**GENERAL REGULATIONS**

**Authority of the Master**

The radio service of a ship is under the supreme authority of the Master or other person responsible for the ship.

**Ship’s Radio Licences**

These are normally issued by the national Administration, but can also be issued by another office or institute on behalf of the national Administration. The licence should be displayed near to the radio equipment and shows the following:

(a) Name of ship

(b) Call sign and relevant identification numbers

(c) Owner’s name

(d) Frequencies

(e) Transmitter output powers

(f) Classes of emission

(g) Public correspondence category

(h) Other conditions under which the station is to be operated

The licence should be permanently displayed near the main ship station control point.

**Documents to be carried**

The Radio Regulations require that ships for which a radio installation is required by international agreement carry the following documents:

(1) Ship’s Radio Licence

(2) Radio Operators’ Certificates

(3) GMDSS Radio Log – book

(4) ITU List of Call Signs and Numerical Identities of Stations used by the Maritime Mobile and Maritime Mobile– Satellite Services.

(5) ITU List of Coast Stations.

(6) ITU List of Ship Stations.

(7) ITU List of Radio determination and Special Service Stations.

(8) ITU Manual for Use by the Maritime Mobile and Maritime Mobile- Satellite Services.

Other international and national regulations require additional documentation and publications to be carried, e.g

(1) Radio Safety Certificate

(2) Antenna Rigging

(3) List of spares and where kept.

**Radio Safety Certificate**

All cargo and passenger ships obliged to be fitted with radio stations in accordance with the SOLAS convention must have a Cargo Ship Safety Radio Certificate which is valid for a maximum of One year and must be renewed every year.

**Inspection**

Surveyors or inspectors from the appropriate shore-based authorities, i.e.,local maritime transport Administration or telecommunication Administration, may inspect the ship station, including the documentation and the equipment.

**Unauthorised Transmissions**

Stations are forbidden to:

(a) Make unnecessary or superfluous transmission.

(b) Transmit false or misleading signals.

(c) Transmit without using their identification.

It is also useful to remember that you should only radiate as much power as is necessary to ensure a good communication link and that, before transmission on any frequency or channel, you must ensure you are not going to interfere with transmissions already in progress.

**Test Transmission**

These should be kept to a minimum and should, if possible, be carried out using an artificial antenna (dummy load) and/or reduced power. Distress frequencies should not be used unless absolutely necessary. Test or tuning signals should be for less than 10 seconds and should include the call sign or other identification.

**Daily Tests**

1. DSC- Without radiation-Use built-in test facility.

2. Batteries –On-/Off-load voltage checks - Fully charge if necessary

3. Printers- Check sufficient paper –DSC –NAVTEX- Telex-SATCOM.

**Weekly Tests**

1. DSC-Live call to coast station.

2. Reserve source of energy –other than battery.

3. Survival craft VHF –not on channel 16

**Monthly Tests**

1. EPIRBs –Use built-in test facility –do not radiate.

2. SARTs- Using the facility

3. Batteries – Check condition of all batteries – EPIRBs SARTs – Reserve –VHF.

4. In the case of EPIRBs and SARTs you should also check the security of the, i.e. for corrosion or damage.

**Radio Log**

The Radio Log, as required by the SOLAS convention, must be kept together with the radio and must be written in accordance with the details required by the Radio Regulations and Guidelines.

All Traffic concerning distress, urgency and safety correspondence with foreign coast and ship stations is of vital importance.

|  |  |  |  |
| --- | --- | --- | --- |
|  | VHF | MF | HF |
| Frequency | 30 – 300 MHz | 1605–4000 kHz | 4-27 MHz |
| Emission | F3E, G3E | A3E, H3E, J3E | J3E |
| Distance | Short(20-50 nm) | Medium(150nm) | Long Range |
| Channel | 01-28 | Region 1 | 421, 606, 821 |
|  | 60-88 | 2045, 2048 kHz | 1221, 1621 |
|  | 25kHz separation | Region 2 & 3 | 1806, 2221 |
|  |  | 2635, 2638 kHz | 2510 |

**VHF communications includes:**

-Public Correspondence

-Harbor and Pilot Service (Ch. 12)

-Intership Communications (Ch. 6, 8, 10, etc.)

-Safety Service

-Calls can be transmitted three(3) times with intervals of Two(2) minutes.

-Unanswered series of calls must be stopped and not be repeated until after an interval of three(3) minutes

-Keep listening watch on channel 16

**Traffic Lists**

Coast stations normally transmit their calls in the form of traffic lists of stations they have traffic for.

**Distress Transmissions**

Distress signal – MAYDAY (from the French *venez m’aider* which means “come help me”)

2182 kHz and VHF channel 16 are the two most likely to be used.

The radiotelephone distress procedure consists of:

- the alarm signal (whenever possible) followed by;

- the distress call;

- the distress message.

**Two-Tone R/T Alarm Signal**

The alarm signal is sent on 2182 kHz and comprises alternate tones of 1300 and 2200 Hz, each sent for 250ms over a period of between 30 and 60 seconds. The purpose of the signal is to:

(a) *Attract the attention of the person on watch.*

(b) *Activate automatic alarm devices.*

(c) *Activate a silenced or muted loudspeaker.*

**Distress Message**

The message which *follows the two-tone alarm* (on 2182 kHz) and the call, must take the following form:

-MAYDAY

-NAME or CALL SIGN of station in distress

-POSITION (LAT and LONG, or with respect to a known geographical location)

- NATURE OF DISTRESS

- KIND OF ASSISTANCE REQUIRED

- ANY OTHER USEFUL INFORMATION

**Urgency Transmissions**

Urgency signal – PAN PAN ( from the French word *panne* meaning accident/breakdown)

-Emergency but no immediate danger to life or to the vessel, eg. engine failure, out of fuel, unsure of position, non-fatal medical problem

**Safety Transmissions**

Safety Signal – SECURITE (pronounced as French, SEE-CURE-IT-TAY)

-Navigational warnings and meteorological information

**MIDTERM Comprehensive Quiz**

1. What is the fundamental unit (particle) of EMR?
2. What is the relationship between frequency and wavelength?
3. What is the speed of propagation of radio waves? c = \_\_\_\_\_\_\_\_\_\_
4. What is the propagation method of VHF?
5. Which has a greater range VHF or MF?
6. What frequencies are transmitted through ground-wave propagation?
7. What is the wavelength of HF?
8. A VHF signal has a wavelength of 3.5 meters. What is its frequency?
9. An MF signal has a wavelength of 250 meters. What is its frequency?
10. Why do sky waves travel farther at night?
11. In which layer of the ionosphere are HF waves reflected?
12. What modulation method is used when the *frequency* of the signal is varied?
13. What does GMDSS stand for?
14. Why is equipment duplication important?
15. Which sea area is covered by VHF (line of sight) communications?
16. What does RCC stand for?
17. What is the primary method of alerting?
18. In a*lerting,* ships can use channel 70 for VHF. How about for MF?
19. In *distress*, ships can use channel 16 for VHF. How about for MF?
20. What date was the start of implementation of GMDSS?
21. Give one functional requirement for GMDSS.
22. What is the added equipment for sea area A1 ships if it will operate in sea area A2?
23. Having a qualified and authorised equipment servicing personnel on the ship is what type of maintenance?
24. How many units of VHF portable radiotelephone must a ship with 2,000 gross tonnage have?
25. How many units of SART must a ship with 400 GRT have?
26. Where is the sea area A4 located?
27. What do you call the covering that protects INMARSAT antennas?
28. Which INMARSAT antenna uses a parabolic dish?
29. Give an example of duplex transmission.
30. Calculate the antenna length for an MF antenna to receive the frequency 2187.5 kHz.
31. A tuning circuit is composed of what basic electrical components?
32. What is the maximum range of VHF radiotelephone?
33. What is the frequency of an EPIRB operating through INMARSAT?
34. What radio certificate is required for a radio operator of a ship travelling in sea area A1 only?
35. For a ship without emergency generator, how many hours of battery capacity should be available?
36. SARTs operated in what frequency?
37. A SART mounted at 1m can be detected at how many miles by a ship’s radar mounted at 15m?
38. VHF portable transceivers must withstand drops onto a hard surface from a height of at least \_\_\_\_\_\_\_.
39. Who has the highest authority on board a vessel as far as operation of the radio station is concerned?
40. What is the observance of secrecy?
41. How often should you carry out tests of EPIRBs?
42. What information if written in the Radio log?
43. What is public correspondence?
44. What channels are intended for VHF intership communications?
45. What kind of emission class is used for *2187.5 kHz*?
46. What are the MF working channels for *Region 1*?
47. What is a traffic list?
48. In what frequency is the two tone alarm signal sent in?
49. Give one purpose of the two tone alarm signal.
50. What type of call is made if the message contains important navigational or meteorological warning?