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# Z29 Remote Classification Surveys

(Mar 2022)

## 1. General

The survey of ships may utilize different methods and concepts. This UR contains principles and minimum requirements for carrying out remote surveys.

Remote survey will only be appropriate provided the level of assurance is not compromised, and the survey is carried out with the same effectiveness as and is equivalent to, a survey carried out with attendance on board by a Surveyor.

### 1.1 Application

These requirements apply to all vessels, self-propelled or not. These requirements are not mandatory for offshore units.

### 1.2 Definitions

#### 1.2.1 Remote Survey

A "Remote Survey" is a process of verifying that a ship and its equipment are in compliance with the rules of the Classification Society where the verification is undertaken, or partially undertaken, without attendance on board by a surveyor.

#### 1.2.2 Information and Communication Technology (ICT)

Information and Communication Technology (ICT) are the technologies used in the scope of remote surveys for gathering, storing, retrieving, processing, analysing, and transmitting information which includes both software and hardware.

#### Notes:

1. 'Attendance on board by a surveyor' means physical attendance on board the ship by a surveyor.
2. Remote classification activities not requiring a survey, such as some administrative tasks, are not to be considered as remote surveys.
3. An administrative task is a task where a survey decision is not being made, for example reissue of a certificate or record following a correction, or an update to the ship's records held by the Classification Society or a document review.

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#### Note:

1. This UR is to be uniformly applied by IACS Societies for remote surveys commenced on or after 01 January 2023.

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(cont)**2. Requirements for equivalency**

The requirements for equivalency of a remote survey to a survey attended on board by a Surveyor include:

- eligibility of the remote survey
- qualification of Surveyors
- planning of the remote survey
- performance of the remote survey
- assessment of the remote survey
- reporting

Equivalency is obtained when, with the use of available ICT, a surveyor can perform a survey remotely being able to:

- obtain the supporting and technical evidence required according to the applicable rules,
- verify applicable survey items and relevant tests,

and the results of the remote survey provide the same level of assurance obtained with attendance on board by a Surveyor.

**2.1 Eligibility of the remote survey**

Eligibility of the remote survey is to be decided based on type and scope of the requested survey, in accordance with 3.1 and, if applicable, flag State Administration acceptance and possible instructions, when the classification survey is also related to a statutory item, and the Society is carrying out the statutory survey on behalf of the flag State Administration.

A remote survey is deemed eligible when it provides the same level of assurance, according to the requirements for equivalency, as if it was conducted with attendance on board by a Surveyor.

Remote surveys are generally to be carried out with internet connection allowing a live streaming visual examination, although, at the discretion of the Surveyor, a combination of remote survey methods (see 2.4) may be used. For simple/limited verifications, other types of ICT may be accepted by the Surveyor.

**2.2 Qualification and monitoring of Surveyors****2.2.1 Qualification**

Surveyors engaged in remote surveys are to be qualified as per standard procedures for the type of ship and type of survey, i.e., in accordance with IMO RO Code (MSC.349(92)), IACS Procedural Requirement PR 7, and the Society's training and qualification scheme.

Additional training is to be carried out, covering the ICT used for the remote survey, in relation to the applicable remote survey scope and methods, in order to fully qualify the Surveyor engaged in remote surveys.

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The additional training required for qualification for remote surveys shall be in accordance with the Society's procedures and shall provide:

- knowledge of the operation of the Classification Society's remote survey software, if applicable
- knowledge of the technical and procedural aspects related to remote surveys
- knowledge of the connectivity aspects related to remote surveys

**2.2.2 Monitoring**

The monitoring of a Surveyor qualified for remote surveys is to be carried out in accordance with IACS Procedural Requirement PR 6

**2.2.3 Surveyor's Record**

Records of Surveyor's training and qualification for remote surveys shall be maintained and updated as per the Society's standard procedures.

**Notes:**

1. Society's personnel engaged in remote classification activities not requiring a survey (refer to 1.2.1) are to be trained and qualified according to the Society's standard procedures.
2. On board personnel/Crew:
  - Training and qualification of on board personnel/Crew are regulated by the STCW Convention and is a prerogative of the flag State Administration.
  - The ship's flag State Administration may require that the Safety Management System of the ship is updated by the Company to include provisions for specific training of the crew engaged in remote surveys.

**2.3 Planning of the remote survey**

Planning of the remote survey is required to ensure that the remote survey is carried out in accordance with the applicable requirements. The content of the planning shall be based on the scope of the remote survey.

To ensure that the Surveyor can properly plan the remote survey and communicate with personnel/crew, so that the survey is carried out according to the applicable rules, adequate means are to be available enabling the Surveyor and allowing the Society to:

- properly interact with personnel/crew involved in the remote survey, before and during the survey process,
- agree on ICT means to be used
- verify that personnel/crew involved in the remote survey are suitably skilled to use the electronic devices and/or software used by the Society to perform the remote survey,
- acquire as deemed necessary information on identity and ranking of personnel/crew involved in the remote survey,

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- provide the survey item/scope to the personnel/crew involved in facilitating the remote surveys, including the tests that will be performed,
- communicate, during the remote survey, additional actions depending on the evidence to be collected.

One or more of the following means is to be provided for planning the remote survey:

- live-streaming video and audio connection
- exchange of data / electronic documents
- other means acceptable to the Society

The owner is to provide the necessary facilities for the safe execution of the survey.

#### **2.4 Performance of the remote survey**

To ensure that the Surveyor can properly perform the remote survey according to the applicable rules, the available evidence must allow the attending surveyor to:

- examine and assess a survey item and/or a group of items and/or supporting documents,
- verify and assess applicable tests and/or services.

The evidence provided to the Surveyor is subject to the technical evaluation and final acceptance by the Surveyor with respect to the completeness and accuracy, necessary to perform the requested survey according to the applicable requirements.

One or more of the following evidence is to be provided for performing the remote survey:

- live-streaming video and audio
- recorded videos provided by the Owner's representative
- photos provided by the Owner's representative
- other data and/or supporting documents acceptable to the Society.

#### **2.5 Assessment of the remote survey**

The Surveyor shall evaluate all evidence received and accept them before crediting the remote survey.

The means used for the remote survey must allow the Surveyor to collect the necessary evidence that will be examined according to the Surveyor's professional judgement in order to satisfactorily complete and credit the relevant survey items.

In case the Surveyor, according to their professional judgement, deems that the remote survey does not provide the same level of assurance as a survey with attendance on board by a Surveyor, the Surveyor may decide not to credit the relevant survey items.

### **3. Scope and procedures**

A remote survey will be only appropriate provided it reaches the same level of assurance as, and is equivalent to, a survey attended on board by a Surveyor.

### 3.1 Scope - Eligible survey items

A remote survey may be proposed as an alternative to a survey attended on board by a Surveyor for the surveys listed in Table 1.

When the classification survey is also related to a statutory item, and the Society is carrying out the statutory survey on behalf of the flag State Administration, then the flag State Administration acceptance is required, and possible additional requirements are to be complied with.

The Surveyor may require to confirm the results of the remote survey, by a survey attended on board by a Surveyor, to credit the relevant survey items, in case the remote survey is not carried out to the Surveyor's satisfaction or it is required by the Classification Society.

**Table 1: Eligible remote survey items:**

No.	Surveys and related items eligible to remote survey	Live streaming required (See Notes)
1	Postponement, issuance, deletion of Condition of Class	X (1)
2	Postponement of Class surveys	X (1)
3	Items of Continuous Survey for Machinery (UR Z18) or Planned Maintenance Scheme (UR Z20, PMS)	X (1)
4	Occasional survey for change of ship's name	X (1)
5	Occasional survey for loss of anchor	X (1)
6	Occasional survey for minor machinery or equipment damage	X (1)
7	Occasional survey for minor hull damage	X (1)
8	Occasional survey for minor deficiencies/defects not subject to a Condition of Class	X (1)
9	In-water bottom survey	X
10	Specified items of a class periodical survey (excluding additional specific items of initial or renewal surveys), including completion of remaining items of a part held class periodical survey	X (1)(2)
11	Non-propelled / un-manned barges/pontoon – annual surveys when no survey of hull compartments is due	X
12	Minor retrofit / installation/upgrade of equipment	X (1)
13	Documentary or data based initial / periodical / renewal / occasional verifications and surveys	

#### Notes:

- "(1)" means that live streaming may not be required for minor survey scope or that a combination remote survey method, as listed in 2.4, may be used at the sole discretion of the Society.
- "(2)" means that pure documentary verifications are eligible in accordance with item 13.
- Live streaming may be required for surveys not marked X in the Table, depending on the survey scope at the sole discretion of the Society.
- "Minor" in the items 6, 7, 8 and 12 means that the item can be surveyed remotely according to requirements for equivalency given in 2

## **3.2 Procedures**

### **3.2.1 Eligibility**

Refer to 2.1.

### **3.2.2 Digital information quality, completeness, and accuracy**

Final appraisal of the quality of digital information is at the discretion of the Surveyor, who is to be satisfied with the content and the quality of digital information collected, and the survey carried out, allowing the Surveyor to confirm its completion.

The Owner is responsible for the completeness and accuracy of digital information provided. The digital information submitted by the Owner to the Surveyor is to reflect the real situation of the surveyed item. The date and time, when a photo or video was taken are to be made available to the Surveyor or identifiable from its metadata.

The Society is to collect and store digital information as evidence of the survey. It is not necessary to store all of digital information received; the exact digital information stored shall support the survey decision and is to be decided by the Surveyor crediting the survey.

The remote survey is carried out under the supervision and upon instructions of the Surveyor, who is in charge of crediting the remote surveys. A surveyor attendance on board may be required to complete the survey, upon the Surveyor's request and at their discretion.

### **3.2.3 Requirements for a remote survey when live streaming is not used**

When live streaming is not used, communication and digital information collection are to be performed through an ICT channels (such as emails, data streams and clouds), which is to be accepted by the Classification Society prior to the survey.

The Owner's representative is to confirm the identity of the ship at the commencement of the survey.

### **3.2.4 Requirements for a remote survey when live streaming is used**

The Owner's is to ensure that:

- the Owner's representative is attending onboard and has access to the areas intended to be surveyed
- the Owner's representative has at his disposal a 2-ways visual and audible communication means complying with the requirements in 4.
- ICT solution is available on the communication means and meets the requirement described in 4.

In the case these requirements cannot be fulfilled, the remote survey may be rejected. The Surveyor is to verify the identity of the ship at the commencement of the survey by live streaming.

## **3.3 Hardware and ICT solution**

Refer to 4.1.

### 3.4 Requirements for Connectivity

The Owner's representative is to ensure that internet connectivity tests are carried out before the survey and that proper connectivity is available and maintained during the survey.

When remote survey by live streaming is being undertaken, a connection that enables live streaming between the Surveyor and the Owner's representative attending on board is required. The quality of the live streaming connection (audio and video) is to ensure proper communication and to allow the Surveyor to carry out the survey remotely, to the Surveyor's satisfaction. In the case where a live streaming connection with the Surveyor is not possible or is not continuous at the place of the survey (e.g., Engine Room), partly online sequences (where the Owner is able to capture pictures and videos offline of those items not covered by live streaming) may be accepted by the Surveyor.

## 4. Information and Communication Technology (ICT)

This section outlines the minimum requirements for the use of ICT that can capture images, record video and/or live stream video or other data from a ship as considered acceptable to the Society.

### 4.1 Hardware

The Owner is responsible for ensuring that all hardware installations on board used for the remote survey shall comply with the applicable requirements relevant for use and location on board, including hazardous areas. The ICT shall typically consist of:

- A host computer device, to receive the streaming of images/data/video. This is usually a laptop or desktop computer compatible with the software application used for the remote survey
- On board standalone device which may include digital cameras capable of capturing videos/photos/data
- On board smart device compatible with the applicable software/technology
- Communication accessories like headphones and microphone for the noisy environment as applicable and as deemed necessary

**Notes:** The smart device may be a smartphone, tablet, computer, wearable device, smart glass, digital camera, or any other device which can be connected to the network and capable of transmitting the necessary data/images to shore.

The communication equipment used for the live streaming shall have the following minimum functionality:

- both ends shall simultaneously see the same image/videos in near real-time (i.e., live streaming)
- two-way direct voice communication
- possibility to take screenshots

When using a portable device on board for live streaming, the movement of the handheld device may affect the stability of the video and the image, leading to lower quality outputs. When necessary, a suitable anti-shake device shall be used to provide proper stability.

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1. The host computer screen is to be able to present an image quality that is sufficient to enable a survey decision to be made
2. Portable equipment on board shall be equipped with a power capacity suitable for the intended scope and time of the survey

**4.2 Internet Connectivity (coverage and speed)**

For internet connectivity requirements on board, refer to 3.4.

The on board smart devices shall have the capability of transmitting the images/video/data over a Cellular, Wi-Fi or Satellite Connection to the remote Surveyor.

When live streaming communication is applied, the internet connection shall have sufficient and stable bandwidth capacity to ensure quality (such as resolution and frame rate) of the direct colour image/video and voice communication to the remote survey location to the satisfaction of the Surveyor.

**4.3 Software and data security:**

The software used for the remote survey is to be acceptable to the Society. The overall function and ability of the software used to ensure the security of data shall be evaluated prior to use as per the below requirements.

The Surveyor shall normally control the live video call, providing instructions to the on-site personnel/crew and supervising survey activities for capturing relevant information. The on board device shall have the capability of transmitting the data over a Cellular, Wi-Fi, or Satellite Connection to the Surveyor.

The software used to perform the remote survey may also be provided with technologies that support the Surveyor in the process of making a decision, such as:

- Artificial Intelligence (AI) for the recognition and the classification of defects,
- Internet of things (IoT) for collecting parameters and evaluating acceptability/working condition of machinery and equipment,
- Data driven verification or other means considered acceptable by the Society.

The above software and technologies are to be evaluated and accepted by the Society in each case.

When considering the use of software/applications and other technologies, data protection shall be considered in accordance with applicable requirements of the Classification Society before the remote survey is commenced. The software/application used to perform the remote survey is to be compatible with the technical requirements detailed in this paragraph; in addition, the software used is to comply with the Classification Society's applicable requirements for:

- cybersecurity
- data protection and confidentiality for the transmitted data

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When not provided by the Society itself, the audio/video software or application used to perform the remote survey is to be accepted by the Society.

During the survey preparation, it is the Owner's responsibility to ensure that their data security policies are implemented as per the Company's Safety Management System.

**Notes:** The Company's SMS may take into account IMO resolution MSC.428(98), MSC-FAL.1/Circ.3 and IACS Rec.166.

## **5. Recording of evidence and reporting of survey**

### **5.1 Recording of Evidence**

#### **5.1.1 Required evidence (refer to 2.4)**

In principle, live streaming video and audio shall be applied to remote surveys as a primary means (refer to Table 1 in 3.1).

Additionally, and/or alternatively, one or more of the following evidence may be submitted or verified as requested by the Surveyor during remote survey so that the Surveyor is able to verify conditions of survey items:

- Recorded video and audio
- Photos
- Master's/chief engineer's statement
- Ship's logbook
- Owner's confirmation

##### **5.1.1.1 Live streaming video and audio**

Live streaming video and audio using ICT shall be in accordance with the requirements in 4.

##### **5.1.1.2 Recorded videos/photos**

For the recorded videos/photos, the following information is to be available:

- confirmation that they were actually taken on the ship by the Owner's representative
- date and time when they were taken
- identity of the personnel/crew responsible for taking evidence

##### **5.1.1.3 Master's/chief engineer's statement**

Recorded videos/photos provided by the Owner's representative may be supplemented with a statement signed by the master and/or the chief engineer confirming the condition of the items shown in the evidence. The final evaluation of the remote survey by the Surveyor is to be based on all of the provided evidence, and it does not delegate the responsibility to the master/chief engineer's statement only.

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(cont)**5.1.1.4 Ship's logbook**

The Master shall make entries into ship's logbook on the following occasions and submit copies of the relevant pages when requested by the Surveyor:

- when a remote survey is carried out by the Surveyor
- when videos/photos are taken and submitted to the Surveyor with the master's/chief engineer's statement and additional documents as applicable.

**5.1.1.5 Owner's confirmation**

The Owner's representative or the master is to confirm the correctness and completeness of the provided information and evidence (if any) relevant to the condition of the items requested to be surveyed. This confirmation may be included in the survey application.

**5.1.2 Retaining/filing evidence**

The evidence submitted by the Owner's representative or master shall be retained/filed in accordance with the Society's procedures which shall include:

- type of evidence to be retained/filed
- duration/location to be retained/filed

It is not required for the Society to record and save live streaming video and audio as evidence unless the Surveyor considers it necessary.

**5.1.3 Other supporting documents**

The Surveyor may request the Owner's representative or master to submit supplementary documents such as ship's maintenance reports and record for the operation of machinery, and equipment and service reports issued by manufacturers, service suppliers or service providers.

While the Surveyor shall verify that the documents are duly prepared and issued to the ship, they may not be required to be retained/filed by the Society as evidence.

**5.2 Reporting of remote survey**

The report of a remote survey shall be issued in accordance with the Society's procedure. The survey report shall also include the following additional information:

- indication that the survey was carried out remotely
- description of the means used during the remote survey
- indication of the provided evidence
- confirmation of the flag State Administration's authorization, when applicable

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