



China Classification Society

Guidelines for Ship Remote Surveys (2019)

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Beijing

Introduction

The implementation requirements, application process and detailed survey requirements for ship remote surveys are provided in the Guidelines. Remote surveys may save the traveling time and cost, contribute to a reasonable arrangement of CCS survey resources and enhance flexibility and efficiency of survey. In addition to the requirements of the Guidelines, ship remote surveys are also to comply with relevant requirements of *CCS Rules for Classification of Sea-going Steel Ships*.

The Guidelines are developed and updated by CCS and published via the website: <http://www.ccs.org.cn>. In case of any comments of the users on the Guidelines, please send it to remotesurvey@ccs.org.cn.

Contents

Chapter 1	General	1
1.1	Purpose	1
1.2	Scope of application.....	1
1.3	Definitions	1
1.4	General requirements	2
1.5	Collection and delivery of survey process information	3
1.6	Survey procedures.....	4
Chapter 2	Documentation and Information.....	6
2.1	General.....	6
2.2	Principle requirements	6
2.3	Survey process	6
2.4	Required electronic documentation	6
Chapter 3	Minor Damage and Repair Surveys.....	8
3.1	General.....	8
3.2	Principle requirements	9
3.3	Survey Process.....	9
3.4	Required electronic documentation	10
Chapter 4	Surveys for Machinery and Equipment Damage and Repair	12
4.1	General.....	12
4.2	Principle requirements	12
4.3	Survey Process.....	13
4.4	Required electronic documentation	13
Chapter 5	Equipment Replacement Surveys.....	15
5.1	General.....	15
5.2	Principle requirements	15
5.3	Survey Process.....	15
5.4	Required electronic documentation	15
Chapter 6	Surveys for Elimination of Condition of Class.....	17
6.1	General.....	17
6.2	Principle requirements	17
6.3	Survey Process.....	17
6.4	Required electronic documentation	18
Chapter 7	Extension Surveys for Condition of Class.....	19
7.1	General.....	19
7.2	Principle requirements	19
7.3	Survey Process.....	19

7.4 Required electronic documentation	19
Chapter 8 Extension Surveys of Propeller Shafts and Tube Shafts.....	21
8.1 General.....	21
8.2 Principle requirements	21
8.3 Survey Process.....	22
8.4 Required electronic documentation	22
Chapter 9 Extension Surveys of Boilers	25
9.1 General.....	25
9.2 Principle requirements	25
9.3 Survey Process.....	25
9.4 Required electronic documentation	25
Chapter 10 Machinery Continuous Surveys	27
10.1 General.....	27
10.2 Principle requirements	27
10.3 Survey Process.....	27
10.4 Required electronic documentation	27
Chapter 11 Surveys for Change of Owner	29
11.1 General.....	29
11.2 Principle requirements	29
11.3 Survey Process.....	29
11.4 Required electronic documentation	29
Chapter 12 Surveys for Change of Ship's Name	31
12.1 General.....	31
12.2 Principle requirements	31
12.3 Survey Process.....	31
12.4 Required electronic documentation	32
Chapter 13 Garbage Pollution Prevention Initial Surveys	33
13.1 General.....	33
13.2 Principle requirements	33
13.3 Survey Process.....	34
13.4 Required electronic documentation	35

Chapter 1 General

1.1 Purpose

1.1.1 The Guidelines provide implementation requirements and application procedures from CCS for remote surveys based on relevant survey requirements of *CCS Rules for Classification of Seagoing Steel Ships*. Detailed requirements for implementing remote surveys for applicable surveys are specified in the Guidelines, which may be used as guidance documents for CCS surveyors, shipowners and officers on board to carry out remote surveys.

1.2 Scope of application

1.2.1 The Guidelines apply to the following surveys of CCS-classed CSA ships: documents and information (verification, modification or reissuance upon request by clients), damage and repair (minor hull damage, equipment and machinery damage, equipment replacement), elimination of class conditions, extension surveys (for class conditions, propeller shafts and boilers), machinery continuous surveys, change of owner or name of vessel, etc.

1.2.2 Notwithstanding the above 1.2.1,

(1) whether or not it is possible to do a remote survey for projects such as damage and repair still requires CCS to evaluate and assess on individual cases;

(2) for surveys that may involve statutory requirements (other than documents and information), the feasibility of remote survey is subject to the opinion of Flag Administration.

1.2.3 The annual survey and above scope generally cannot be carried out remotely.

1.2.4 If the applicant makes a remote survey request other than that described in 1.2.1 to 1.2.3 of this Chapter, CCS will take a case-by-case evaluation to decide whether it is feasible.

1.3 Definitions

1.3.1 *Remote survey* means a method of obtaining the process or survey process information equivalent to that obtained from site survey by applying digital and mobile internet technologies so as to realize survey without surveyor's attendance.

1.3.2 *Survey process information* means contents of electronic documentation or livestreaming which can reflect ship structure, equipment condition or inspection process. In general, survey process information is transferred by digital and internet technologies and provides survey and

judgment basis for the surveyor carrying out remote survey. Electronic survey documentation may include survey photos, videos, document and information as well as statements of shipmaster or the chief engineer, etc.

1.3.3 *UAV* means unmanned aerial vehicle which is maneuvered by wireless remote control equipment and self-provided program remote control device, controlled by a flight controller or pilot and can be used to collect survey process information.

1.3.4 *Intelligent remote glasses* mean wearable glasses which have integrated intelligent functions such as video and image shooting and livestreaming, etc. and can be used to collect survey process information.

1.3.5 *Livestreaming mobile application (APP)* means application service using digital and internet technologies to realize synchronous transfer of audio and video. CCS recommends to use Apps such as “WeChat”, “WhatsApp” or “Skype” to carry out livestreaming for remote survey.

1.4 General requirements

1.4.1 Remote survey is an alternative to site survey. Implementation of remote survey should ensure to obtain process or survey process information equivalent to that obtained in site survey.

1.4.2 Implementation of remote survey is to meet the corresponding requirements of relevant chapters of the Guidelines based on Chapter 1 GENERAL and according to different survey demands. Survey requirements not mentioned in the Guidelines are to be referred to in applicable rules or conventions. Unless otherwise specified by the flag State Administration or port State, relevant requirements are to be satisfied. The surveyor is to deal with relevant matters which need CCS special consideration and report to flag State Administration according to CCS relevant procedures.

1.4.3 Implementation of remote survey is not to influence other requirements of CCS Rules for Classification of Seagoing Steel Ships.

1.4.4 The applicants are responsible for ensuring to provide true and accurate information relating to remote survey and therefore undertake corresponding legal and economic responsibilities. CCS is entitled to terminate the remote survey for any ship that provided false survey process information, and to withdraw survey conclusion and/or revoke relevant certificate for any cheat or fraud behavior found during remote survey.

1.4.5 If a ship applying for remote survey is found to be beyond the application scope of the remote survey or the conditions of remote survey cannot be met, the surveyor reserves the right to terminate the remote survey and feedback in written form to the applicant to arrange a survey on board. The applicant needs to consider the influence and consequences on keeping its class and validity of

statutory certificate due to above conditions when applying for remote survey.

1.4.6 For damage and repair survey, site confirmation and/or detailed inspection by the surveyor is still required at the last periodical survey after remote survey is carried out. When necessary, repair is to be carried out according to the requirements of the surveyor. In this case, the surveyor carrying out remote survey is to provide memo information to the surveyor carrying out subsequent survey according to CCS internal procedure.

1.5 Collection and delivery of survey process information

1.5.1 The ship is to have access to satellite communication or 3G/4G/5G network for livestreaming or transfer of remote survey process information. The applicant is to carry out network test on board ship in advance to ensure smooth implementation of remote survey. This may not be required if the surveyor considers it unnecessary to have access to network.

1.5.2 Collection of survey process information

(1) The applicant can use such intelligent mobile equipment as intelligent mobile phones, tablet computers and intelligent remote glasses or such equipment as scanners, digital cameras or video cameras and UAV to collect survey process information;

(2) If survey process information is provided by means of livestreaming, the ship is to be provided with intelligent mobile equipment with livestreaming mobile application (APP) as well as accessible accounts. Use of headphones with microphone is recommended to ensure communication quality;

(3) The applicant is to be able to take effective measures to ensure the quality of survey process information and ensure implementation of remote survey by the surveyor based on such information. Sufficient light is required to show survey process and details through livestreaming and its process is to be clear and coherent. Photos are to clearly indicate the situation and defects of hull structure and equipment, etc. Videos are to smoothly reflect the necessary process of inspection or tests.

1.5.3 Delivery of survey process information

(1) Required electronic documents for remote survey are to be in a format accepted by both parties;

(2) In general, information is delivered through CCS client service system (CSM), and it may also be delivered by E-mail or in the manner agreed with the surveyor, but attention is to be paid to the integrity and safety of information delivery.

1.5.4 During collection and delivery of survey process information, the applicant is to consider restrictive requirements of the company SMS or the port of call to electronic equipment or internet, e.g. anti-explosion requirements for use of electronic equipment in the spaces where survey is intended to be carried out.

1.6 Survey procedures

1.6.1 CCS remote survey is carried out by the nearest CCS branch/office. When necessary, the client manager unit is to provide support or carry out remote survey. In general, request for remote survey is to be submitted through CCS client service system (CSM), and it may also be submitted by means of fax or E-mail.

1.6.2 CCS will contact the applicant within 24 hours upon receiving the request, to get to know the survey items and the current situation of the ship, to confirm whether the conditions for remote survey are sufficient, and will feedback the decision on the request of remote survey (accepted, cancelled or transfer).

1.6.3 The surveyor will obtain further detailed information from the applicant if a remote survey is accepted, including information on the contact person from the applicant, the contact person onboard, location of the ship, expecting date and time for the remote survey (time zone is to be specified), the E-mail address to receive e-certificates or documents, etc. The surveyor will provide detailed requirements for the remote survey according to the Guidelines in the meantime.

1.6.4 The applicant is to assign the officer to cooperate with the surveyor to carry out remote survey according to the requirements of the Guidelines at the appointed date and time.

(1) Livestreaming is preferred during the remote survey. After video connection is realized between the officer and the surveyor, real-time collection of survey process information is to be carried out according to the requirements of the surveyor;

(2) If it is difficult for livestreaming due to poor network connection or other reasons, inspection and confirmation maybe carried out by the officer onboard according to the requirements in the part of “Survey Process” of relevant chapters of the Guidelines, to meet additional requirements of the surveyor and obtain survey process information reflecting ship or equipment condition. However, if it is deemed necessary by the surveyor, livestreaming is still required to assist inspection.

1.6.5 The surveyor is to identify survey process information obtained from the applicant, and when it is deemed necessary, ask the applicant to supplement until the surveyor can provide accurate technical evaluation and judgment for the survey and draw a survey conclusion.

1.6.6 During survey, if the surveyor finds that the ship is beyond the application scope of remote survey or the conditions of remote survey cannot be met, the survey will be suspended. After the survey is suspended,

(1) within a safe and reasonable time range, the applicant’s request on resuming remote survey can be accepted when the conditions of remote survey are met;

(2) the remote survey will be cancelled upon the applicant’s confirmation. An attendance survey

may be consulted with the surveyor.

1.6.7 The process and conclusion of remote survey are to be recorded in the ship log upon completion of survey, and the applicant is to provide “required electronic documents” to the surveyor according to the requirements of relevant chapters of the Guidelines and additional requirements of the surveyor (if any).

1.6.8 After the surveyor verifies that the applicable documents provided by the applicant are correct and valid, relevant certificates and/or reports are to be issued/endorsed according to the requirements of CCS procedures and instructions.

Chapter 2 Documentation and Information

2.1 General

2.1.1 At the request of client, remote survey may be used to verify, modify or reissue documents and information, which includes:

- (1) Re-issuance of ship certificates, supplements and records or alterations that can be confirmed on the basis of existing document materials without embarkation check;
- (2) Verification or non-principled modification of approved documents and information such as fire control plan, damage control plan, garbage management plan, oil pollution prevention emergency plan, etc.;
- (3) Documents and information that can be approved by site surveyor, such as plans and procedures for recovery of persons from the water, emergency towing procedures manual, ballast water management plans (which can be approved by site surveyor), etc.;
- (4) Issuance of declaration or statement based on the approved materials, such as issuance of grain loading certification in accordance with approved Grain Loading Manual.

2.1.2 It needs CCS evaluation to decide whether specific document and information approval applies to a remote survey and attention is to be paid to relevant requirements of flag State authorization.

2.2 Principle requirements

2.2.1 Verification, alteration or re-issuance of documents and information is to meet the requirements of applicable rules and conventions.

2.3 Survey process

2.3.1 Confirming that the verification, alteration or re-issuance of documents and information meets the requirements of applicable rules and conventions.

2.3.2 Verifying consistency of the modified plan with the real ship, where applicable.

2.4 Required electronic documentation

2.4.1 Documents and information requiring approval or modification are to be copied in accordance with the requirements of CCS.

2.4.2 In the case of loss of ship certificates, supplements and records, the Master is to provide

declarations of loss for relevant certificates, supplements and records.

2.4.3 Photos or videos showing consistency of the modified plan with the real ship, where applicable.

Chapter 3 Minor Damage and Repair Surveys

3.1 General

3.1.1 For minor damage which may affect the maintenance of classification, remote survey may be used after CCS assessment.

3.1.2 Attention should be paid to all or part of the following characteristics of the damage:

- (1) The damage scope has little influence on ships and other systems.
- (2) The cause of damage is clear;
- (3) The repair plan for the damage is clear and experienced.

3.1.3 Minor damage usually includes the following:

- (1) Deformation of the steel plates in the panels of the strength deck plating and side shell plating (usually visible above the waterline) caused by attack and impact which does not exceed the following criterion limits:

In a ship with transverse framing, the maximum allowable deflection f_{max} of wrinkle within 0.4L midships is as follows:

$$f_{max} \leq 2.6t, \quad \text{if } s/t \leq 50$$

$$f_{max} \leq 0.06s, \quad \text{if } s/t > 50$$

In other positions of the transverse framing and for longitudinal framing, the maximum allowable deflection f_{max} of wrinkle in longitudinal framing plates is as follows:

$$f_{max} \leq 3t, \quad \text{if } s/t \leq 50$$

$$f_{max} \leq 0.07s, \quad \text{if } s/t > 50$$

where

s - frame or longitudinal spacing at wrinkle, in mm

t - the thickness of the shell at wrinkle, in mm

f_{max} - to be measured along the framing in short distance

- (2) Inside dry cargo hold, damage of end bracket of structure members and minor damage of tank top plating caused by loading and unloading.

- (3) Minor damage of deckhouse above superstructure.

- (4) Minor damage related to items of Load Lines, such as guardrails, bulwark, head of air pipe and/or ventilator, access hatch, etc.

- (5) Other damages that remote survey may be used after assessment, such as missing of

anchor/anchor chain, etc.

3.1.4 Where statutory survey is involved, instructions of the flag state are to be considered in deciding whether to carry out remote surveys.

3.2 Principle requirements

According to the requirements of Chapter 5, Section 15, Part 1 of the Rules for Classification of Sea-going Steel Ships, the requirements for damage survey are as follows.

3.2.1 The damage survey covers in general any damaged item affecting the class.

3.2.2 In the event of any sea or machinery damage which affects or may affect the class of the ship, the owner is to apply to CCS for a survey promptly so as to ascertain the extent of the damage and necessary repairs, if any.

3.2.3 The damage survey is to be carried out so far as necessary for fully revealing the causes and extent of the damage, generally covering damaged items and/or damage locations as well as adjacent/associated machinery and equipment.

3.2.4 Any damage which affects the class of the ship is to be repaired according to relevant rules and with respect to the scope and extent of the damage. The scope and plan of repairs are to be such as to ensure that the condition of the ship will be so recovered that its class may be reinstated or maintained.

3.2.5 If any damaged item, which cannot be repaired immediately and thoroughly, is considered to be not affecting safety of the ship upon assessment by CCS at the request of the owner, such item may not be subject to repair for a limited period of time or may be subject to a local or suitable temporary repair plan, provided that appropriate operational restrictions in writing are signed.

3.3 Survey Process

3.3.1 Checking Sea Protest or Marine Damage Report or Log Book provided by the ship owner/the ship, to find out the time, place and course of the damage.

3.3.2 Checking the relevant information provided by the ship owner/the ship, such as Log Book, drawings and documents, etc., to find out possible causes of the damage.

3.3.3 Confirming the actual scope and extent of the damage, as well as the damage to adjacent/associated compartments, machinery and equipment.

3.3.4 In accordance with the requirements of CCS Rules, regulations and relevant standards, measuring the impact of ship damage on its classification, and determining the damage particles of the ship.

3.3.5 Where necessary, learning about the loading conditions before damage, e.g. type, quantity and distribution of cargoes, floating and ballast conditions, lashing of cargoes or working conditions and damage process of related machinery.

3.3.6 If repairs are made at the same time, attention should be paid to the following:

- (1) Verifying the condition of the defect or damage, reviewing related reports, documents and repair plan, and dealing with any technical problems arising during surveys timely and properly.
- (2) Carrying out supervision of repairs based on original plans and documents in accordance with related provisions and standards, including reviewing repair procedures, site inspection and test methods.
- (3) When reviewing repair process and monitoring the quality of repair, technical judgment shall be based on the specific situation to ensure that it at least meets the applicable requirements of CCS rules.
- (4) In principle, permanent repair of ship damages or defects should be effected in accordance with the relevant plans and drawings of the vessel previously approved by Classification Society.
- (5) When modifications or alterations are to be made to the joint detail in local structure areas due to the consideration of workmanship or structure reinforcement, the relevant plans and drawings should be examined and the requirements be raised.
- (6) Any repairs have to meet the applicable requirements of CCS, and should be referring to “Guideline for the Survey of Voyage Repairs” in the appendix of the Rules for Classification of Sea-going Steel Ships of CCS. For the repair items which are not provided in the rules, please refer to relevant standards and technical guidelines of the country, industry association, shipyard and manufacturers, such as IACS Recommendations, REC 047 “Quality Standards of Ship Building and Repairing”.
- (7) Carrying out examination and/or tests on the repair results, including visual inspection, non-destructive testing, tank test, functional test, etc.
- (8) Verifying that the qualifications of the operators (e.g. welders, NDT operator, etc.) for repairs and/or tests carried out meet the requirements of CCS.
- (9) Confirming that the spare parts/materials used for repairs are furnished with appropriate certificates (or equivalent evidential documentation).
- (10) Confirming that the testing reports are provided by qualified suppliers or manufacturers, where applicable.

3.4 Required electronic documentation

3.4.1 Sea Protest/Marine Damage Report confirmed by the local port/navigation supervision

authority, where applicable.

3.4.2 Pages of relevant Ship Log Book.

3.4.3 Statements on damage issued by the Master/Chief Engineer, including:

- (1) Description of the location, extent and scope of the damage;
- (2) The influence of damage on the seaworthiness of the ship and the proposed emergency measures;
- (3) Drawings and photographs identifying the scope, extent and location of the damage.

3.4.4 If repairs are made, the followings should be provided:

Statements on repairs issued by the Master/Chief Engineer, including:

- (1) Description of repairs;
- (2) Spare parts/materials used, including required certificates and/or equivalent declarations.

3.4.5 Risk assessment reports (if necessary) and emergency response plans confirmed by the Owner when temporary non-repair or temporary repair schemes are adopted.

3.4.6 Welding procedure and welder's qualification, where applicable.

3.4.7 Related repair processes, if necessary

3.4.8 Information from the equipment manufacturer (e.g. in case of equipment replacement), where applicable.

3.4.9 Corresponding repair videos and photos.

3.4.10 Description, video and photograph of any inspection, test or NDT performed, such as visual inspection, penetration testing, tank testing, functional testing, etc.

3.4.11 Test reports provided by suppliers or manufacturers, where applicable.

3.4.12 Pages of ship's Log Book which recorded relevant information and conclusion of this remote survey, including at least the contents and conclusions of paragraphs 3.3 mentioned above.

3.4.13 Other information required by the surveyor and/or information required to meet the requirements of the flag State authorities.

Chapter 4 Surveys for Machinery and Equipment Damage and Repair

4.1 General

4.1.1 For damage on equipment and machinery (including electrical equipment), such as minor accidents, faults and damage due to conventional causes, which may affect the maintenance of classification, remote survey may be used after CCS assessment.

4.1.2 Attention should be paid to all or part of the following characteristics of the damage:

- (1) The damage scope has little influence on ships and other systems.
- (2) The cause of damage is clear;
- (3) The repair plan for the damage is clear and experienced.

4.1.3 Where statutory survey is involved, instructions of the flag state are to be considered in deciding whether to carry out remote surveys.

4.2 Principle requirements

According to the requirements of Chapter 5, Section 15, Part 1 of the Rules for Classification of Sea-going Steel Ships, the requirements for damage survey are as follows.

4.2.1 The damage survey covers in general any damaged item affecting the class.

4.2.2 In the event of any sea or machinery damage which affects or may affect the class of the ship, the owner is to apply to CCS for a survey promptly so as to ascertain the extent of the damage and necessary repairs, if any.

4.2.3 The damage survey is to be carried out so far as necessary for fully revealing the causes and extent of the damage, generally covering damaged items and/or damage locations as well as adjacent/associated compartments, machinery and equipment.

4.2.4 Any damage which affects the class of the ship is to be repaired according to relevant rules and with respect to the scope and extent of the damage. The scope and plan of repairs are to be such as to ensure that the condition of the ship will be so recovered that its class may be reinstated or maintained.

4.2.5 If any damaged item, which cannot be repaired immediately and thoroughly, is considered to be not affecting safety of the ship upon assessment by CCS at the request of the owner, such item may not be subject to repair for a limited period of time or may be subject to a local or suitable temporary repair plan, provided that appropriate operational restrictions in writing are signed.

4.3 Survey Process

4.3.1 Checking Sea Protest or Marine Damage Report or Log Book provided by the ship owner, to find out the time, place and course of the damage.

4.3.2 Checking the relevant information provided by the ship owner, such as Log Book, drawings, etc., to find out possible causes of the damage.

4.3.3 Confirming the actual extent of the damage, as well as the damage to adjacent/associated compartments, machinery and equipment.

4.3.4 In accordance with the requirements of CCS Rules, regulations and relevant standards, measuring the impact of ship damage on its classification, and determining the damage particles of the ship.

4.3.5 Where necessary, learning about the loading conditions before damage, e.g. type, quantity and distribution of cargoes, floating and ballast conditions, lashing of cargoes or working conditions and damage process of related machinery.

4.3.6 Determining a permanent repair plan.

4.3.7 If the ship is damaged and permanent repairs cannot be carried out immediately on the spot, a temporary non-repair or temporary repair plan shall be formulated according to the damage situation and the condition of the navigation area, and on the premise of ensuring safety.

4.3.8 Quality acceptance of permanent or temporary repairs in accordance with the requirements of the surveyor and the characteristics of equipment and machinery (including electrical equipment).

4.3.9 The damaged and replaced parts shall be remained on board until the next surveyor boards the ship.

4.4 Required electronic documentation

4.4.1 Sea Protest/Marine Damage Report confirmed by the local port/navigation supervision authority, where applicable.

4.4.2 Statements of damage/failure confirmed by the Master or the Chief Engineer, cause analysis, scope of damage, and relevant scanning pages of Log Book or Engine Log Book.

4.4.3 In case of severe sea conditions, the weather conditions at that time should be known and relevant evidence provided.

4.4.4 Photos or videos to determine the extent and scope of damage.

4.4.5 When applicable, a confirming statement that other systems and devices are in good condition.

4.4.6 When applicable, a permanent repair plan confirmed by the Master or the Chief Engineer.

4.4.7 When applicable, a temporary repair plan confirmed by the Master or the Chief Engineer.

4.4.8 Risk assessment reports (if necessary) and emergency response plans confirmed by the Owner when temporary non-repair or temporary repair schemes are adopted.

4.4.9 Navigation plan, loading/ballasting status confirmed by the Master (if necessary).

4.4.10 Photos or videos reflecting permanent or temporary repair processes. The replacement parts shall meet relevant requirements for certification of products of CCS Rules for Classification of Sea-going Steel Ships.

4.4.11 When applicable, reports, photographs or videos of relevant inspections, tests and non-destructive testing.

4.4.12 Pages of ship's Log Book which recorded relevant information and conclusion of this remote survey, including at least the contents and conclusions of paragraphs 4.3 mentioned above.

4.4.13 Other information required by the surveyor and/or information required to meet the requirements of the flag State authorities.

Chapter 5 Equipment Replacement Surveys

5.1 General

5.1.1 Replacement of simple and integral equipment onboard the ship can be subject to remote survey if it is deemed feasible after case-by-case evaluation by CCS.

5.1.2 If this survey involves statutory requirements, instructions of the flag State are to be considered in deciding whether to carry out remote surveys.

5.2 Principle requirements

5.2.1 Inspection of the Marine Products Certificate and/ or Type Approval Certificate of the replacement equipment.

5.2.2 Confirmation that the replacement equipment are in compliance with the applicable standards.

5.2.3 Inspection of the installation of the replacement equipment.

5.2.4 Functional test of the renewed equipment.

5.3 Survey Process

5.3.1 Checking the Marine Products Certificate and/ or Type Approval Certificate of the replacement equipment for confirming that the replacement equipment are in compliance with the applicable standards and are the same as that described in the certificate.

5.3.2 Confirming that the position of installation of the replacement equipment is in accordance with that arranged in the original drawings.

5.3.3 Confirming that the replacement equipment is securely and reliably installed.

5.3.4 Carrying out test of the replacement equipment in accordance with the requirement of CCS, considering the specifics of the equipment or system.

5.4 Required electronic documentation

5.4.1 Marine Products Certificate of the replacement equipment.

5.4.2 Photos of the replacement equipment and associated components which can clearly show the type, serial No., maker and stamp or mark of the class society.

5.4.3 Photos or videos showing the installation, arrangement and position of the replacement equipment.

5.4.4 Photos or videos showing secure and reliable installation of the replacement equipment.

5.4.5 Photos or videos reflecting relevant testing processes of the replacement equipment in accordance with the requirement of CCS, considering the specifics of the equipment or system.

5.4.6 Test reports and records of the equipment, if applicable.

5.4.7 Pages of ship's Log Book which recorded relevant information and conclusion of this remote survey, including at least the contents and conclusions of paragraphs 5.3 mentioned above.

Chapter 6 Surveys for Elimination of Condition of Class

6.1 General

6.1.1 The remote survey can be carried out if it is deemed feasible after case-by-case evaluation by CCS.

6.1.2 Based on specific condition of class, CCS may propose additional requirements for remote survey or electronic documentation.

6.1.3 If the condition of class involves statutory outstanding recommendation, instructions of the flag state are to be considered in deciding whether to carry out remote surveys.

6.2 Principle requirements

6.2.1 Examination that the documentation or evidence required by the surveyor who imposed the class condition is accurate and effective, with attention paid to the following:

- (1) Examination of the documents provided onboard for elimination of condition of class, to confirm that relevant requirements of rules of CCS, conventions and regulations are complied with;
- (2) Verification of the condition of the defect or damage, review of related reports, documents and repair plan, and dealing with technical problems arising during surveys timely and properly;
- (3) Supervision of repairs based on original plans and documents in accordance with related provisions and standards, including review of repair procedures, site inspection and test methods;
- (4) When reviewing repair process and monitoring the quality of repair, technical judgment shall be based on the specific situation to ensure that it at least meets the applicable requirements of CCS rules;
- (5) In principle, permanent repair of ship damages or defects should be effected in accordance with the relevant plans and drawings of the vessel previously approved by Classification Society;
- (6) When modifications or alterations are to be made to the joint detail in local structure areas due to the consideration of workmanship or structure reinforcement, the relevant plans and drawings should be examined and the requirements be raised;

6.2.2 Examination of the necessary repairs and/or tests for eliminating condition of class.

6.3 Survey Process

6.3.1 Examining the necessary repairs and/or tests to delete the class condition, including visual

inspection, NDT, tank test and functional test, etc.

6.3.2 Verifying that the qualifications of the operators (e.g. welders, NDT operator, etc.) for repairs and/or tests carried out meet the requirements of CCS.

6.3.3 Confirming that the spare parts/materials used for repairs are furnished with appropriate certificates (or equivalent evidential documentation).

6.3.4 Confirming that the testing reports are provided by qualified suppliers or manufacturers, where applicable.

6.4 Required electronic documentation

6.4.1 Documentation or evidence required to be submitted when imposing the condition of class

6.4.2 Documents and information provided onboard to eliminate the condition of class.

6.4.3 Statements on repairs issued by the Master/Chief Engineer, including:

(1) Description of repairs;

(2) Spare parts/materials used, including required certificates and/or equivalent declarations.

6.4.4 Welding procedure and welder's qualification, if applicable.

6.4.5 Related repair processes, if necessary.

6.4.6 Information from the equipment manufacturer (e.g. in case of equipment replacement), where applicable.

6.4.7 Corresponding repair photos.

6.4.8 Description, video and photograph of any inspection, test or NDT performed, such as visual inspection, penetration testing, tank testing, functional testing, etc.

6.4.9 Test reports provided by suppliers or manufacturers, where applicable.

6.4.10 Pages of ship's Log Book which recorded relevant information and conclusion of this remote survey, including at least the contents and conclusions of paragraphs 6.3 mentioned above.

Note:

The above applicable requirements may be referred to for elimination of memorandum of class with expiry date.

Chapter 7 Extension Surveys for Condition of Class

7.1 General

7.1.1 The remote survey can be carried out if it is deemed feasible after case-by-case evaluation by CCS.

7.1.2 When the condition of class has been extended, it is not allowed to be extended again in principle.

7.1.3 If the condition of class involves statutory outstanding recommendation, instructions of the flag State are to be considered in deciding whether to carry out remote surveys.

7.2 Principle requirements

7.2.1 Confirmation that the ship is seaworthy during the extension period.

7.2.2 Where applicable, examination if temporary repair is effective and if damage is expanded and confirmation the necessity of taking further appropriate repair methods.

7.2.3 Where applicable, inspection of the compliance with the limiting conditions given in the previous remarks and confirmation the necessity of further appropriate limiting measures or any operation requested to be enhanced onboard.

7.3 Survey Process

7.3.1 Reviewing ship's Log Book or Engine Log Book.

7.3.2 Where applicable, inspecting whether temporary repair is effective and whether damage is expanded.

7.3.3 Where applicable, inspecting the compliance with the limiting condition given in the previous remarks.

7.4 Required electronic documentation

7.4.1 Statement of reasons for the extension of the class conditions and the declaration that the ship is seaworthy.

7.4.2 Declaration and associated photos or videos showing that the technical conditions corresponding to the original class conditions have not changed.

7.4.3 Where applicable, the inspection result of temporary repair confirmed by the Captain/Chief

Engineer, showing the temporary repair is effective and the damage is not expand.

7.4.4 Pages of Ship Log Book or Engine Log Book, photos and/or videos, where applicable, confirming the compliance of the limiting condition in the previous remarks.

7.4.5 Pages of ship's Log Book which recorded relevant information and conclusion of this remote survey, including at least the contents and conclusions of paragraphs 7.3 mentioned above.

Note:

The above applicable requirements may be referred to for the extension of memorandum of class with expiry date.

Chapter 8 Extension Surveys of Propeller Shafts and Tube Shafts

8.1 General

8.1.1 This survey is only applicable to the extension of propeller shaft and tube shaft survey up to 3 months.

8.1.2 This survey is normally to be carried out within 1 month prior to the shaft survey due date, with the period of extension counted from the shaft survey due date. If the extension survey is carried out more than 1 month prior to the shaft survey due date, then the period of extension is counted from the date when the extension survey was completed.

8.2 Principle requirements

In accordance with the requirements of *Part 1, Chapter 5, Section 12 of the Rules for Classification of Sea-Going Steel Ships*, extension survey for propeller shaft and tube shaft (extension up to 3 months) including:

8.2.1 For oil lubricated shaft or closed-loop system fresh water lubricated shaft (closed system), the survey for extension up to 3 months shall contain:

- (1) Visual Inspection of all accessible parts of the shafting system.
- (2) Verification of the effectiveness of the outboard and inboard seal device.

Pre-requisites to satisfactorily verify in order to apply extension up to 3 months are as below:

- (1) Review of the previous wear-down and/or clearance recordings.
- (2) Review of usage records^①.
- (3) Review of the following test records:
 - a. Lubricating oil analysis (for oil lubricated shaft)^②. For extension survey of tube shaft to which IACS UR Z21(revised version) is not applicable, this is required when the surveyor doubts about the condition of the lubricating oil and requires sampling and testing of the lubricating oil in order to verify the actual condition of the lubricating oil. Or,
 - b. Fresh water sample test^④ (for closed system fresh water lubricated shaft).
- (4) On-site oil sample examination^⑤ (for oil lubricated shaft), or on-site fresh water sample test^⑥ (for closed system fresh water lubricated).
- (5) Verification of no reported repairs by grinding or welding of shaft and/or propeller.
- (6) Confirmation from the Chief Engineer that the shafting arrangement is in good working condition.

(7) For tube shaft extension surveys to which IACS UR Z21(revised version) is not applicable^③, if oil lubricated bearing is used, records of lubricating oil consumption of propeller shaft or tube shaft are also to be reviewed in order to confirm the normal consumption of lubricating oil.

8.2.2 For water lubricated shaft (open systems), the survey for extension up to 3 months shall contain:

- (1) Visual Inspection of all accessible parts of the shafting system.
- (2) Verification that the propeller is free of damages which may cause it to be out of balance.
- (3) Verification of the effectiveness of the outboard and inboard of sealing device.

Pre-requisites to satisfactorily verify to apply extension up to 3 months are as below:

- (1) Review of the previous clearance recordings.
- (2) Running records^①.
- (3) Verification of no reported repairs by grinding or welding of shaft and/or propeller.
- (4) Confirmation from the Chief Engineer that the shafting arrangement is in a good working condition.

8.3 Survey Process

8.3.1 Confirming that the shafting arrangement is in good working condition and normally maintained.

8.3.2 Verifying that the propeller is free of damages which may lead to the unbalance.

8.3.3 Verifying that the shaft and/or propeller is free of grinding or welding repairs.

8.3.4 Visually inspecting all accessible parts of the shafting system to confirm that no defects exist, such as aging, deformation, crack, etc.

8.3.5 Carrying out oil sampling examination^⑤ on site for oil lubricated shaft.

8.3.6 Carrying out fresh water sampling examination on site^⑥ for closed loop fresh water lubricated shaft.

8.3.7 Verifying the effectiveness of the outboard and inboard seal device.

8.4 Required electronic documentation

8.4.1 Reasons and evidence for application of extension survey.

8.4.2 For oil lubricated shaft or closed loop system fresh water lubricated shaft (closed system):

- (1) Last wear-down and/or clearance records.
- (2) Running records^①.
- (3) Lubricating oil analysis^② reports for oil lubricated shaft. For extension survey of tube shaft to which IACS UR Z21(revised version) is not applicable, this is required when the surveyor doubts

about the condition of the lubricating oil and requires sampling and testing of the lubricating oil in order to verify the actual condition of the lubricating oil.

(4) Photos or videos of fresh water sampling and fresh water sampling test^④ reports for closed loop system fresh water lubricated shaft (closed system).

8.4.3 For water lubricated shaft (open systems):

(1) Last shaft clearance records.

(2) Running records^①.

8.4.4 Photos or videos of the status of fore (inboard) shaft sealing device and the stern of ship for outboard shaft sealing device. Photos or videos of the exposed part of the aft shaft sealing device are also needed, if applicable. For tube shaft extension surveys to which IACS UR Z21(revised version) is not applicable^③, if oil lubricated bearing is used, records of lubricating oil consumption of propeller shaft or tube shaft are also to be included.

8.4.5 Photos or videos for all accessible parts of shafting system.

8.4.6 Photos or videos of the propeller exposed to the surface of the water, if applicable. Shooting shall reflect the situation of different propeller blades through the turning gear device as far as practicable.

8.4.7 Photos or videos of oil sample examination^⑤ on site for oil lubricated shaft.

8.4.8 Fresh water sample test on site^② reports for closed loop fresh water lubricated shaft (closed system).

8.4.9 Pages of ship's Log Book which recorded relevant information and conclusion of this remote survey, including at least the contents and conclusions of paragraphs 8.3 mentioned above.

Notes:

① *Running records* are regularly recorded data showing in-service conditions of the shaft(s) and may include, if applicable, lubricating oil temperature, bearing temperature and oil consumption records (for oil lubricated bearings) or water flow, water temperature, salinity, pH, make-up water and water pressure (for closed loop fresh water lubricated bearings, depending on design).

② *Lubricating oil analysis* is that carried out at regular intervals not exceeding six (6) months. Please refer to IACS Rec.36 on *Recommended procedure for the determination of contents of metals and other contaminants in stern tube lubricating oil*. The documentation on lubricating oil analysis is to be available on board. Oil samples to be submitted for the analysis should be taken under in-service conditions.

③ *Tube shaft surveys to which IACS UR Z21(revised version) is not applicable* mean the first propeller shaft and tube shaft surveys scheduled on or after 1 January 2016, for ships delivered before January 2016.④ *Fresh water sample test* is that carried out at regular intervals not exceeding six (6) months. Samples are to be taken under in-service conditions and are to be representative of the water circulating within the stern tube. Analysis results are to

be retained on board and made available to the surveyor. The procedure for fresh water sample test can be referred to in IACS Rec.143 on *Recommended procedure for the determination of contents of metals and other contaminants in a closed fresh water system lubricated stern tube*. Fresh water sample test is to include the following parameters:

- a. chlorides content;
- b. pH value;
- c. presence of bearing particles or other particles.

⑤ *Oil sampling examination on site* is a visual examination of taking the stern tube lubricating oil with a concentration on water contamination.

⑥ *Fresh water sample test on site* is the sampling test other than bearing particles or other particle parameters in the above④.

Chapter 9 Extension Surveys of Boilers

9.1 General

An extension of the internal examination of the boiler up to 3 months beyond the due date may be granted in the following one or more exceptional circumstances:

- (1) Unavailability of repair facilities.
- (2) Unavailability of essential materials, equipment or spare parts.
- (3) Delays incurred by action taken to avoid severe weather conditions.

9.2 Principle requirements

In accordance with the requirements of *Part 1, Chapter 5, Section 13 of the Rules for Classification of Sea-Going Steel Ships*, extension survey of boilers including the following:

- 9.2.1 External examination of the boiler.
- 9.2.2 Examination and operation test of boiler safety valve relieving gear (easing gear).
- 9.2.3 Operational test of boiler protective devices.
- 9.2.4 Review of the records of operation, maintenance, repair history and feed water chemistry (if applicable) since last boiler survey.

9.3 Survey Process

- 9.3.1 Carrying out an external inspection of the boiler. If applicable, taking a look inside the boiler, where accessible, even though cleaning/ preparation for survey has not been done, such as opening the burners, checking the situation inside the combustion chamber, and so on.
- 9.3.2 Carrying out examination and operation testing of boiler safety valve relieving gear (easing gear);
- 9.3.3 Carrying out operation test of boiler protective devices.

9.4 Required electronic documentation

- 9.4.1 Reasons and evidence for application of the extension survey.
- 9.4.2 Photos or videos of the external of the boiler, including foundations, insulation, fittings, collision chocks and rolling stays, combustion burner, safety valves, level gauge, attached feed water/steam/draining pipes, valves, etc.

9.4.3 Photos or videos of the inside of the boiler, where accessible, even though cleaning/preparation for survey has not been done, if applicable.

9.4.4 Records of operation, maintenance, repair history and feed water chemistry, if applicable, since the last boiler survey.

9.4.5 Pages of ship's Log Book which recorded relevant information and conclusion of this remote survey, including at least the contents and conclusions of paragraphs 9.3 mentioned above.

Note:

The above applicable requirements may be referred to for extension surveys of thermal oil units.

Chapter 10 Machinery Continuous Surveys

10.1 General

10.1.1 Such surveys apply to ships with "CMS" class notations.

10.1.2 Items of machinery continuous survey are to be surveyed separately.

10.1.3 Re-inspection on this remote survey may be required by CCS if in doubt according to the actual inspection situation, when implementing the confirmatory survey of the continuous machinery survey items during annual survey.

10.2 Principle requirements

For details, please refer to the *CCS Guidelines for the Implementation of Continuous Machinery Survey (CMS)* (hereinafter referred to as the CMS Guidelines).

10.3 Survey Process

10.3.1 Confirming that relevant machinery (including electrical installations) and their components are in normal conditions. Examples of conventional continuous machinery survey requirements for machinery equipment commonly used can be found in 3.2.3 of the CMS Guidelines.

10.3.2 Inspection methods of continuous machinery survey items may be found in Annex 1 of the CMS Guidelines.

10.3.3 Equipment specifications are to be noticed when implementing this survey.

10.4 Required electronic documentation

10.4.1 Reports which could reflect the requirements in the above-mentioned paragraph 10.3. Annex 2- Report to Continuous Machinery Survey (for Chief Engineer) (Form PC/CE) of the CMS Guidelines may be used.

10.4.2 Photos or videos of machinery (including electrical installations) and their components.

10.4.3 Measurement records after disassembly, in accordance with 3.2.3 of the CMS Guidelines, of main propulsion diesel engine, gas turbine, steam turbine, shafting, auxiliary diesel engine and AC or DC generator, etc.

10.4.4 Test reports or test videos of running test.

10.4.5 Lubricating oil analysis report and vibration test report for equipment with condition

monitoring technology.

10.4.6 Pages of ship's Log Book which recorded relevant information and conclusion of this remote survey. Only brief records are required due to usage of Form PC/CE.

Chapter 11 Surveys for Change of Owner

11.1 General

11.1 Remote survey for change of ship's owner is normally for vessels with electronic certificates.

11.2 Principle requirements

Check and confirmation of the changes of relevant documents and equipment on board.

11.3 Survey Process

11.3.1 Checking and confirming that the owner has obtained relevant documents issued by the flag State Administration, such as the ship's nationality certificate, radio license, etc. Otherwise, related survey documents are not to be issued normally.

11.3.2 Checking copies of the front and signature pages of the sales contract.

11.3.3 Confirming the effective date of change of owner.

11.3.4 If the change of ship's owner causes the change of ship's call sign and Maritime Mobile Service Identity (MMSI), it is to be checked and confirmed that the equipment and documents using MMSI and the ship's call sign are revised accordingly, including the following:

- (1) The modification of MMSI of EPIRB has been completed, and the corresponding coding list is kept;
- (2) The modification of MMSI for self-floating VDR has been completed, and the corresponding coding list has been kept;
- (3) LIRT conformance test report has been reissued by ASP;
- (4) SSAS test report;
- (5) The MMSI and the ship's call sign of AIS, VHF, MF, MF/HF, SES devices have been changed;
- (6) The re-signed GMDSS shore-based repair agreement, etc.

11.4 Required electronic documentation

11.4.1 Relevant documents issued by the flag State Administration, such as ship's nationality certificate, certificate of ownership, etc.

11.4.2 Copies of the front and signature pages of the sales contract, and date of effective change is to be specified in the statement or relevant documents.

11.4.3 If the change of ship's owner causes the change of ship's call sign and MMSI identification number, the followings documents are to be submitted.

- (1) The coding list of modification of MMSI of EPIRB.
- (2) The coding list of modification of MMSI for self-floating VDR.
- (3) LIRT conformance test report.
- (4) SSAS test report.
- (5) Photos indicating that the MMSI and the ship's call sign of relevant equipment have been changed.

11.4.4 Pages of ship's Log Book which recorded relevant information and conclusion of this remote survey, including at least the contents and conclusions of paragraphs 11.3 mentioned above.

Chapter 12 Surveys for Change of Ship's Name

12.1 General

Remote survey for change of ship's name is normally for vessels with electronic certificates.

12.2 Principle requirements

Check and confirmation of the changes of relevant documents and equipment on board.

12.3 Survey Process

12.3.1 Checking and confirming that the owner has obtained relevant documents issued by the flag State Administration, such as the ship's nationality certificate, radio license, etc. Otherwise, related survey documents are not to be issued normally.

12.3.2 Marks of ship's name at bow and stern are to be updated correctly and new name of the ship is to be marked. It is acceptable to cover the original name and mark the new name with paints.

12.3.3 The name of the ship on the ship name light or on the ship name sign is to be revised permanently.

12.3.4 The name of the ship on life-saving appliances such as life boats, rescue boats, life jackets (if marked with ship name), life rafts, lifebuoys are to be revised permanently.

12.3.5 The name of the ship on main plans and important documents are also to be revised accordingly, such as: general arrangement plan, shell expansion plan, fire control plan (or safety arrangements plan for fire-fighting and life-saving), stability calculation, loading manual, operation manual, oil pollution prevention emergency plan and cargo securing manual. In principle, for the modification of documents, attention is to be paid to the information and plans issued/approved by the Society. For documents (such as cargo securing manual, shipboard oil pollution emergency plan and garbage management plan) approved by other institutions (such as the maritime Administration), modifications are not allowed without specific authorization.

12.3.6 If the change of ship's owner causes the change of the ship's call sign and the MMSI identification number, it is to be checked and confirmed that the equipment and documents using MMSI and the ship's call sign are revised accordingly, including the following:

(1) The modification of MMSI of EPIRB has been completed, and the corresponding coding list is kept;

- (2) The modification of MMSI for self-floating VDR has been completed, and the corresponding coding list has been kept;
- (3) LIRT conformance test report has been reissued by ASP;
- (4) SSAS test report;
- (5) The MMSI identification number and the ship's call sign of AIS, VHF, MF, MF/HF, SES devices have been changed.
- (6) The re-signed GMDSS shore-based repair agreement, etc.

12.4 Required electronic documentation

12.4.1 Relevant documents issued by the Flag State Administration, such as ship's nationality certificate, certificate of ownership, radio license, etc.

12.4.2 Photos or videos, indicating that the ship's bow and stern have been correctly changed and marked as new names.

12.4.3 Photos or videos, indicating that the ship's name on the ship name light has been permanently revised.

12.4.4 Photos or videos, indicating that the ship names on lifeboats, rescue boats, lifejackets (if marked with ship name), life rafts, lifebuoys and other lifesaving equipment have been permanently modified.

12.4.5 If the change of ship's name causes the change of ship's call sign and MMSI identification number, the followings documents are to be submitted:

- (1) The coding list of modification of MMSI of EPIRB.
- (2) The coding list of modification of MMSI for self-floating VDR.
- (3) LIRT conformance test report.
- (4) SSAS test report.
- (5) Photos indicating that the MMSI and the ship's call sign of relevant equipment have been changed.

12.4.6 A declaration of the modification of the ship's name on the main drawings and important documents on board, including copies of the revised documents.

12.4.7 Pages of ship's Log Book which recorded relevant information and conclusion of this remote survey, including at least the contents and conclusions of paragraphs 12.3 mentioned above.

Note:

The above applicable requirements may be referred to for surveys for change of port of registry only (no change of flag).

Chapter 13 Garbage Pollution Prevention Initial Surveys

13.1 General

Remote survey can be used for the initial survey for the prevention of pollution by garbage from ships if there are no relevant requirements for the issue of Document of compliance for garbage pollution prevention from ships from the flag state administration.

13.2 Principle requirements

13.2.1 Check that a garbage management plan in compliance with the requirements of MEPC resolutions is provided on board. The plan shall be written in the working language of the crew and including the following contents:

- (1) Designated person in charge of carrying out the plan;
- (2) Procedures for collecting garbage;
- (3) Procedures for processing garbage;
- (4) Procedures for storing garbage or reusable or recyclable material;
- (5) Procedures for discharging of garbage.

13.2.2 Check that a garbage record book in compliance with the requirements of MEPC resolutions is provided on board. Inspection that each discharge or incineration is recorded correctly:

- (1) The entry for each discharge shall include date and time, position of the ship (latitude and longitude), the category of the garbage and the estimated amount discharged (in cubic meters). In the case of remnants of cargo, in addition to the above, the start and end position of the discharge should be recorded;
- (2) Each completed record of incineration should include the date and time of start and end of incineration, position of the ship (latitude and longitude), the category of the waste incinerated and the estimated amount (in cubic meters) of each incinerated waste;
- (3) The record of each discharge to a receiving facility at a port or another ship shall include the date and time of discharge, the port or equipment or name of the ship, the category of waste discharged and the estimated amount of each type of waste discharged (in cubic meters);
- (4) The Garbage Record Book, together with receipts received from receiving equipment, shall be kept on board where inspection is readily available at all reasonable times. This Garbage record book should be retained for 2 years from the last recorded date;
- (5) In the event of any discharge or accidental loss described in MARPOL Annex V regulation 7, it

shall be recorded in the Garbage Record Book.

13.2.3 Check that the garbage placards in compliance with the requirements of MEPC resolutions are provided on board.

(1) The placards should contain a brief statement stating the prohibition and restrictions for discharging garbage from ships under MARPOL Annex V and the possible penalties for failure to comply. For details, please refer to the sample in Resolution MEPC.295(71) on 2017 Guidelines for the Implementation of MARPOL Annex V.

(2) The placards shall be written in the working language of the ship's crew and, for ships engaged in voyages to ports or offshore terminals under the jurisdiction of other Parties to MARPOL 73/78 Convention, shall also be in English, French or Spanish.

(3) The placards are to be made of durable materials. The placard should also be placed in prominent places where crew will be working and living, and in areas where bins are placed for collection of garbage. These places include galley spaces, mess room(s), wardroom, bridge, main deck and other areas of the ship, as appropriate. Where the ship carries passengers, placards also should be placed in prominent places where passengers are accommodated and congregate, which include cabins, all deck areas for recreational purposes open to passengers.

(4) The placards should be displayed at line of sight height.

13.2.4 Check of the quantity and volume of garbage containers. The quantity and volume shall sustain separate storage of garbage. Garbage containers on board can be in the form of drums, metal bins, cans, container bags, or wheelie bins.

13.2.5 Check of the type and treatment capacity of the garbage disposal equipment such as incinerator, compactor, grinder, and confirmation that they are working properly.

13.3 Survey Process

13.3.1 Checking that a garbage management plan in compliance with the requirements of MEPC resolutions is provided on board.

13.3.2 Checking that a garbage record book in compliance with the requirements of MEPC resolutions is provided on board. Confirming that each discharge or incineration is recorded correctly.

13.3.3 Checking that the garbage placards in compliance with the requirements of MEPC resolutions are provided onboard, and that the placards should be placed in galley spaces, mess room(s), wardroom, bridge, main deck, and the places where passengers are accommodated and congregate, as appropriate.

13.3.4 Checking the quantity and volume of garbage containers, which should sustain separate

storage of garbage.

13.3.5 Checking the type and treatment capacity of the garbage disposal equipment such as incinerator, compactor, grinder, and confirming that they are working properly.

13.4 Required electronic documentation

13.4.1 Garbage management plan

13.4.2 The cover-page of the garbage management plan and the discharge records (3 pages at least).

13.4.3 Photos of each garbage placards (Marking the location).

13.4.4 Photos showing the storage place of each garbage container.

13.4.5 Documents related to the garbage disposal equipment:

(1) Photos showing the full view and the nameplate of each garbage disposal equipment.

(2) Product qualification certificate of garbage disposal equipment.

(3) Type approval certificate and product certificate of incinerator.

13.4.6 Pages of ship's Log Book which recorded relevant information and conclusion of this remote survey, including at least the contents and conclusions of paragraphs 13.3 mentioned above.

Note:

The above applicable requirements may be referred to for additional surveys for the prevention of pollution by garbage from ships.