Ships safety radio certification

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Ships safety radio certification

- 1. Flag state responsibilities for certification
- 2. Port State control
- 3. Other vessels radio surveys and certification regime
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1. Flag state responsibilities for certification - Legal Framework on Survey, Verification and Certification under UNCLOS and IMO Conventions

- 1. Article 94 of the United Nations Convention on the Law of the Sea (UNCLOS) on Duties of the flag States stipulates that the flag State shall "effectively exercise its jurisdiction and control in administrative, technical and social matters over ships flying its flag" and take "such measures for ships flying its flag as are necessary to ensure safety at sea with regard, inter alia, to the construction, equipment and seaworthiness of ships...", including, "those necessary to ensure that each ship ,before registration and thereafter at appropriate intervals, is surveyed by a qualified surveyor of ships...".
- 2. Article 217 of UNCLOS on Enforcement by flag States, stipulates that "States shall ensure that vessels flying their flag or of their registry carry on board certificates required by and issued pursuant to international rules and standards..."and "States shall ensure that vessels flying their flag are periodically inspected in order to verify that such certificates are in conformity with the actual condition of the vessels."
- 3. Within the legal framework under IMO Conventions, SOLAS 1974 regulation I/6; MARPOL Annex I regulation 6, Annex II regulation 8, Annex IV regulation 4 and Annex VI regulation 5; LL 1966 article 13; TONNAGE 1969 article 7; AFS 2001 article 10 and annex 4; and BWM 2004 regulation E-1, stipulate that the inspection and survey of ships shall be carried out by officers of the Administration. The Administration may, however, entrust the inspections and survey either to surveyors nominated for the purpose or to organizations recognized by it.

1. Flag state responsibilities for certification - Legal framework under IMO instruments (cont.)

Ships must be designed, constructed, maintained and managed in compliance with the applicable requirements of IMO and ILO Conventions, Codes and other instruments.



Conventions:

SOLAS 1974, MARPOL, Load Lines 1966/1988, TONNAGE 1969, COLREG 1972, AFS 2001, BWM 2004, etc. and;

Codes:

HSC 1994/2000 Code, IBC Code, BHC Code, IGC/GC Code, MODU Code, SPS Code, Polar Code, IGF Code, BWMS Code, Grain Code, NOx Technical Code, FSS Code, 2010 FTP Code, LSA Code, 2008 IS Code, Noise Code, 2011 ESP Code, ISM Code, ISPS Code, RO Code, etc; and

Other instruments

Note: Resolution A.1156(32) is one of them and will be mentionned in this presentation

Provisions related to ships radio installations are included in SOLAS convention

1. Flag state responsibilities for certification (cont.) – Type approval & Performance standards of radio equipment



- All radio equipment are of a type approved by the Administration
- All radio equipment conform to appropriate performance standards not inferior to those adopted by IMO
 - .1 Resolution A.525(13): Performance standards for narrow-band direct-printing telegraph equipment for the reception of navigational and meteorological warnings and urgent information to ships.
 - .2 Resolution A.694(17): General requirements for shipborne radio equipment forming part of the global maritime distress and safety system (GMDSS) and for electronic navigational aids.
 - .3 Resolution A.808(19): Performance standards for ship earth stations capable of two-way communications and resolution A.570(14): Type approval of ship earth stations and MSC.130(75): Performance standards for Inmarsat ship earth stations capable of two-way communications...
 - .4 Resolution A.803(19): Performance standards for shipborne VHF radio installations capable of voice communication and digital selective calling, as amended, and resolution MSC.68(68), annex 1 (valid for equipment installed on or after 1 January 2000).
 - .5 Resolution A.804(19): Performance standards for shipborne MF radio installations capable of voice communication and digital selective calling, as amended, and resolution MSC.68(68), annex 2 (valid for equipment installed on or after 1 January 2000).
 - .6 Resolution A.806(19): Performance standards for shipborne MF/HF radio installations capable of voice communication, narrow-band direct-printing and digital selective calling, as amended, and resolution MSC.68(68), annex 3 (valid for equipment installed on or after 1 January 2000).
 - .7 Performance standards for float-free satellite emergency position-indicating radio beacons (EPIRBs) operating on 406 MHz (resolution A.810(19), as amended) and Adoption of amendments to performance standards for float-free satellite emergency position-indicating radio beacons (EPIRBs) operating on 406 MHz (resolution A.810(19)) (MSC.120(74)) and Type approval of satellite emergency position-indicating radio beacons (EPIRBs) operating in the COSPAS-SARSAT system (resolution A.696(17));
 - .8 Resolution A.802(19): Performance standards for survival craft radar transponders for use in search and rescue operations.
 - .9 Resolution A.805(19): Performance standards for float-free VHF emergency position-indicating radio beacons.
 - .10 Resolution A.807(19): Performance standards for Inmarsat-C ship earth stations capable of transmitting and receiving direct-printing communications, as amended, and resolution MSC.68(68), annex 3 (valid for equipment installed on or after 1 January 2000), and resolution A.570(14): Type approval of ship earth stations.
 - .11 Revised performance standards for enhanced group call equipment (resolution MSC.306(87));.
 - .12 Performance standards for float-free release and activation arrangements for emergency radio equipment (resolution A.662(16));
 - .13 Resolution A.699(17): System performance standard for the promulgation and co-ordination of maritime safety information using high-frequency narrow-band direct printing.
 - .14 Adoption of the revised performance standards for narrow-band direct-printing telegraph equipment for the reception of navigational and meteorological warnings and urgent information to ships (NAVTEX) (resolution MSC.148(77));
 - .15 Performance standards for a shipborne integrated radiocommunication system (IRCS) when used in the GMDSS (resolution A.811(19) and
 - .16 Resolution MSC.80(70), annex 1: Performance standards for on-scene (aeronautical) two-way portable VHF radiotelephone apparatus. safety information using high-frequency narrow-band direct printing.
 - .17 Resolution MSC.148(77): Adoption of the revised performance standards for narrow-band direct-printing telegraph equipment for the reception of navigational and meteorological warnings and urgent information to ships (NAVTEX).
 - .18 Resolution A.811(19): Performance standards for a shipborne integrated radiocommunication system (IRCS) when used in the GMDSS.
 - .19Resolution MSC.80(70), annex 1: Performance standards for on-scene (aeronautical) two-way portable VHF radiotelephone apparatus.



1. Flag state responsibilities for certification – Before the ship is put in service...

- Shipowners and engineering firms will have to communicate to the Authority in charge of certification plans, designs and documents to begin the checking of compliance of radio installation
- Surveys will be carried out during construction of the ship

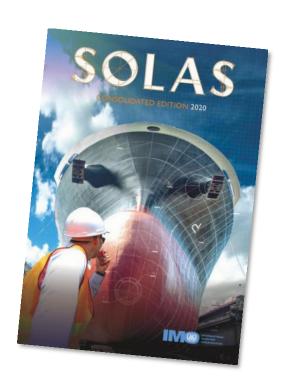


1. Flag state responsibilities for certification – Before the ship is put in service...

Examination of plans and designs:

- establishing the sea areas declared for operation, the equipment installed to fulfil the functional requirements for the sea areas of operation, the methods adopted to ensure the availability of the functional requirements and the arrangements for supply of an emergency source of energy (if any)
- establishing which radio equipment is to be surveyed and, if duplication of equipment is used as a means of ensuring the availability of the functional requirements, establishing which is the "basic equipment" and which the "duplicated equipment"
- confirming all SOLAS equipment complies with appropriate performance standards not inferior to those adopted by IMO
- examining the plans for the provision and position of the radio installation, including sources of energy and antennas; and
- examining the plans for the provision and positioning of the radio life-saving appliances.

1. Flag state responsibilities for certification – Before the ship is put in service...



 IMO provided <u>harmonised guidelines</u> giving an unambiguous interpretation of the radio installation requirements in Chapter IV of SOLAS



E

Chapter IV – Radiocommunications Application

- Cargo ships of 300 gross tonnage and above engaged in international voyages
- Passenger ships of all sizes engaged in international voyages

4 ALBERT EMBANKMENT LONDON SE1 7SR

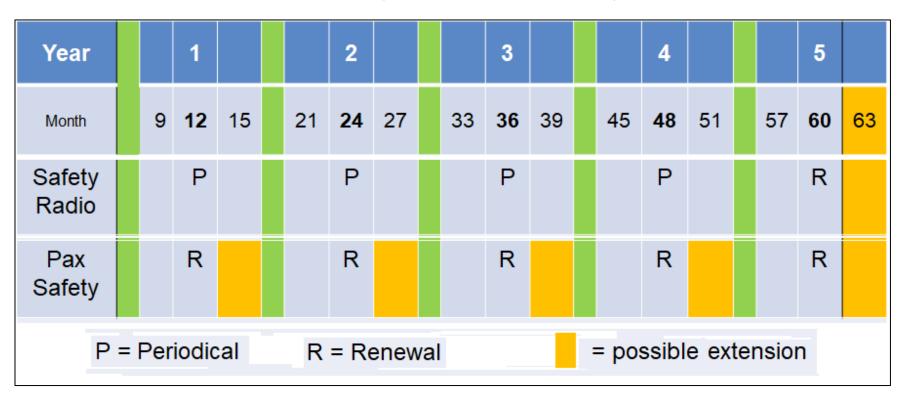
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COMSAR.1/Circ.32/Rev.2 3 July 2023

HARMONIZATION OF GMDSS REQUIREMENTS FOR RADIO
INSTALLATIONS ON BOARD SOLAS SHIPS

1. Flag state responsibilities for certification (cont.) - Surveys

- Ships are subject to an initial survey before the ship is put in service
- Cargo ships are subject to periodical and renewal surveys (+ additional surveys if important repairs of renewal)
- Passenger ships are subject to renewal surveys (+ additional surveys if important repairs of renewal)



The results of any survey is detailed in a report signed by the surveyor

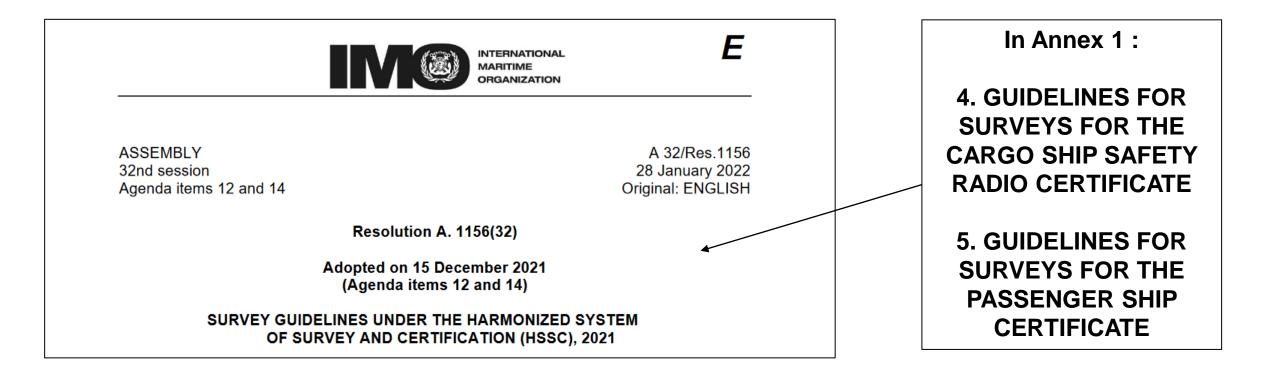
3. Flag state responsibilities for certification – Surveys (cont.)

According to SOLAS Chapt. I:

	Initial survey	Periodical survey	Renewal survey	Additional survey
Cargo ships	a complete inspection of the radio installations, including those used in life-saving appliances, to ensure compliance with requirements	an inspection of the radio installations, including those used in lifesaving appliances, to ensure compliance with requirements	an inspection of the radio installations, including those used in lifesaving appliances, to ensure compliance with requirements	a general or partial inspection, after important repairs or renewals, to ensure repairs or renewal have been made satisfactorily and compliance with requirements
Passenger ships	a complete inspection of of radio installations, including those used in life-saving appliances, to ensure fully compliance with requirements	not applicable	an inspection of radio installations, including those used in life-saving appliances, to ensure satisfactory condition, fitness for intended service and compliance with requirements	a general or partial inspection, after important repairs or renewals, to ensure repairs or renewal have been made satisfactorily and compliance with requirements

1. Flag state responsibilities for certification – Surveys (cont.)

IMO Resolution A.1156(32) lists in detail **verifications** according to the type of ship and type of survey.



Checking of ITU Radio Regulations provisions regarding valid radio licence, carriage of up-to-date ITU publications is also part of the surveys along with checking of radio record (log) and radio operators' certificates of competency.

1. Flag state responsibilities for certification – Surveys (cont.)

As an example, extracts of the guidelines

A 32/Res.1156 Annex, page 82				
(RI)	4.1.2.16.5	checking that the unique beacon identification code programmed in the EPIRB corresponds with the unique beacon identification code assigned by or on behalf of the Administration;		
(RI)	4.1.2.16.6	checking that the MMSI number if encoded in the beacon corresponds with the MMSI number assigned to the ship;		
(RI)	4.1.2.16.7	checking the battery expiry date;		
(RI)	4.1.2.16.8	if provided, checking the hydrostatic release and its expiry date;		
(RI)	4.1.2.16.9	checking the emission on operational frequencies, coding and registration on the 406 MHz signal without transmission of a distress call to the satellite;		
(RI)	4.1.2.16.10	checking that the EPIRB has been subject to maintenance at intervals not exceeding five years at an approved shore-based maintenance facility (SOLAS 74/04 reg.IV/15.9);		

1. Flag state responsibilities for certification - Ship safety radio certificate

Cargo ship: The certificate may be separated or combined with two other certificates (Construction and Equipment) to form a Cargo Ship Safety Certificate. A record of equipment is attached.

Passenger ship: The certificate is **combined** with two other certificates (Construction and Equipment) to form a Passenger Ship Safety Certificate. A record of equipment is attached.

What does it certify?

- •That the ship has been surveyed in accordance with the requirements of regulation I/9 of the Convention.
- •That the survey showed that:
 - The ship complied with the requirements of the Convention as regards radio installations
 - The functioning of the radio installations used in lifesaving appliances complied with the requirements of the Convention.
- •That an Exemption Certificate has/has not been issued.

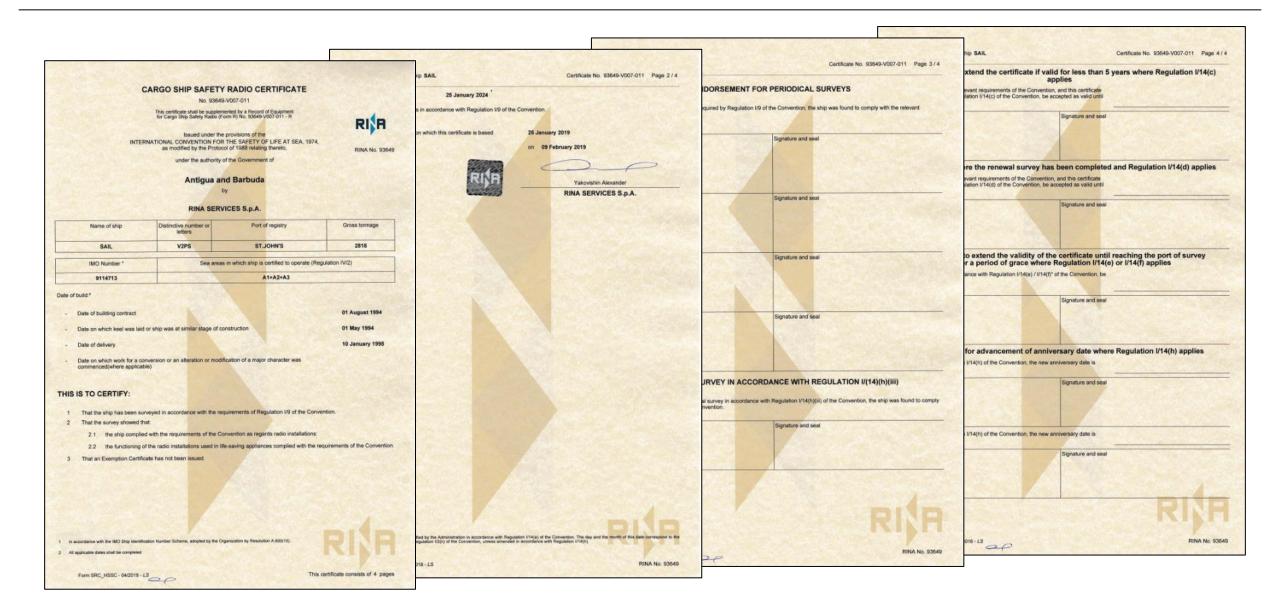
What form should be attached?

A Record of Equipment for the Cargo Ship Safety Radio Certificate (Form R)

What information does it contain?

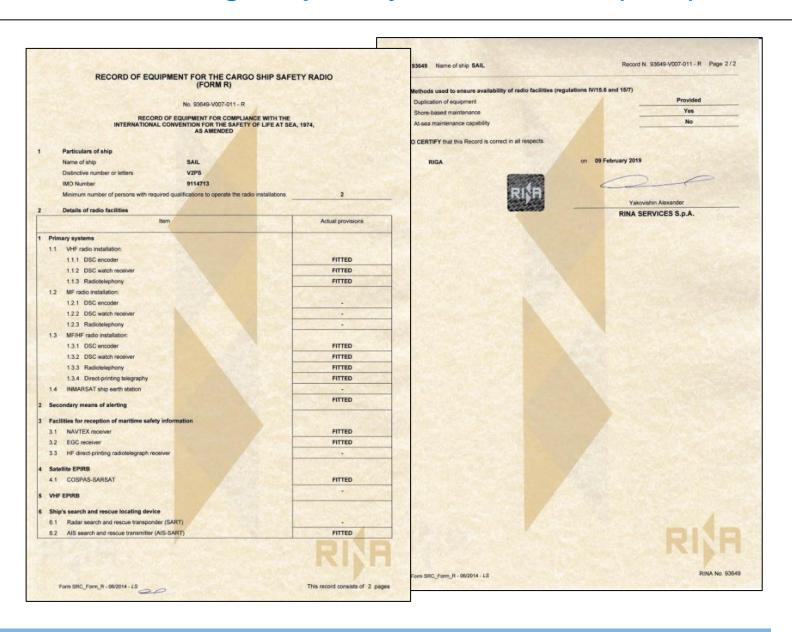
- Name of ship
- Distinctive number or letters
- Port of registry
- Gross tonnage
- •Sea areas in which ship is certified to operate (regulation IV/2)
- •IMO Number
- •Date on which keel was laid or ship was at a similar stage of construction or, where applicable, date on which work for a conversion or an alteration or modification of a major character was commenced
- •Completion date of the survey on which this certificate is based

1. Flag state responsibilities for certification - A cargo ship safety radio certificate



1. Flag state responsibilities for certification - A cargo ship safety radio certificate (cont.)

A record of radio equipment (Form R) must be attached to the certificate



1. Flag state responsibilities for certification - Delegation of powers to recognized organisations



- ROs are private companies recognized by a flag State to perform, on its behalf, statutory certification and services under mandatory IMO instruments and national legislation.
- ROs conduct surveys and inspections on behalf of a Flag State and issues international safety certificates attesting that ships comply with safety standards.

ROs verify that ships meet safety requirements, among them those related to radio communication installations. If ship not correspond substantially with certificate RO must ensure corrective action is taken – certificate may be withdrawn – and inform Flag State.

ROs are usually **also classification societies** (Bureau Veritas, Lloyd's Register of Shipping, American Bureau of Shipping, etc.).

An RO must be oversighted by the Flag State.

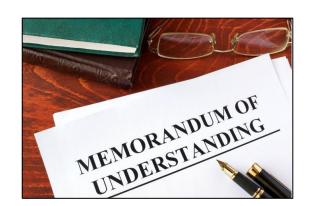
Mandatory requirement applying to ROs and Flag States are given in **IMO Code for recognized** organizations (RO Code)

Flag shall fully guarantee the completeness and efficiency of the inspections and surveys.



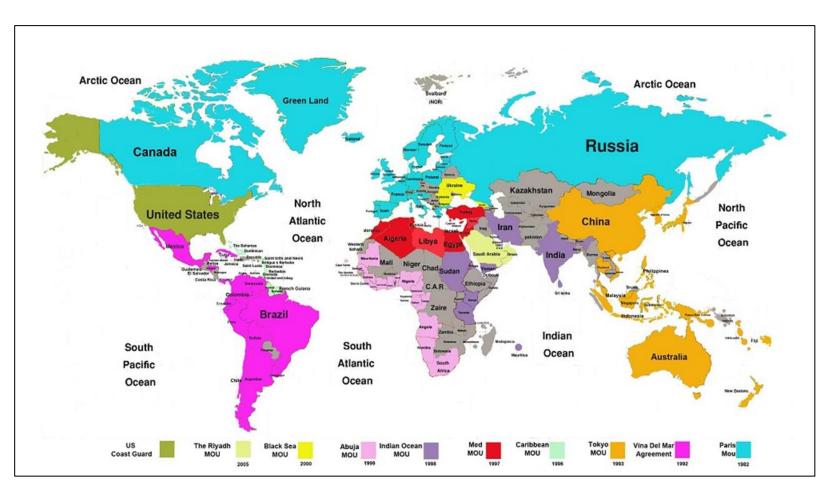
2. Port State control

Port State Control (PSC) is the **inspection of foreign ships in national ports** to verify that the condition of the ship and its equipment comply with the requirements of international regulations and that the ship is manned and operated in compliance with these instruments and ensure maritime safety and security and prevent pollution.





10 regional MoU on PSC



2. Port State control (cont.)

IMO provides guidelines on the procedures for inspection

PORT State Control Officers (PSCOs) apply instructions contained in the Manual for PSCOs of their MoU

MANUAL FOR PSC OFFICERS

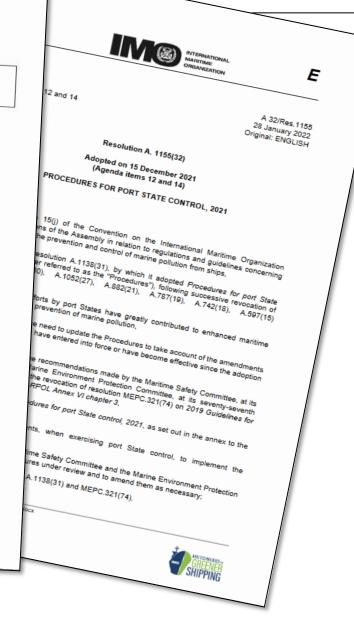
"THIS IS A CONTROLLED DOCUMENT ALL COPIES ARE UNCONTROLLED."

DATE: APRIL, 2001

ISSUE No. 001/2001.

ISSUING AUTHORITY: IOMOU SECRETARIAT

SECRETARY



2. Port State control (cont.)

PSC inspections are intended to be a backup to flag State implementation, a "second line of defence" against substandard shipping, and experience has shown that they can be extremely effective.

PSC inspections are carried out by officers duly authorized by Governments

PSC should be limited to verifying that there are on board valid certificates and other relevant documentation, unless there are "clear grounds" for believing that the condition of the ship or its equipment does not correspond substantially with the particulars of the certificates.



2. Port State control (cont.) – conduct of inspection

Regarding radio certification, a PSCO is entitled to require, inter alia:

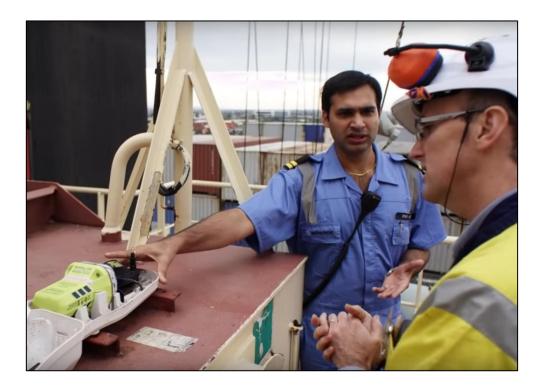
- Cargo ship safety certificate or Cargo Ship Safety Radio Certificate, or Passenger ship certificate
- Radio record (A record shall be kept, to the satisfaction of the Administration and as required by the Radio Regulations, of all incidents connected with the radiocommunication service which appear to be of importance to safety of life at sea)
- AIS test report (The automatic identification system (AIS) shall be subjected to an annual test by an approved surveyor or an approved testing or servicing facility. A copy of the test report shall be retained on board and should be in accordance with a model form set out in the annex to MSC.1/Circ.1252.
- LRIT conformance test report. A conformance test report should be issued, on satisfactory completion of a conformance test, by the Administration or the ASP who conducted the test acting on behalf of the Administration and should be in accordance with the model set out in appendix 2 of MSC.1/Circ.1307-Rev.1.
- Minimum safe manning document (Every ship to which chapter I of the Convention applies shall be provided with an appropriate safe manning document or equivalent issued by the Administration as evidence of the minimum safe manning.
- Crew certificates (checking of radio certificates of competency)



After the certificate and document check, the PSCO should check the overall condition of the ship, including its equipment, navigational bridge, forecastle, cargo holds/areas, engine-room and pilot transfer arrangements and verify that any outstanding deficiency from the previous PSC inspection has been rectified.

If the PSCO identifies clear grounds for believing that the condition of the ship or its equipment does not correspond substantially with the particulars of the certificates or that the master or crew is not familiar with essential shipboard procedures, a more detailed inspection should be carried out. The PSCO may detain the vessel.





Examples of "clear grounds" (related to radio) to conduct a more detailed inspection:

- absence of principal equipment or arrangements required by the relevant conventions
- evidence that a certificate is invalid;
- evidence that certificates and required documents are not on board, incomplete, not maintained or are falsely maintained
- evidence from the PSCO's general impressions or observations that serious deficiencies exist in the safety
- information or evidence that the master or crew is not familiar with essential safety shipboard operations
- emission of false distress alerts not followed by proper cancellation procedures



Port State Control Radio Checklist for more detailed inspection / Abuja MoU Manual for PSCOs:

Radio equipment corresponding to the radio certificate and fulfilling the functional requirements	YES/NO
VHF installation satisfactory	YES/NO
Satellite EPIRB inspected and satisfactory	YES/NO
Sources of energy satisfactory	YES/NO
MF/HF radio installation satisfactory	YES/NO
Inmarsat ship earth station satisfactory	YES/NO
Facilities for receiving marine safety information satisfactory	YES/NO
Number and competency of GMDSS operators satisfactory	YES/NO
Maritime Mobile Service Identities (MMSI) of radio installations correct	YES/NO
Search and Rescue Radar transponders satisfactory	YES/NO
Antennas condition satisfactory	YES/NO
Maintenance/duplication of equipment satisfactory	YES/NO
Operational requirements relating to GMDSS satisfactory	YES/NO
Radio log inspected and satisfactory	YES/NO

Detainable deficiencies related to radio / Abuja MoU Manual for PSCOs:

- Failure of the proper operation of batteries
- Absence or failure of the proper operation of the radio equipment for distress and safety communication.
- Serious deficiency in operational requirements (listed in appendix 7).
- Number, composition or certification of crew not corresponding with safe manning document.



3. Other vessels radio surveys and certification regime

Non SOLAS vessels :

Have to comply with national regulations where they exist

Fishing vessels:

No international provisions except for member states of Cape Town Agreement 2012

Cape Town Agreement 2012 is an international agreement related to the safety of fishing vessels adopted under the auspices of IMO. It contains radio provisions for ships > 45 metres. The provisions related to surveys and certification are globally similar to those of SOLAS. Unfortunately still too few Governments have ratified this agreement.

Fishing vessels outside the scope of Cape Agreement and those with flags from non signatory countries are submitted to national regulations where they exist. No PSC for fishing vessels

Yachts (non commercial) and boats

National regulations where they exist. Usually no periodical surveys

 Any vessel which is a mobile station should have been delivered a radio licence by the flag Administration (ITU RR Article 18)



4. Who are the surveyors?

Radio surveys are carried out by « authorized persons » who are:

- Officers duly authorized by the government, or
- Individuals or companies conducting surveys as a subcontractor for an RO, or
- Individuals or companies authorized by the Flag State Administration

All are maritime radiocommunications professionals



Thank you for your attention