The Seamanship Centre
Navigation & Seamanship Training

GMDSS VHF SRC

Pre - Course Notes.

Please bring 2 passport photos and your passport

1 The examination takes the form of an oral and two written papers. The candidate must show:
   a) A working knowledge of the International Regulations relating to radiotelephony working and relating to SOLAS (safety of life at sea).
   b) That he/she can use the equipment for sending and receiving.

2 The candidate must be familiar with the conditions of issue of the ship's radio licence and know what public services are available for ship/shore communications. The following notes are intended to explain in detail what an operator needs to know in connection with paragraph 1 above

3 **Use of equipment:** The candidate must show that he/she can send and receive spoken messages. He/she should be able to carry out rapid changes from one channel to another. He/she must also follow the operating procedures laid down for calling and replying to calls as set out below.

4 **International Radio Regulations**: For convenience these are divided as follows:
   a) General Regulations for Marine Radio Stations
   a) Operating Procedures including the Phonetic Alphabet.
   b) Distress, Urgency and Safety Measures.

5 **General Regulations**
   a) Every radio installation must be licensed and be operated by a qualified person or a person authorised by a qualified person. The master (skipper) is responsible to the licensing administration for all radio messages sent.
   b) Ship stations must obey instruction from the coast station.
   c) Stations must identify themselves when transmitting by using their name or call sign.
   d) Before transmitting a station must first listen to ensure that the transmission will not interfere with communications already in progress.
   e) Channel 16 (156.8 MHz) is the international VHF distress frequency for marine band radiotelephony. It is used for distress signal and call and distress traffic, for urgency signal, urgency traffic and safety signal. It may also be used for calls and replies to establish communications before changing to an agreed working frequency. When contact has been established with another station, both stations should transfer to working channels.
   f) To facilitate reception of distress calls. All transmissions on CH 16 should be brief.
   g) In the interest of Safety of Life at Sea all ships fitted with VHF radio should monitor CH 16 for distress traffic and all Irish ships registered in the State, fitted with VHF shall maintain a continuous listening watch on the navigating bridge on CH 16. The listening watch may be discontinued:- When the receiver is being used for traffic on a channel other than CH 16. When the vessel is maintaining a watch on a channel other than CH 16 for the purpose of port operations, ship movements or safety of navigation. When on the direction of the master the watch is being maintained elsewhere in the ship. When, in the opinion of the master, the watch is prejudicial to the safety of the ship. Where the listening watch is discontinued for any of the reasons above, an entry shall be made in the ship's official logbook of the times and duration for which the listening watch on the navigational bridge was discontinued and of the circumstances in which the watch was transferred elsewhere or in which the safety of the ship was prejudiced as the case may be. A written summary shall be maintained of all communications relating to distress, urgency and safety traffic received or transmitted on the VHF radio telephone installation during the watch.
   h) In the VHF bands between 156 and 174 MHz international provision is made for communication between ships and coast stations, ships and port stations and between ship stations. Ship stations equipped with VHF must be able to send and receive on: The distress, urgency, safety and calling channel, CH 16 (156.8 MHz). The primary intership channel, CH 6 (156.3 MHz). Frequencies necessary for their service. Some channels used in Ireland for certain services are: Ship to Coast Stations – 2,4,23,24,26,28,83 (others may be used at home or in other countries) Ship to Port Stations – 12 (others may be used at home or in other countries) The UK and Irish Coast Guard now use CH 67 extensively. Ship to Ship – 6,8,72,77 + 13 for nav safety (others may be used at home or in other countries) Channel 70 is used exclusively for Digital Selective Calling (DSC) for distress, urgency, safety and routine purposes. **Radiotelephone operations on CH 70 are forbidden**. Ship stations should, as far as possible, use the channels for their designated purpose.
   i) You must know the **phonetic alphabet** (see notes sheet)

6 Operating procedures

a) Calling - To establish communications with a ship or coast station a call is made in accordance with the following example:

Name of ship or coast station called	VALENTIA RADIO
The words "this is"	THIS IS
Name or call sign of the calling station	EI 9991
Reason for making the call	REQUIRE FORECAST
Indicate working frequency to be used	LISTEN CH 23
The word "over"	OVER

When conditions for establishing contact are bad the call described above may be replaced by:
The name of the station called not more that three times followed by the words "this is" followed by the name and or call sign of the calling station not more than three times.
When contact is established the name and or call sign may thereafter be transmitted once only.

When a station called does not reply, the call may be repeated at three minute intervals. However, before renewing the call, the calling station must first ascertain that further calling is unlikely to cause interference to other communications in progress and that the station called is not in communications with another station.

In areas where reliable VHF communications with a called coast station is practicable, the calling ship station may repeat the call as soon as it is ascertained that traffic has been terminated at the coast station.

b) Replying – The station called replies in accordance with the following example:

Name or call sign of the calling ship (not more than three times)	EI 9991
The words "this is"	THIS IS
Identification of the station called (not more than three times)	VALENTIA RADIO
Identification of the working frequency	CH 23
The word "over"	OVER

If the station called is not in agreement with the working channel proposed it indicates an alternative working channel for use. When agreement is reached both stations continue to communicate on the working channel.
Many coast stations (including Irish stations) will accept calls on their working channels.

7 **DISTRESS – The distress signal or call indicates that a person, ship, aircraft or other vehicle is in "grave and imminent danger" and "requires immediate assistance".**

The distress signal or call contains the word MAYDAY.

The VHF distress frequency is CH 16 and this is monitored by the coast radio station.

Distress messages have absolute priority over all other traffic.

Normally when distress operations commence they are controlled by the coast station.

See sheet called "examples of calls" for examples of distress message (Mayday), Mayday acknowledgement, Mayday Relay and urgency (pan pan) calls.

If the station in distress receives no answer to a distress message sent on CH 16 the message may be repeated on that channel or any other channel upon which attention might be attracted.

All stations hearing distress signals must immediately cease any transmissions which could cause interference to the distress traffic.
It is the obligation of a ship to receive a distress message. The ship should wait a short time to elapse in order to allow the coast station to acknowledge receipt.

When a distress is in progress the station controlling the distress traffic (normally the Coast Guard) uses certain words to tell us whether we can use CH 16 or not as follows:
SEELONCE MAYDAY means do not use CH 16 unless you are involved in the rescue.
SEELONCE FEENEE means you can resume using CH 16 as normal (distress over).

After acknowledging receipt of a distress message the Master, or other person responsible, must communicate as soon as possible the name of their ship, her position, her speed and estimated time of arrival at the casualty's position. Do not clutter airways (see notes re this)

If a ship hears a distress message and it is not acknowledged by the coast station she must attempt to relay the message to the coast station (or to any ship that might be in a position to render assistance).

If a ship is not able to render assistance an entry should be made in the ship's official log with the circumstances and reasons for not assisting.

8 URGENCY - When urgent assistance is required but there is not "grave and imminent danger and immediate assistance is not required" an Urgency Call and message is sent. Can be sent to "all stations" or to a specific "coast radio station".

The vessel could be incapacitated or medical advice or assistance might be required.
The Urgency Call contains the words PAN PAN. See "examples of calls" sheet.

9 SAFETY - The safety message is usually issued by the coast station to warn of dangers but may be issued by a ship if a danger is observed that is considered a danger to surface navigation. We send a **brief** safety message on CH 16 or a designated channel. (NB sign off with OUT not OVER) A ship would transmit the following:

SECURITE SECURITE SECURITE
ALL STATIONS ALL STATIONS ALL STATIONS
THIS IS EI 9991 EI 9991 EI 9991
CONTAINER SIGHTED IN POSITION 53deg26N 035deg12W AT 1237 UTC
CONSIDERED DANGEROUS TO SURFACE NAVIGATION
OUT

10 TANGO ROMEO (The TR message) – As a vessel leaves port a call should be made to the coast station to advise details of the passage, the vessel and the number of people on board. When she passes various points along the route she should call in her updated position and when she arrives at her destination she should call in that she has arrived and is closing down radio watch. Once used for "traffic lists" so that waiting phone calls could be connected to ships as they passed coast radio stations nowadays the main reasons for making a TR call are:

a) A competent authority ashore knows all our vessel, passenger and passage details.
b) In case of another vessel being in distress the Coast Guard knows roughly where we are.
c) We have carried out a radio check on departure.
d) It familiarises the radio operator with correct radio procedure.

A TR message could be transmitted on the coast station's working channel as follows:
MALIN HEAD RADIO THIS IS ROSCAM – DEPARTING BURTONPORT BOUND FOR KILLYBEGS – ETA KILLYBEGS 26.1645 UTC – 4 PERSONS ON BOARD – OVER

11 EPIRBs (emergency position indicating radio beacon) See notes.

12 SARTs (search and rescue transponder) See notes.

13 AAIC (accounting authority identification code) – This is a code that is allocated to a vessel and is listed on her Ship Station License and is the accounting code used by the coast station in order that a bill can be sent for link calls. See enclosed example of Ship Station Licence.(EI01)

EXAMPLES OF CALLS

*** HERE IS AN EXAMPLE OF A VESSEL (THE IMP) THAT RECEIVES A DISTRESS ALERT AND DISTRESS MESSAGE FROM ANOTHER VESSEL (THE ROSCAM).**
*** THE RADIO OPERATOR ON THE IMP WRITES DOWN THE MESSAGE AND ALERTS THE MASTER (SKIPPER), WAITS A SHORT WHILE AND IF THERE IS NO ACKNOWLEDGEMENT FROM THE COAST GUARD, ACKNOWLEDGES THE DISTRESS WITH A MESSAGE TO INCLUDE THE WORDS RECEIVED MAYDAY.**
*** THE IMP SHOULD ATTEMPT TO PASS THE MESSAGE ON TO THE COAST GUARD WITH A MAYDAY RELAY MESSAGE. IF IT IS NOT POSSIBLE TO RELAY THE MESSAGE ASHORE THE IMP SHOULD ASSUME CONTROL OF THE INCIDENT.**
*** BELOW IS THE PROCEDURE FROM THE TIME THE IMP RECEIVES THE DISTRESS MESSAGE TO THE TIME SHE RELAYS IT ON:- (ALL COMMUNICATIONS ON CHANNEL 16)**

THE DISTRESS CALL (Made by vessels in "grave and imminent danger")

MAYDAY MAYDAY MAYDAY
THIS IS ROSCAM ROSCAM ROSCAM

MAYDAY ROSCAM
MY POSITION IS 2 MILES WEST OF TORY ISLAND
WE ARE SINKING
WE REQUIRE IMMEDIATE ASSISTANCE
WE ARE 5 PERSONS ON BOARD
OVER

THE MAYDAY ACKNOWLEDGEMENT (if the Coast Guard does not answer)

MAYDAY ROSCAM ROSCAM ROSCAM
THIS IS IMP IMP IMP
RECEIVED MAYDAY
STAND BY
OVER

THE CALL WE MAKE IF NO-ONE ANSWERS THE DISTRESS CALL

MAYDAY RELAY MAYDAY RELAY MAYDAY RELAY
THIS IS IMP IMP IMP

MAYDAY MESSAGE RECEIVED AS FOLLOWS
MAYDAY MAYDAY MAYDAY
THIS IS ROSCAM ROSCAM ROSCAM
MAYDAY ROSCAM
POSITION 2 MILES WEST OF TORY ISLAND
SINKING
REQUIRES IMMEDIATE ASSISTANCE
5 PERSONS ON BOARD
OVER

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AN URGENCY CALL

HERE IS AN EXAMPLE OF THE CALL A VESSEL (THE FULMAR) WOULD SEND IF SHE WAS IN NEED OF URGENT ASSISTANCE BUT WAS NOT IN GRAVE AND IMMINENT DANGER. (ON CHANNEL 16)

PAN PAN PAN PAN PAN PAN
ALL STATIONS ALL STATIONS ALL STATIONS (or to a specific coast guard)
THIS IS FULMAR FULMAR FULMAR
MY POSITION IS 23deg59S 45deg01W
I HAVE AN INJURED CREW MEMBER AND REQUIRE URGENT MEDICAL ADVICE
I HAVE 23 PERSONS ON BOARD
OVER

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The Phonetic Alphabet: (letters)

A = Alpha B = Bravo C = Charlie D = Delta E = Echo F = Foxtrot G = Golf H = Hotel I = India

J = Juliet K = Kilo L = Lima M = Mike N = November O = Oscar P = Papa Q = Quebec R = Romeo

S = Sierra T = Tango U = Uniform V = Victor W = Whiskey X = X-ray Y = Yankee Z = Zulu

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NOTES:

In Ireland the Radio Operator's Certificate of Competence is issued by the Maritime Radio Affairs Unit (MRAU).
The Ship Station Licence is issued by MRAU.
An EPIRB is registered with MRAU.

GMDSS (Global Maritime Distress and Safety System) incorporates a variety of methods for alerting Rescue Co-ordination Centres (RCCs) of a distress situation. In the case of small craft, the most practical method of communicating a distress is DSC VHF and a 406 MHz EPIRB.

EPIRBs are programmed with the vessel's MMSI so that when the distress message is transmitted by the EPIRB the vessel's position and the vessel's identification are also included in the message.
A 406 MHz EPIRB is accurate to within a circle of 2 to 3 kilometres and will transmit for 48 hrs after activation.
EPIRBs provide worldwide coverage but it is possible we will have to wait up to 75 minutes before a signal is received.
If we accidentally activate a 406 EPIRB we should turn it off (recent change to regulations) and contact the Coast Guard with an Urgency Call giving our Call Sign and follow their instructions.
When fitted with a hydrostatic release unit (HRU) the EPIRB will float free and switch on if the vessel sinks to a depth of between 1.5 and 4 metres. The HRU should be replaced every two years. Its expiry date is stamped on it.

A SART is a Search And Rescue (radar) Transponder. When the pin is pulled on the SART it goes into passive or stand-by mode for 96 hrs. If a ship with radar passes, the energy from the ship's radar will trigger an encoded response to the radar signal and will display dots on the observing ship's display. In this mode the SART will transmit for 8 hours.
If a SART is accidentally switched on we should turn it off and send an Urgency Call to "all stations" giving time and position and cancellation of the alert.
When we pull the pin on a SART it will not go into "active mode" until it is "interrogated" by radar energy. Observers on nearby shipping will see a series of dots on their radar screen. They will turn towards the dots and as they get closer the dots will turn into arcs and when they are very close their screen will be full of circles. The SART should be as high as possible to get the best range. It has a lanyard so we can hoist it up as high as we can.

SARTs and EPIRBs both have "lithium" batteries that must be replaced, by the supplier, every 4 years. The lithium batteries have their expiry dates stamped on them. They cannot be re-charged.

Channel 16 within GMDSS has 4 functions which are, in order of priority: Distress, Urgency, Safety, Routine Hailing.

If we have a Man Overboard we send a Distress Alert and message (MAYDAY) whatever the circumstances.

The MRCC is the Marine Rescue Co-ordination Centre and its job is to control and liaise with the rescue services.
An RCC is a Rescue Co-ordination Centre which does the same job and co-ordinates rescues.

Public correspondence channels are allocated to coast radio stations for communications with shipping and are normally duplex which means simplex radios cannot use these channels for ship to ship communications. Information on coast radio stations and their working channels is found in the Almanac.

Before being issued with a radio operator's certificate of competence we must sign a declaration/oath of secrecy in which we undertake not to divulge the content or existence of radio conversations not intended for us to listen to.
A Ship Station Licence is the vessel's radio licence and lists: The name and address of the owner, the ship's Call Sign, the ship's MMSI number, the ship's AAIC number, details of all equipment on board that can transmit. (not mobiles)

GMDSS sea areas. The world is divided into 4 sea areas. Area A1 is around most coasts up to about 30 miles out (or where we can reasonably expect to be able to make contact with the CRS using VHF). Area A2 is out to about 150 miles (or where we can reasonably expect to be able to make contact with the CRS using MF radio). Area A3 is the rest of the world except areas north of 70deg latitude north or south of 70deg latitude south (these polar regions are not covered by INMARSAT coverage). Area A4 is the entire world including all sea areas. NB we can get assistance in all areas if we activate a 406 MHz EPIRB. In the polar regions we would require a HF radio for voice communications.

Note re. paragraph 10 in Section 7 of these notes which says "*After acknowledging receipt of a distress message the Master, or other person responsible, must communicate as soon as possible the name of their ship, her position, her speed and estimated time of arrival at the casualty's position".* **It should be noted however that in areas with high concentrations of shipping it could be mayhem if all ships in the area called in so best practice on receiving a "Mayday" is often to write down the message, call the Master and if the CRS either does not acknowledge the "Mayday" or requests assistance from shipping, then offer assistance.**

Navtex is a receiver that receives from transmitting stations worldwide on 2 frequencies (518 and 490 KHz) and has a dedicated antenna for those frequencies. It receives information on weather, SAR, navigation warnings etc. We can eliminate categories of information and transmitting stations that are of no interest to us. Its range is about 300 miles (or more) from the transmitting stations. The set will prevent you from de-tuning categories A, B, D and L for safety reasons.

DSC is Digital Selective Calling. It uses Channel 70 to send a short data burst as an alerting system. All DSC equipped vessels have an MMSI (Maritime Mobile Service Identity) which is like the vessel's phone number. All MMSIs are 9 digits. A ship's MMSI always starts with 3 digits that identify the ship's nationality (Ireland is 250) so an Irish ship's MMSI would be 250 followed by 6 allocated numbers ie 250123456. A Coast Radio Station always starts with 00 then the station's national code then 4 allocated numbers ie 002501234 for an Irish Coast Radio Station.

DSC is a system that enables us to set off an alarm on listening radios and to change them to a channel of our choice.
DSC VHF radio sets have a <u>special "distress" button</u> that we can press in the event of us being in "grave and imminent danger" and we require immediate assistance. This sends out our position, our identity and the type of emergency and it repeats every 4 minutes until it is answered. If we accidentally send a DSC Distress Alert, we turn off the set, turn it back on and make an Urgency (pan pan) call to "all stations" cancelling the distress alert.
There are 2 types of distress alert. When time is limited we send an "undesignated DSC distress alert" by pressing the button under the distress flap for 5 seconds. This message includes our ID (MMSI), our position and time.
If we have time we send a "designated DSC distress alert". This will send our ID (MMSI), our position, time and the nature of our distress (selected from a menu).

In all other cases (if using our ICOM M421 training sets) we proceed as follows: (NB read manual for your own set)
Routine call: menu, individual call, ent., manual input (or name), ent., MMSI, ent., channel, ent., call ready, ent., (beep).
Safety call: menu, ent., all ships call, ent., select "safety", ent., call ready, ent. Set sends alert.
Urgency call: menu, ent., all ships call, ent., select "urgency", ent., call ready, ent. Set sends alert.

In each case DSC is just an alerting system to ring an alarm/bell on listening radios and to get them listening on the channel you want them to listen on. Once the DSC alarm has gone off and the listening stations are tuned to the channel we want them to listen on, we make an ordinary voice call.

AIS is not strictly speaking equipment that is covered by the VHF SRC syllabus but it is a transmitting device and justifies a note on its function as it is being increasingly used. It is a system whereby vessels are fitted with equipment that transmits their ID (MMSI) and details of their movement through the water and in the case of large vessel (fitted with "Type A" systems) speed changes and turn rate etc are also shown. This transmitted information is displayed on a dedicated receiver on the observing vessel by way of numerical information and vectors.

WEST GALWAY SCHOOL OF NAVIGATION VHF COURSE QUESTIONS AND ANSWERS

1. Can you spell the following words phonetically: GRADE, QUIZ, COAST, VIXEN, BOATS, KILN, EPIRB, FUJI, MONTH, YACHT, WOMBAT *(all 26 letters are included in these words)*

2. Do you know the function of the following VHF channels:
   16, 70, 67, 6, 8, 72, 77, 12, 14, 15, 17, 13, 02, 04, 23, 24, 26, 28, 61, 62, 83, M, M1, M2, 37.

16	*Distress, Urgency, Safety, Routine (in this order of priority) No routine conversations on CH16.*
70	*DSC (do not use for voice)*
67	*Coast Guard channel*
6, 8, 72, 77	*Ship to ship*
12, 14	*Port Operations*
15, 17	*On board communications and perhaps VTS*
13	*Bridge to bridge for nav. safety*
02, 04, 23, 24, 26, 28, 61, 62, 83	*Public Correspondence channels* (coast guard working channels)*
37 (M1)	*Yachting*

- *A public correspondence channel is essentially a CRS (coast radio station) working channel. These are duplex channels which means vessels equipped with simplex radios cannot communicate with each other on these channels and they are only used for talking to the CRS.*

3. What is an MMSI, a MID number, a call sign and give examples of a call sign, an MMSI and a MID number of an Irish vessel and an Irish CRS (coast radio station):

Irish ship's call sign	*EI 1234 or EIBC 9*
Irish CRS' call sign	*EJK (Valentia) or EJM (Malin)*
Irish MID number	*250 NB This is the flag state's identifier*
Irish ship's MMSI	*250123456 MID number + 6 numbers (MMSIs always total 9 digits)*
Irish CRS' MMSI	*002501234 00 + MID number + 4 numbers (MMSIs always total 9 digits)*

4. What do the following acronyms and procedure words mean: MMSI, MRCC, RCC, SAR, MSI, SART, EPIRB, AAIC, GMDSS, DSC, UTC, UT, OVER, OUT, CORRECTION, RECEIVED, ACKNOWLEDGED, STATION CALLING, I SPELL.

MMSI	*Maritime Mobile Service Identity*
MRCC or RCC	*Maritime Rescue Co-ordination Centre or Rescue Co-ordination Centre*
SAR	*Search and Rescue*
MSI	*Maritime Safety Information*
SART	*Search and Rescue (Radar) Transponder*
EPIRB	*Emergency Position Indicating Radio Beacon*
AAIC	*Accounting Authority Identification Code (EI 01 in Ireland)*
GMDSS	*Global Maritime Distress and Safety System*
DSC	*Digital Selective Calling*
UTC or UT	*Universal Time Co-ordinated or Universal Time (same as GMT)*
OVER	*I have finished speaking and am awaiting a reply*
OUT	*The end of working (correspondence)*
CORRECTION	*An error has been made. Cancel last word or group of words.*
RECEIVED	*To acknowledge receipt of a message (you can say ROMEO)*
ACKNOWLEDGED	*Message acknowledged*
STATION CALLING	*When it is unclear which station is calling you or you hear a garbled message*
I SPELL	*I shall spell phonetically the next word or group of words*

5 What are the four functions of Channel 16 in order of priority? (in the following questions 6, 7, 8, 9 and 10 state the full DSC function and the channel the voice message would be transmitted on).

Distress calling *(mayday) when we are in "grave and imminent danger". You make a* ***mayday relay*** *call when you are aware of another vessel in distress and they are unable to transmit their distress to the CRS and you transmit their distress on their behalf.*
Urgency calling *(pan pan) when we have a serious problem but are not in "grave and imminent danger".*
Safety calling *(securite) when we warn others of a danger or we are being warned ourselves of a danger by the CG or another ship*
Routine hailing. *Making initial contact for a normal call to another boat, or the coast guard, about anything and agreeing an inter-ship channel to go to.*

6 Write out an example of a distress call (vessel "Fulmar", sinking, 6 persons on board in position 47°12'N 012°44'W)

Select "Distress" and send a DSC distress alert, wait 15 seconds and then on Channel 16 say:

Mayday Mayday Mayday
This is Fulmar Fulmar Fulmar (call sign)

Mayday this is Fulmar
My position is 47°12'N 012°44'W
I am sinking and require immediate assistance
I have 6 persons on board (you can give brief additional info if appropriate)
Over

7 Write out an example of an urgency call (vessel "Fulmar", engine failure, 4 persons on board in position 53°22'N 011°09'W)

Select "Urgency" and send a DSC urgency alert, wait 15 seconds and then on Channel 16 say:

Pan Pan Pan Pan PanPan
This is Fulmar Fulmar Fulmar (call sign)

Pan Pan this is Fulmar
My position is 53°22'N 011°09'W
I engine failure and require urgent assistance
I have 4 persons on board (you can give brief additional info if appropriate)
Over

8 Write out an example of an urgency call (vessel "Fulmar", require medical assistance, 3 persons on board in position 55°31'N 010°28'W)

Select "Urgency" and send a DSC urgency alert, wait 15 seconds and then on Channel 16 say:

Pan Pan Pan Pan PanPan
This is Fulmar Fulmar Fulmar (call sign)

Pan Pan this is Fulmar
My position is 55°31'N 010°28'W
I have an injured crew and require urgent medical assistance
I have 3 persons on board (you can give brief additional info if appropriate)
Over

9 Write out an example of a safety call (vessel "Fulmar", observed abandoned fishing gear in position 51°55'N 014°02'W)

Select "Safety" and send a DSC safety alert, wait 15 seconds and then on Channel 16 say:

Securite Securite Securite
This is Fulmar Fulmar Fulmar (call sign)

Securite this is Fulmar
I have observed abandoned fishing gear floating on the surface in position 51°55'N 014°02'W
Considered dangerous to surface navigation (you can give brief additional info if appropriate)
Out

10 Write out an example of a mayday relay call (your vessel is "Fulmar", the casualty is the "Roscam", she is on fire in position 54°19'N 013°48'W and she has 8 persons on board).

Select "Urgency" and send a DSC urgency alert, wait 15 seconds and then on Channel 16 say:

Mayday Relay Mayday Relay Mayday Relay
This is Fulmar Fulmar Fulmar (call sign)

Following message received
Mayday Roscam (his call sign)
His position is 54°19'N 013°48'W
He is on fire and requires immediate assistance
He has 8 persons on board (you can give brief additional info if appropriate)
Over

11 Name a book that gives information on coast radio stations
The Almanac

12 How would we contact a Coast Radio Station and what would we say?
Either call on CH16 and he will tell you to go to his working channel or, if you know it, you can call him directly on his working channel i.e. Clifden CH26.

13 Name four coast radio stations in Ireland.
Malin Head, Valentia, Dublin CRS and Belfast.

14 If we were urgently wanted, on what channel would the coast radio station try to contact us?
Channel 16

15 What is a "ship station licence" and a "radio operator's licence" and what is the difference?

A ship station licence is the vessel's licence to carry any transmitting equipment and a radio operator's licence is the qualification and certificate of the radio operator. A radio may be operated by a licence holder or by someone authorised and supervised by a licence holder.

16 Who issues a "ship station licence" and a "radio operator's licence" in Ireland?

The MRAU (maritime radio affairs unit) A division of the Department of Transport.

17 What information is contained in a "ship station licence" and a "radio operator's licence"?

A ship station licence lists transmitting equipment, the vessel's name, call sign, MMSI, AAIC, the name of the licence holder and the licence number.
The operator's licence lists operator's name, photo, date and place of birth, height, complexion and colour of hair and eyes.

18 Who controls communications between a vessel and the coast radio station?

The coast radio station

19 List as many forbidden actions on VHF that you can think of.

False distress alerts, using CH70 for voice, chatting on CH16, swearing, talking to unlicensed stations ashore, using radio when tied to the quay (except for matters of safety), repeat anything not intended for us (declaration of secrecy), re-transmit music etc.

20 What is a Call Sign and an MMSI and how do you get them for your vessel?

A call sign is issued with the ship station licence and can be used instead of the vessel's name for communications. All licensed vessels have a call sign.
An MMSI is issued to vessels that carry DSC equipment and include DSC equipment in their license application. It is a nine digit number.

21 If you have the same name as another vessel in your area, how would you identify yourself on the radio?

Don't use your vessel's name but instead use your call sign. Also use call sign if abroad and there is a possibility the CRS will have difficulty with your name.

22 What is a "link call" and what are "traffic lists"?

Now largely phased out but link calls are when you want to use your radio to be linked to a phone ashore. Call CRS and request a link call. He will ask for call sign and AAIC and will then try to connect you. A traffic list is when a phone ashore contacts the CRS and wants to be connected to a vessel's radio. The CRS will announce there is "traffic" for vessels where calls are waiting to be connected and this is usually done at the end of CRS' routine announcements.

23 What can you do if you call another vessel and do not receive a reply?

Try another channel, try a DSC routine alert, wait a little while and try again.

24 Why should you listen for a short while before speaking on a VHF channel?

It is good manners and good practice to wait to see that the channel is not in use.

25 Are you permitted to communicate with unlicensed radio stations ashore?

No

26 What is meant by "port operations and ship movement service" and "vessel traffic service" (VTS)?

A bit like air traffic control for shipping. Commercial ports usually require ALL vessels to request permission to enter and to leave and instructions from VTS.
The VTS VHF channel will be published in the almanac.

27 How do you register an EPIRB in Ireland?

Firstly you need to have your call sign. You complete an application form and the EPIRB supplier will encode the equipment with your ID.
NB you cannot change this yourself.

28 What test should be carried out on the vessel's radio equipment and when should these test be carried out?

Daily *we check that the equipment is receiving the correct voltage and that when we press the PTT button, TX displays on the screen.*
Weekly *we make a 10 second call counting down from 10 to zero.*
Monthly *we check the lithium battery expiry dates in our SART and EPIRB, test the SART and EPIRB, test the lead acid batteries, check the antennae and connections all the way from the antenna to the back of the set. NB All test results should be entered into the GMDSS log.*

29 How would you contact the Coast Guard to get a weather forecast. What would you say/what would he say?

Call the CRS on CH16 or his working channel and request a repeat of the weather forecast. NB don't be doing this all the time just because you can't be bothered to get a forecast.

30 Define simplex and duplex.

Simplex channels are ones where we transmit and receive on the same frequency e.g. CH16, CH6 etc and duplex channels are ones where we transmit and receive on different frequencies e.g. CH04, CH26, CH83 etc. We cannot talk, ship to ship, to vessels with simplex radios on duplex channels. A simplex radio is one that only permits us to transmit OR receive but not both at the same time.

31 What is a TR (or Tango Romeo) call?

It is call to the CRS that gives details of the vessel, crew and passage details. Originally for merchant ships to keep their companies advised of their progress (trade route) but now for safety. It achieves four things. It is a radio check, we are telling a competent person ashore our passage details and ETA, we become an additional asset to the CRS as he knows roughly where we are and, by speaking to the CRS regularly, we gain confidence in proper procedure.

32 Write out a typical TR.

Clifden Coast Guard Radio, Clifden Coast Guard Radio, Clifden Coast Guard Radio.
This is Fulmar, Fulmar, Fulmar.
I am departing Roundstone bound for Westport. My ETA Westport is 0630 tomorrow.
Fulmar is a 23m PDV with 9 persons on board. Over

33 What record of radiotelephone working should be kept on board?

The GMDSS log (logbook).

34 What is SEELONCE MAYDAY, SEELONCE DISTRESS and SEELONCE FEENEE?

***Seelonce Mayday** is announced by the CRS, when a distress is in operation, to tell radio operators not to use CH16 unless they are part of the distress traffic.*
***Seelonce Distress** is the same as seelonce mayday but is announced by another station (i.e. not the CRS).*
***Seelonce Feenee** is an announcement to tell radio operators that normal use of CH16 may be resumed.*

35 What action would you take if you hear a Distress Alert followed by a Distress Message?

Write down the distress message and inform the vessel's Master and continue to monitor the distress traffic. Do not acknowledge unless the CRS does not. In crowded waterways it is mayhem if everyone hearing the word mayday starts getting on the radio. Enter the GMDSS log.

36 What would be the correct call to make if you had a Man Overboard?

Distress (mayday) There are no exceptions.

37 Why would you issue a MAYDAY RELAY?

In circumstances where another vessel is in distress but is unable to convey this to the CRS. Typically when we hear a distress call that is unanswered by the CRS we can relay it onto the CRS. However if we see a vessel in distress where no radio call has been made we would make a relay call on their behalf. For example where we see a vessel explode or a man fall off the stern of a vessel or a vessel putting up flares etc. Enter the GMDSS log.

38 What type of message would you send if you required urgent assistance or medical advice or assistance?

An urgency call (Pan Pan) and seek RMA (radio medical assistance).

39 When would we include the words PAN PAN or SECURITE in a message?

***Pan Pan** precedes an urgency call e.g. when not in grave and imminent danger but urgent assistance is required. Also radio medical assistance.*
***Securite** precedes a safety call e.g. where we observe a danger that we think other shipping should be warned about. This call is signed off with "OUT".*

40 What would you do if you accidentally sent a DSC distress alert?

Turn off the set with the on/off switch. This kills a four minute repeat cycle of the DSC alert. Turn the set back on and make an "all ships urgency" call cancelling the alert. Enter this into the GMDSS log.

41 You receive a "distress relay" call from coast radio station on Channel 16. What action do you take?

As soon as there is a clear airway, call the CRS and tell him your position, your vessel details, your ability to assist and your ETA at the casualty's position. NB You are obliged to assist and if you can't, for example a supertanker when the casualty is in 10m of water, enter the reasons in your GMDSS log.

42 What action would you take if you accidentally activated your EPIRB?

Turn the EPIRB off and then call the CRS and tell him to cancel alert, tell him your position, the vessel's name and the ID of the EPIRB. Enter the GMDSS log.

43 What is the approximate range of a VHF radio on high power and on low power?

A hand held radio is 1 watt on low power and 5 watts on high power. A fixed VHF radio is 1 watt on low power and 25 watts on high power. For a generic answer we can roughly expect about a mile of range per watt. (actually antenna height also plays a part and VHF horizon is about 2.2v of the antenna height in metres).

44 Why does a VHF radio have a low power switch and when should we use it?

It is desirable to use low power when possible so we don't blast out people 25 miles away if we only want to talk to a vessel 4 miles away. Also for safety reasons certain channels e.g. CH13 are low power channels to restrict range thus reducing risk of collision.

45 What is AIS and what is its function?

Automatic Identification System. Vessel carry transponders which transmit details of their course, speed, turn rate etc and this is displayed on a screen on receiving vessels and is of great value in decision making for collision avoidance. An increasing number of navigation marks are being fitted with AIS greatly aiding in identifying them. It is not a substitute for radar and good watchkeeping practices but is a very useful additional tool for the bridge team.

46 What is DSC? Digital Selective Calling.

It is an alerting system in the same way a phone ring tone alerts us to an incoming call. When we set off a DSC alert for distress, urgency or safety all receiving station's sets will be automatically changed to CH16 ready to receive the voice call that will follow.

47 How do we use DSC for routine calls?

We can enter the MMSI of the station we want to call and select the channel we want to talk on then send a DSC alert. Only that station will ring and on accepting the call his set will change to the channel we have chosen. NB as in our phones, we can pre-enter regularly called MMSI.

48 Define GMDSS sea areas A1, A2, A3 and A4

***Area A1** is about 30 miles from the coast. (officially where there is VHF DSC coverage capable of reaching the CRS)*
***Area A2** is about 150 miles from the coast. (officially where there is MF DSC coverage capable of reaching the CRS)*
***Area A3** is up to 70°N and down to 70°S (officially where there is INMARSAT coverage)*
***Area A4** is polar regions (officially where there is HF DSC coverage capable of reaching the CRS)*

49 What is NAVTEX?

A receiver that receives from shore stations that transmit maritime information. Expected range would normally be 300 miles or more. Can be a digital readout or a printer onto a paper roll. There are four categories (A, B, D and L) that, for safety reasons, the Navtex will not allow you to de-program.

50 What type of messages do we receive on NAVTEX?

Weather forecasts, gale and storm warnings, SAR information and pirate attack warnings, navigational warnings, pilot service messages, ice reports, subfacts and gunfacts, Loran-C messages, sat-nav messages etc.

51 How can we eliminate transmitting stations and category types that do not concern us from the NAVTEX?

We can de-program categories that don't apply to us (except A, B, D and L) and we can de-program stations out of our area. In this way we don't receive a lot of information that is of no interest to us.

52 What type of antenna does NAVTEX have, why is it special and what two frequencies does it use?

Navtex receives on 518KHz (which is English language anywhere in the World) or 490KHz which gives us local language. So the antenna is tuned to specifically receive on only these two frequencies.

53 What is a SART?

Search And Rescue (radar) Transponder. When activated it alerts observers on vessels equipped with radar.

54 What switches a SART to "active mode"?

When we pull the pin on a SART it goes into standby mode (96hrs). It does not transmit until another vessel's radar microwaves interrogate it and this switches it into active (transmitting) mode (8hrs). It is therefore important to turn off your own radar before pulling the SART's pin.

55 What will someone see on their radar if there is a SART transmitting nearby?

A series of 12 dots in the direction of the SART. As you get closer these become arcs and when very close to the SART the screen is saturated with circles.

56 What would you do if you saw, on your radar, dots being transmitted from a SART?

Inform the Master, alter towards the SART and if there has been no radio call, make a mayday relay call on behalf of the casualty. Enter the GMDSS log.

57 A SART has a lanyard (string) on it. What is this for?

To hoist it as high as possible (into the ships rigging if possible.

58 How often do you test a SART and an EPIRB? When does it require a full service?

Test the SART and EPIRB once a month and enter result into GMDSS log. It requires a full service and a new lithium battery every four years.

59 Where on board should the SART be installed and where on board should the EPIRB be installed?

SART. Just inside the bridge door. If there are two doors there should be two SARTs. *EPIRB. Outside where it can float free if the vessel sinks.*

60 What information is programmed into an EPIRB?

In Ireland it is the MMSI. Other countries may use different ID. There is, however, a world wide database. Even non-DSC vessels use MMSI for EPIRB ID.

61 How accurate is a 406MHz EPIRB?

About 2 to 3 kilometres. Once the EPIRB is activated (48hrs) its 406MHz signal goes up to a satellite and back down to earth (LUT) and then on to the MRCC. When rescue units arrive in the 2-3 km area they can either home in on a second 121.5MHz transmission also being transmitted by the EPIRB or a GPS position on more modern EPIRBs.

62 What is an EPIRB's painter for?

The EPIRB is floated after the liferaft and the painter (line) is used to attach it to the liferaft.

1. Can you spell the following words phonetically: GRADE, QUIZ, COAST, VIXEN, BOATS, KILN, EPIRB, FUJI, MONTH, YACHT, WOMBAT *(all 26 letters are included in these words)*
2. Do you know the function of the following VHF channels:
   16, 70, 67, 6, 8, 72, 77, 12, 14, 15, 17, 13, 02, 04, 23, 24, 26, 28, 61, 62, 83, M, M1, M2, 37.
3. What is an MMSI, a MID number, a call sign and give examples of a call sign, an MMSI and a MID number of an Irish vessel and an Irish CRS (coast radio station):
4. What do the following acronyms and procedure words mean: MMSI, MRCC, RCC, SAR, MSI, SART, EPIRB, AAIC, GMDSS, DSC, UTC, UT, OVER, OUT, CORRECTION, RECEIVED, ACKNOWLEDGED, STATION CALLING, I SPELL.
5. What are the four functions of Channel 16 in order of priority? (in the following questions 6, 7, 8, 9 and 10 state the full DSC function and the channel the voice message would be transmitted on).
6. Write out an example of a distress call (vessel "Fulmar", sinking, 6 persons on board in position 47°12'N 012°44'W)
7. Write out an example of an urgency call (vessel "Fulmar", engine failure, 4 persons on board in position 53°22'N 011°09'W)
8. Write out an example of an urgency call (vessel "Fulmar", require medical assistance, 3 persons on board in position 55°31'N 010°28'W)
9. Write out an example of a safety call (vessel "Fulmar", observed abandoned fishing gear in position 51°55'N 014°02'W)
10. Write out an example of a mayday relay call (your vessel is "Fulmar", the casualty is the "Roscam", she is on fire in position 54°19'N 013°48'W and she has 8 persons on board).
11. Name a book that gives information on coast radio stations
12. How would we contact a Coast Radio Station and what would we say?
13. Name four coast radio stations in Ireland.
14. If we were urgently wanted, on what channel would the coast radio station try to contact us?
15. What is a "ship station licence" and a "radio operator's licence" and what is the difference?
16. Who issues a "ship station licence" and a "radio operator's licence" in Ireland?
17. What information is contained in a "ship station licence" and a "radio operator's licence"?
18. Who controls communications between a vessel and the coast radio station?
19. List as many forbidden actions on VHF that you can think of.
20. What is a Call Sign and an MMSI and how do you get them for your vessel?
21. If you have the same name as another vessel in your area, how would you identify yourself on the radio?
22. What is a "link call" and what are "traffic lists"?
23. What can you do if you call another vessel and do not receive a reply?
24. Why should you listen for a short while before speaking on a VHF channel?
25. Are you permitted to communicate with unlicensed radio stations ashore?
26. What is meant by "port operations and ship movement service" and "vessel traffic service" (VTS)?
27. How do you register an EPIRB in Ireland?
28. What test should be carried out on the vessel's radio equipment and when should these test be carried out?
29. How would you contact the Coast Guard to get a weather forecast. What would you say/what would he say?
30. Define simplex and duplex.
31. What is a TR (or Tango Romeo) call?
32. Write out a typical TR.
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34. What is SEELONCE MAYDAY, SEELONCE DISTRESS and SEELONCE FEENEE?
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39. When would we include the words PAN PAN or SECURITE in a message?
40. What would you do if you accidentally sent a DSC distress alert?
41. You receive a "distress relay" call from coast radio station on Channel 16. What action do you take?
42. What action would you take if you accidentally activated your EPIRB?
43. What is the approximate range of a VHF radio on high power and on low power?
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