSC.1 /Circ.1381** and amended by **IMO Res.MSC.341(91)** and **IACS UI SC223** and/or **IMO Res. MSC. 288(87)**, as corrected by **IMO MSC.1/Circ.1381** and amended by **IMO Res. MSC. 341(91)**

(2) The laboratory is to provide to the Society the following information:
(A) A detailed list of the laboratory test equipment for the coating approval according to the **IMO Res.MSC.215(82)** as amended and/or **IMO Res.MSC.288(87)** as amended.
(B) A detailed list of reference documents comprising a minimum those referred to in **IMO Res. MSC.215(82)** as amended and/or **IMO Res.MSC.288(87)** as amended for the coating approval.
(C) Details of test panel preparation, procedure of test panel identification, coating application, test procedures and a sample test report.
(D) Details of exposure method and site for weathering primed test panels.
(E) A sample daily or weekly log/form for recording test conditions and observations including unforeseen interruption of the exposure cycle with corrective actions.
(F) Details of any sub-contracting agreements(if applicable).
(G) Comparison test report with an approved coating system or laboratory if available.

(3) Reporting
Reference is made to the following IACS Recommendations:
(A) **Rec.101** : IACS Model Report for **IMO Res.MSC.215(82) Annex 1** "Test Procedures for Coating Qualification"

(B) **Rec.102** : IACS Model Report for **IMO Res.MSC.215(82) Annex 1** "Test Procedures for Coating Qualification", Section 1.7 - Crossover Test

(4) Audit of the test laboratory is to be based on this procedure and the standards listed in the **IMO Res.MSC.215(82)** as amended and/or **IMO Res.MSC.288(87)** as amended for the coating approval.

12. Firms engaged in measurements of Noise level Onboard Ships(Z17 Annex 1-14)

12.1 Extent of engagement

Sound pressure level measurements onboard Ship.

12.2 Supervisor

The supervisor shall have a minimum of 2 years of experience as an operator in sound pressure level measurements.

12.3 Operators

The operator is to have the following qualifications:

(1) Knowledge in the field of noise, sound measurements and handling of measurement equipment
(2) Adequate knowledge of the applicable international requirements(**SOLAS Regulation II-1/3-12, as amended**, and **IMO Code** on noise levels onboard Ships, as amended,)
(3) At least 1 year's experience, including participation in a minimum of 5 measurement campaigns as an assistant operator
(4) Training concerning the procedures specified in **IMO Code** on Noise Levels onboard Ships
(5) Be able to document theoretical and practical training onboard in using a sound level meter

12.4 Equipment

(1) Sound level meters
Measurement of sound pressure levels shall be carried out using precision integrating sound level meters. Such meters shall be manufactured to **IEC 61672-1(2002-05)**[1], as amended, type/class 1 standard as applicable, or to an equivalent standard acceptable to the Administration[2].
(2) Octave filter set
When used alone, or in conjunction with a sound level meter, as appropriate, an octave filter set shall conform to **IEC 61260(1995)**[3], as amended, or an equivalent standard acceptable to the Administration.
(3) Sound Calibrator
Sound calibrators shall comply with the standard **IEC 60942(2003-01)**, as amended, and shall be approved by the manufacturer of the sound level meter used.
(4) Calibration
Sound Calibrator and sound level meter shall be verified at least every two years by a national Standard laboratory or a competent laboratory accredited according to **ISO 17025(2005)**, as amended. A record with a complete description of the equipment used shall be kept, including a calibration log.
(5) Microphone wind screen
A microphone wind screen shall be used when taking readings outside, e.g. on navigating bridge wings or on deck, and below deck where there is any substantial air movement. The wind screen should not affect the measurement level of similar sounds by more than 0.5dB(A) in "no wind" conditions.

12.5 Procedures and instructions

(1) The Service Supplier shall have documented procedures and instructions to carry out service of the equipment. Documented work procedures are at least to contain information on inspection preparation, selection and identification of sound level measurement locations, calibration checks and report preparation.
(2) The Service Supplier shall have access to the following documents:
(A) **SOLAS 1988, as amended(Reg.II-1/3-12)**
(B) **Res.A.468(XII)** and **IMO Res. MSC.337(91)** code on noise levels on board ships
(C) **Res.A.343(IX)** Recommendation on methods of measuring noise levels at listening posts
(D) The Society's Rules and Guidelines

12.6 Reporting

A noise inspection report shall be made for each ship. The report shall comprise information on the noise levels in the various spaces on board. The report shall show the reading at each specified measuring point. The points shall be marked on a general arrangement plan, or on accommodation drawings attached to the report, or shall otherwise be identified.
The format for noise inspection reports is set out in appendix 1 of **IMO Code** on Noise Levels onboard Ships and may conform to any other specific requirement of the Society(refer to **IMO Circ. MSC.337(91)**).

12.7 Verification

The Service Supplier must have the Surveyor's verification of each separate job, documented in the report by his signature.

(Note)

1) Recommendation for sound level meters.
2) Sound level meters class/type 1 manufactured according to **IEC 651/IEC 804** may be used until 1 July 2016.
3) Octave-band and fractional-octave-band filters

13. Firms engaged in tightness testing of primary and secondary barriers of gas carrier with membrane cargo containment systems for vessels in service(Z17 Annex 1-15)

13.1 Extent of engagement

Firms carrying out the following:
(1) Global vacuum testing of primary and secondary barriers
(2) Acoustic emission(AE) testing
(3) Thermographic testing

13.2 Requirements for firms engaged in global vacuum testing of primary and secondary barriers

(1) Testing procedures
Testing is to be carried out in accordance with cargo containment system designers' procedures as approved by the Society

(2) Authorization
The Service Supplier is to be authorized by the cargo containment system designer to carry out the testing.

(3) Equipment
Equipment is to be maintained and calibrated in accordance with recognized national or international industrial standards.

(4) Reporting
The report is to contain the following:
(A) Date of testing
(B) Identity of test personnel
(C) Vacuum decay data for each tank
(D) Summary of test results

13.3 Requirements for firms engaged in acoustic emission(AE) testing

(1) Testing procedures
The Service Supplier is to have documented procedures based upon recognized national or international industrial standards to perform ultrasonic leak test using AE sensors for the secondary barrier of membrane cargo containment systems. The procedures are to include details of personnel responsibilities and qualification, instrumentation, test preparation, test method, signal processing, evaluation and reporting.

NOTE: The differential pressure during testing should not exceed the cargo containment system designer's limitations.

(2) Supervisor
The responsible supervisor shall be certified to a recognized national or international industrial standard(e.g. level II, **ISO 9712** as amended or **SNT-TC-1A** as amended) and have one year experience at level II.

(3) Operators
The operators carrying out the acoustic emission(AE) testing shall be certified to a recognized national or international industrial standard(e.g. level II, **ISO 9712** as amended or **SNT-TC-1A** as amended) and shall have adequate knowledge of ship structures sufficient to determine sensor placement.

(4) Equipment
Equipment is to be maintained and calibrated in accordance with recognized national or international industrial standards or equipment manufacturer's recommendations.

(5) Evaluation of acoustic emission(AE) testing
Must be carried out by the supervisor or individuals certified to a recognized national or international

industrial standard(e.g. level II, **ISO 9712** as amended or **SNT-TC-1A** as amended) and have one year experience at level II.

(6) Reporting
The report is to contain the following:
(A) Date of testing
(B) Supervisor and operator(s) certifications
(C) Description of time and pressure of each cycle of test
(D) List and sketch detailing location of possible defects

13.4 Requirements for firms engaged in thermographic testing

(1) Testing procedures
Testing is to be carried out in accordance with the cargo containment system designers' procedures as approved by the Society

(2) Authorization
The Service Supplier is to be authorized by the system designer to carry out the testing.

(3) Supervisor
The responsible supervisor shall be certified to a recognized national or international industrial standard(e.g. level II, **ISO 9712** as amended or **SNT-TC-1A** as amended) with additional certification in infrared/thermal testing. **SNT-TC-1A** certified personnel must provide evidence that training on Level II or above has been administered by an independent training body centrally certified to ASNT or a comparable nationally recognized certification scheme.

(4) Operators
The operators carrying out the imaging shall be certified to a recognized national or international industrial standard(e.g. level II, **ISO 9712** as amended or **SNT-TC-1A** as amended) with additional certification in infrared/thermal testing and shall have adequate knowledge of ship structures sufficient to determine position for each identified image, and of the cargo containment system to understand the basis of the testing. **SNT-TC-1A** certified personnel must provide evidence that training on Level I or above has been administered by an independent training body centrally certified to ASNT or a comparable nationally recognized certification scheme.

(5) Equipment
Thermal cameras and sensors are to be in accordance with the cargo containment system designer's procedures with regards to sensitivity, accuracy and resolution. Equipment are to be in accordance with recognized standard(**IEC**, etc.) with regards their safety characteristics for the use in hazardous areas(in gas explosive atmosphere), maintained and calibrated in accordance with the maker's recommendations.

(6) Evaluation of thermographic images
Must be carried out by the supervisor or individuals certified to a recognized national or international industrial standard(e.g. level II, **ISO 9712** as amended or **SNT-TC-1A** as amended) with additional certification in infrared/thermal testing. **SNT-TC-1A** certified personnel must provide evidence that training on Level II or above has been administered by an independent training body centrally certified to ASNT or a comparable nationally recognized certification scheme.

(7) Reporting
The report is to contain the following:
(A) Date of testing
(B) Supervisor and operator(s) certifications
(C) Differential pressure of all phases
(D) List and sketch detailing location of thermal indications
(E) Thermographic images of all phases of testing for thermal indications
(F) Evaluation of thermal images indicating possible leaks

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 Definitions:

(1) Close-Up Survey:
A Close-Up Survey is a survey where the details of structural components are within the close visual inspection range of the surveyor i.e. normally within reach of hand.

(2) Remote Inspection Techniques(RIT):
RIT is a means of survey that enables examination of any part of the structure without the need for direct physical access of the surveyor(refer to IACS Rec.42). RIT may include the use of:
(A) Unmanned Aerial Vehicles(UAV)
(B) Drones
(C) Unmanned robot arm
(D) Remotely Operated Vehicles(ROV)
(E) Climbers
(F) Other means acceptable to the Society.

14.2 Extent of engagement

Close-up Survey of ships' structure and mobile offshore units' structure by RIT. For in-water close-up survey of the internal compartments by RIT, Service Suppliers are also to hold separate approval as a "Firm carrying out an in-water survey on ships and mobile offshore units by diver or ROV"(see **Appendix Part A** Par. 3).

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(NDT) in accordance with a recognised National or International Industrial NDT 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)*

14.4 Training Plan

The Service Supplier is to maintain a documented training plan for personnel. The plan shall include requirements for training in the minimum Rule requirements for the structure of relevant ships types and MOUs, the recognition of structural deterioration(including corrosion, buckling, cracking and deteriorated coatings) and use of the reporting system.

14.5 Supervisor

The supervisor shall be certified according to the recognized national requirements or an equivalent industrial standard and shall have a minimum of two years' experience in the inspection of ship's and/or MOU's structure.

14.6 Operators

The operator carrying out the inspection shall be certified according to the recognized national requirements

or an equivalent industrial standard and have had at least one year's experience as an assistant carrying out inspections of ship's and/or MOU's structure(including participation in a minimum of five different assignments).
The operators of those RIT which require, according to the international and national legislations, to be licensed for their use shall hold valid documentation issued by the appropriate Bodies (e.g. UAV Pilots are to be qualified and licensed in accordance with applicable national requirements).

14.7 Equipment

The following equipment shall be available:
(1) Remotely operated platform with data capture devices capable of operation within an enclosed space.
(2) Means of powering the platforms with sufficient capacity to complete the required inspections, including spare batteries if applicable.
(3) Data collection devices which may include cameras capable of capturing in high definition both video images and still images.
(4) Illumination equipment.
(5) High definition display screen with live high definition feed from inspection cameras.(When this is part of the RIT).
(6) Means of communication.
(7) Data recording devices, as applicable.
(8) Equipment for carrying out thickness gauging and/or non-destructive testing, as relevant to the work to be performed(when this is part of the service).

14.8 Procedures and guidelines

The Service Supplier shall have documented operational procedures and guidelines for how to plan, carry out and report inspections; how to handle/operate the equipment; collection and storage of data. These shall include:
(1) Requirements for preparation of inspection plans when UAV are part of the equipment flight plans shall be included.
(2) Operation of the remotely operated platforms.
(3) Operation of lighting.
(4) Calibration of the data collection equipment.
(5) Operation of the data collection equipment.
(6) Two-way communication between the operator, platform, Surveyor, other personnel such as support staff and ships officers and crew.
(7) Guidance of the operator to provide complete coverage of the structure to be inspected.
(8) Guidance for the maintenance of the remotely operated platforms, data capture and storage devices and display screens, as applicable.
(9) Requirements for the collection and validation of data.
(10) If data is to be stored, then requirements for location attribution(geo-tagging), validation and storage of data.
(11) Requirements for the reporting of inspections, including the recording of damages and defects found during inspection and repair work.

14.9 Documentation and records

The Service Supplier shall maintain the following:
(1) Records of training.
(2) Operator statutory and regulatory certificates and licences.
(3) Equipment register for UAVs, Robots, data collection devices, data analysis devices and any associated equipment necessary to perform inspections.
(4) Equipment maintenance manuals and records/logbook.
(5) Records of calibration.
(6) UAV/Robot operation logbook.

14.10 Verification

The Service Supplier must have the Surveyor's verification of each separate job, documented in the report by the attending Surveyor(s) signature.

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 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) The contents of this procedure apply equally to manufacturers or shipyards when they are actin-gas Service Suppliers.

(2) Any Service Supplier engaged in the inspections of watertight 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:

- employment and documentation of personnel certified in accordance with a recognized national, international or industry standard as applicable, or an equipment manufacturer's established certification program. In either case, the certification program shall be based on the paragraph 15.3 for each make and type of equipment for which inspection is to be provided, and
- compliance with provisions of paragraphs 15.4, 15.5 and 15.6.

(3) In cases where an equipment manufacturer is no longer in business or no longer provides technical support, Service Suppliers may be authorised for the equipment on the basis of prior authorization for the equipment and/or long term experience and demonstrated expertise as an authorized service provider.

15.3 Qualifications and Training of Personnel

(1) Personnel for the work specified in 15.1.(1) shall be trained and qualified in the inspection for which they are authorised, for each make and type of equipment for which they provide the inspection.

(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)*

(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) At the time of initial certification and at each renewal of certification, the service supplier shall provide documentation to verify personnel's satisfactory completion of a competency assessment using the equipment for which the personnel are certified.

(5) The Service Supplier shall require refresher training as appropriate to renew the certification.

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 Equipment and Facilities

The Service Supplier is to have access to the following:

- Sufficient tools, and in particular any specialized tools specified in the equipment manufacturer's instructions, including portable tools as needed for work to be carried out on board ship.

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.

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;

  (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;

(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.

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) ⚓

Appendix Part B Approval of Service Suppliers listed in IACS UR W35 *(2020)*

1. Independent NDT company or NDT department/section that forms a part of a shipbuilding company providing NDT services on ship and/or offshore components/structures(UR W35)

1.1 This appendix is not applied to internal NDT department of equipment and materials manufacturers.

1.2 Terms and definitions

(1) NDT

Non-destructive testing. Comprising, but not limited to the method and techniques Magnetic Particle Testing(MT), Penetrant Testing(PT), Radiographic Testing(RT), Digital Radiography(RT-D), Visual Testing(VT), Ultrasonic Testing(UT), Phased Array Ultrasonic Testing(PAUT), Time of Flight Diffraction(TOFD), Eddy Current Testing(ET) and/or Alternating Current Field Measurements(ACFM)

1.3 Extent of Engagement

NDT(Non-destructive Testing) services on ship and/or offshore components/structures.

1.4 Supervisor

(1) The Supplier shall have a supervisors, responsible for the appropriate execution of NDT operations and for the professional standard of the operators and their equipment, including the professional administration of the working procedures. The supplier shall employ, on a full-time basis, at least one supervisor independently certified to Level 3 in the method(s) concerned as per the requirements of 1.9. It is not permissible to appoint Level 3 personnel; they must be certified by an accredited certification body. It is recognised that a Supplier may not directly employ a Level 3 in all the stated methods practiced. In such cases, it is permissible to employ an external, independently certified, Level 3 in those methods not held by the full-time Level 3(s) of the Supplier.

(2) The supervisor shall be directly involved in review and acceptance of NDT Procedures, NDT reports, calibration of NDT equipment and tools. The supervisor shall on behalf of the Supplier re-evaluate the qualification of the operators annually.

1.5 Operators

(1) The operator carrying out the NDT and interpreting indications, shall as a minimum, be qualified and certified to Level 2 in the NDT method(s) concerned and as described in 1.9.

(2) However, operators only undertaking the gathering of data using any NDT method and not performing data interpretation or data analysis may be qualified and certified as appropriate, at level 1.

(3) The operator shall have adequate knowledge of materials, weld, structures or components, NDT equipment and limitations that are sufficient to apply the relevant NDT method for each application appropriately.

1.6 References

The following referenced documents are to be used for the application of this document as appropriate. For updated references, the latest edition of the referenced document(including any amendments) applies.

(1) **ISO 9712:2012**(Non-destructive testing-Qualification and certification of NDT personnel)

(2) **ISO/IEC 17020:2012**(Conformity assessment-Requirements for the operation of various types of bodies performing inspection)

(3) **ISO/IEC 17024:2012**(Conformity assessment-General requirements for bodies operating certification of persons)

(4) **ISO 9001:2015**(Quality Management Systems-Requirements)

(5) Other national adoptions of the standards listed above are accepted as compliant and hence are accepted for use together with this appendix.

1.7 Documents

The following documents shall be available for the Society upon request.

(1) An outline of Supplier's organization and management structure, including any subsidiaries
(2) Information on the structure of the Supplier's Quality Management System
(3) Quality manual and documented procedures covering the requirements given in 1.8
(4) For companies with in-house certification of persons scheme; a written practice developed in accordance with a recognised standard or recommended practice(1.e. ASNT's SNT-TC-1A, 2016, ANSI/ASNT CP-189, 2016 or similar)
(5) Operational work procedures for each NDT method including selection of the NDT technique
(6) Training- and follow-up programmes for NDT operators including practical training on various ship and offshore products
(7) Procedure for supervisor's authorisation of NDT operators
(8) Experience of the Supplier in the specific service area
(9) A list of documented training and experience for NDT operators within the relevant service area, including qualifications and third party certification per ISO 9712:2012 based certification schemes
(10) Description of equipment(s) used for the services performed by the Supplier
(11) A guide for NDT operators to use equipment mentioned above
(12) Record formats for recording results of the services referred to in 1.13
(13) Information on other activities which may present a conflict of interest
(14) Record of customer claims and corrective actions
(15) Any legal proceedings against the company in the past/currently in the courts of law

1.8 Quality management system

The Supplier shall have a documented quality management system, covering at least:

(1) Work procedures for all tasks and operations, including the various NDT methods and NDT techniques for which the Supplier is involved
(2) Preparation, issuance, maintenance and control of documents
(3) Maintenance and calibration of the equipment
(4) Training programs for the NDT operators and the supervisors
(5) Maintenance of records for NDT operators' and the supervisors' training, qualification and certification
(6) Certification of NDT operators including revalidation and recertification
(7) Procedure for test of operators' visual acuity
(8) Supervision and verification of operation to ensure compliance with the NDT procedures
(9) Quality management of subsidiaries
(10) Job preparation
(11) Order reference system where each engagement is traceable to when, who and where the test was carried out
(12) Recording and reporting of information, including retention time of records
(13) Code of conduct for the Supplier's activities; especially the NDT activities
(14) Periodic review of work process procedures
(15) Corrective and preventive action
(16) Feedback and continuous improvement
(17) Internal audits
(18) The provision of accessibility to required codes, standards and procedures to assist NDT operators. A documented quality system complying with the most current version of ISO/IEC 17020:2012 and including the above would be considered acceptable. The Supplier should satisfy the requirements of Type A or Type B inspection body, as described in ISO/IEC 17020:2012.

1.9 Qualification and certification of NDT personnel

(1) The Supplier is responsible for the qualification and preferably 3rd party certification of its supervisors and operators to a recognised certification scheme based on ISO 9712:2012.

(2) Personnel qualification to an employer based qualification scheme as e.g. SNT-TC-1A, 2016, or ANSI/ASNT CP-189, 2016 may be accepted if the Supplier's written practice is reviewed and found acceptable by the Society. The Supplier's written practice shall as a minimum, except for the impartially requirements of a certification body and/or authorised body, comply with ISO 9712:2012.

(3) The supervisors' and operators' certificates and competence shall comprise all industrial sectors and techniques being applied by the Supplier.

(4) Level 3 personnel shall be certified by an accredited certification body.

1.10 Equipment

(1) The Supplier shall maintain records of the NDT equipment used and detail information related to maintenance, calibration and verification activities. If the Supplier hires equipment, such equipment shall have updated calibration records, and the operators shall be familiar with the specific equipment type prior to using it. Under any circumstances, the Supplier shall possess sufficient equipment to carry out the services being a part of the NDT scope required by the Society.

(2) Where the equipment is of unique nature, the NDT operators shall be trained by competent personnel in the operation and use of the equipment before carrying out NDT using this equipment.

1.11 Work instructions and procedures

The Supplier shall produce written procedures for the NDT being applied. These procedures are to be written, verified or approved by the Supplier's Level 3. Procedures shall define all relevant information relating to the inspection including defect evaluation against acceptance criteria in accordance with the Society Rules. All NDT procedures and instructions shall be properly documented in such a way that the performed testing can be easily retraced and/or repeated at a later stage. All NDT procedures are to be acceptable to the Society.

1.12 Sub-contractors

(1) The Supplier shall give information of agreements and arrangements if any part(s) of the services provided are subcontracted. The Supplier, in the following-up of subcontracts shall give emphasis to the quality management system of the subcontractor.

(2) Subcontractors shall meet the same requirements placed on Suppliers for any NDT performed.

1.13 Reporting

(1) All NDT shall be properly documented in such a way that the performed testing and examination can be easily retraced and/or repeated at a later stage. The reports shall identify the defects present in the tested area, and a conclusive statement as to whether the material, weld, component or structure satisfies the acceptance criteria or not.

(2) The report shall include a reference to the applicable standard, NDT procedure and acceptance criteria applied in the applicable NDT method/technique. In general, the acceptance criteria shall comply with the Society Rules. ⚓

Appendix Part C - Approval of Service Suppliers not listed in IACS UR Z17 *(2020)*

1. Firms engaged in vibration measurement in relation to habitability of ship

1.1 Extent of engagement

Vibration measurement related to habitability of a Ship

1.2 Supervisor

(1) The responsible supervisor shall be qualified in accordance with general requirements for a Service Supplier and shall;

(A) be certified by a recognized national or international NDT standards(e.g. Level II of **ISO 9712** as amended, **EN 473** as amended or equivalent standards); or

(B) have supervising experiences for at least one year and performing experiences for at least two years of vibration measurements onboard.

(2) The responsible supervisor shall have sufficient knowledge of ship structure and equipment, measurement, and analysis of vibration in accordance with **ISO 20283-5** to verify that test procedures are compliant with the required test conditions.

1.3 Operator

(1) The operator shall;

(A) be certified by a recognized national or international NDT standards(e.g. Level I of **ISO 9712** as amended, **EN 473** as amended or equivalent standards); or

(B) have at least one year of experience(including participation in minimum five different vibration measurements) as an assistant to perform the measurement.

(2) The operator shall have sufficient knowledge in the field of vibration, vibration measurement and handling of measurement equipment.

(3) The operator shall have adequate knowledge of ship structures and equipment.

1.4 Reference documents

The Service Supplier shall have access to the following reference documents:

(1) **ISO 20283-5:2016** (Mechanical vibration - Measurement of vibration on ships - Part 5 : Guidelines for measurement, evaluation and reporting of vibration with respect to habitability on passenger and merchant ships)

(2) **KR-GC-21-E**(Guidance for noise and vibration)

1.5 Equipment

(1) The equipment to be used shall be verified in accordance with the applicable measurement standards. It shall be demonstrated to the Surveyor that it is fit for the intended purpose.

(2) Vibration measurement related to habitability of ship shall be taken by using a proper instrument to **ISO 8041** as amended.

(3) Portable calibrator shall comply with national or international standards.

(4) Calibration of vibration transducers and portable calibrators shall be conducted at least every two years(or more frequently if specified by manufacturer) at an accredited Testing and Calibration Laboratory in accordance with **ISO 17025** as amended.

1.6 Procedures and Guidelines

The Service Supplier shall have the documented work procedures and testing guidelines containing at least the following;

(1) Test preparation
(2) Selection and identification of measurement location
(3) Surface preparation
(4) Calibration check
(5) Test method
(6) Equipment handling
(7) Report preparation and content
(8) Method for handling previous results if subsequent calibration shows instruments to be out of tolerance.

1.7 Report

The report shall contain the following but not limited to;

(1) Type of ship, gross tonnage and dimensions
(2) Operating condition of main engine, shaft speed(rpm) and setting of controllable pitch propeller
(3) Operating condition of auxiliary engine and auxiliary machinery
(4) Loading condition of ship(mean draft and trim)
(5) Test location, draft, water depth, weather and sea state
(6) Measuring instruments(Type and manufacturer etc.)
(7) Names and affiliation of the persons carrying out the measurement
(8) Measurement spaces and locations
(9) Measurement result
(10) Measuring direction at each measuring location(x, y, z direction)

2. Firms engaged in Visual and/or Sampling Check & Testing for Hazardous Materials(IHM)

2.1 Extent of Engagement

Visual/Sampling check and testing for hazardous materials onboard ships, including advice on numbers and locations of samples, and preparation of reports on the quantities, locations and estimates of these materials

2.2 Operators

(1) The Supervisor shall be qualified, and licensed as required, according to a recognized national or international industrial standard, for the hazards specified, and have a minimum 2 years' experience on it.

(2) The operators carrying out the sampling/visual check hall be qualified, and licensed as required, according to a recognized national or international industrial standard, for the hazards specified, and have a minimum 1 year experience on it.

2.3 Procedures and instructions

(1) The Service Supplier should establish the documented work and safety procedure including;
  (A) Survey Preparation
  (B) Safety procedures relevant to the hazards
  (C) Selection and identification of visual and/or sampling check location.
  (D) Material preparation
  (E) Sample removal
  (F) Reinstatement of safe conditions for the material once the sample is taken
  (G) Sample storage, identification and transport requirements; and
  (F) Report preparation and content.

2.4 Equipment and Facilities

(1) The Service Supplier should provide the detail of test laboratory. The test laboratory should be acredited or certified by applicable national or international standard and have ability to assess and test each of samples of hazardous material.

(2) The details of 9.5.1, should include;
  (A) Procedure for reporting
  (B) The result of assessment/test

2.5 Sampling analysis and testing

(1) The Service Supplier should have ability to obtain the result related with **IMO MEPC Res 269(68)** Appendix 9, from the test laboratory.

2.6 Reporting

(1) Report shall be made and submitted in accordance with **IMO MEPC Res 269(68)** Appendix 5

2.7 Verification

(1) The Service Supplier must have the Surveyor`s verification of each separate job, documented in the report by his signature.

3. Firms engaged in measurement of URN(Underwater Radiated Noise) from ships

3.1 Extent of engagement

Underwater radiated noise measurement from ships

3.2 Supervisor

The responsible supervisor shall have at least one year supervising experiences and at least two years performing experiences of URN measurements.

3.3 Operator

(1) The operator shall have sufficient knowledge in the field of underwater acoustics, underwater acoustic measurement and handling of measurement equipment.
(3) The operator shall have adequate knowledge of the Society's Guidance for underwater radiated noise and applicable international standards.
These international standards are as follows:
(A) ISO 17208 series, as amended(Underwater acoustics - Quantities and procedures for description and measurement of underwater sound from ships)
(3) The operator shall have at least one year performing experiences of URN measurements, along with at least 5 measurement experiences as an assistant operator.
(4) The operator shall be trained in accordance with the Guidance for underwater radiated noise, ISO 17208-1 and ISO 17208-2.
(5) It should be possible to present the relevant documentary evidence for education and training using theory and measurement equipment.

3.4 Reference documents

The Service Supplier shall have access to the following reference documents:
(1) KR-GC-37-E(Guidance for underwater radiated noise)
(2) ISO 17208 series, as amended (Underwater acoustics - Quantities and procedures for description and measurement of underwater sound from ships)

3.5 Equipment

(1) Hydrophone shall be manufactured according to IEC 60500, as amended, or an equivalent standard.
(2) When used alone, or in conjunction with a hydrophone, as appropriate, an 1/3 octave filter set shall conform to IEC 61260-1, as amended, or an equivalent standard.
(3) Data collection, recording, processing and display devices shall be capable of accurately acquiring, recording, processing and displaying data from hydrophones, and shall be checked for suitability at least annually and records shall be maintained.
(4) Hydrophone and sound source for calibration shall be conducted at least every two years(or more frequently if specified by manufacturer) at an accredited Testing and Calibration Laboratory in accordance with ISO 17025 as amended. Calibration records and records of equipment use shall be maintained.

3.6 Procedures and Guidelines

The Service Supplier shall have the documented work procedures and testing guidelines containing at least the following;
(1) Test preparation
(2) Selection and identification of measurement site
(3) Measurement preparation
(4) Calibration check
(5) Test method
(6) Equipment handling
(7) Report preparation and content
(8) Method for handling previous results if subsequent calibration shows instruments to be out of tolerance.

3.7 Report

The measurement result report of underwater radiation noise shall be prepared for each ship. The measurement result report should be prepared and reported using the report format in Guidance for underwater radiated noise.

3.8 Verification

(1) The Service Supplier shall have the Surveyor's verification of each separate job, documented in the report by attending Surveyor(s) signature. ⚓

GUIDANCE FOR APPROVAL OF SERVICE SUPPLIERS

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