

# SECTION 1

## INTRODUCTION

Communications at sea have come a long way in the last one hundred years. Early mariners had to rely on visual signals such as flags or sound signals such as bells and horns to communicate with others at sea. If they were too far out to sea they had no means of communication, except maybe, placing a message in a bottle and hoping it would reach its destination in time.

Modern mariners have a range of radio communication devices available to them to make their time on the water safer and more effective. The mariners use marine radios to carry out day to day tasks, deal with emergencies and in some cases, prevent an emergency occurring.

The marine radio also provides a variety of services including vital weather and navigation information, telephone calls to and from shore. (For an overview of the marine communication network see Section 11.)

All marine industries rely on the marine radio and therefore job opportunities in these industries will be enhanced if you have a proficiency in the use of these radios. Job opportunities could come in the fishing industries, tourism industry, commercial shipping and leisure industry operations.

A great way to learn how to use a radio and contribute to the community is to join a voluntary organisation.

### Operator's qualifications

Marine radios are essential safety equipment for communicating with other boats, marine rescue groups and to receive navigational warnings and weather updates

### Licences and certificates

All crew should be competent in the operation of the marine radios onboard, know the frequencies dedicated to distress and safety and be able to properly format and transmit distress and safety messages.

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Under federal regulations, operators of VHF and HF radios are required to hold an operating certificate; the normal certificate for recreational operators is the Marine Radio Operators Certificate of Proficiency (MROCP).

Many Coast Guard and Volunteer Marine Rescue stations provide this course or may advise where a local course is available.

Operators of 27 MHz equipment are not required to hold a certificate but are strongly recommended to obtain one. Information about licensing of radios and operators, can be found at the Australian Communications and Media Authority website at

<http://www.acma.gov.au>.



Figure 3.1 In this course you will learn to use a marine radio to send and receive messages at sea

### Marine Radio operator's handbook

The Office of Maritime Communications at the Australian Maritime College produces the 'Marine Radio operator's handbook', which is a 128 page handbook intended as a guide for operators of marine radio equipment..

The 2008 edition had a cost of about \$34 and is available from:

Office of Maritime Communications  
Australian Maritime College  
PO Box 986  
Launceston Tasmania 7250

### Download the handbook

The OMC also has a web site where the handbook can be found and down loaded (read only) using the adobe acrobat reader program.

Use the following web site to do this:  
<http://amcom.amc.edu.au>



# WORKSHEET 1 PRINCIPLES OF TRANSMISSION

All illustrations this page drawn by Wet Paper

Answer the following questions

1. Describe the principles of radio transmission as discovered by Hertz in 1888.

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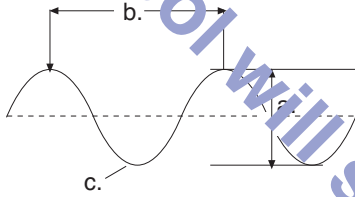
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2. What is a carrier wave?

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3. Write the names of the parts of a radio wave identified a – c in the diagram of the radio wave below



- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

4. Define the following terms:

a. modulation

b. skip

c. radiotelephony

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5. Outline the 'theory of propagation'.

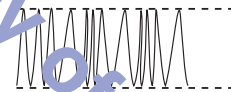
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6. Name the type of modulation shown below.



Modulation A



Modulation B

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7. Explain why 'sky waves' travel further than 'ground waves'.

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8. How might 'skip' be a problem when using a marine radio?

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## Example of a radio check

- Call on channel 16
- Redcliffe Coast Guard, Redcliffe Coast Guard, Redcliffe Coast Guard, this is Reef Seeker, Reef Seeker (OVER)
- Reef Seeker this is Redcliffe Coast Guard please switch to Channel 73.
- Redcliffe Coast Guard, this is Reef Seeker Reef Seeker, just fitted a new VHF radio and wanting a radio check (OVER)
- Reef Seeker this is Redcliffe Coast Guard your signal strength is FOWER to FIFE (OVER)
- Redcliffe Coast Guard, this is Reef Seeker Reef Seeker, thank you (OUT)
- Reef Seeker this is Redcliffe Coast Guard (OUT)

## Voice procedures

It is essential to have effective voice procedures so that good radio communications can take place. Even holding the microphone in the correct way can improve the voice quality.

A hand-held microphone should be held in the palm of the hand and the thumb or finger used to operate the press-to-talk button. The thumb should just be touching the cheek and the idea is to talk directly into the microphone. It is important to keep the head still as head movement away from the microphone while speaking will cause inconsistent voice quality.

The four basic factors to remember when using a radio are:

Rhythm, speed, volume and pitch

Remember RSVP.

### Volume

- The operator should speak slightly louder than in ordinary conversation but not shout.
- All words should receive equal emphasis and you should not drop the voice at the end of the sentence.

### Rhythm

- Maintain a constant rhythm as speaking too quickly or too slowly makes it more difficult to understand. Any phrase spoken in ordinary conversation has a natural rhythm and this should be preserved when speaking on

the radio. You should not simply say one word at a time, pausing between each word.

- Care must be taken not to say the word 'um' or 'er' etc after a word or phrase. It will help if you think about the message you are to give before you transmit so that you have a clear and concise message.

### Speed

- The operator must talk steadily at a medium speed. If the operator speaks too quickly the message becomes a jumble of words. This speed needs to be adhered to in the distress situation when panic has a way of speeding up your thoughts and words.
- If you speak too slowly it may exasperate the listener and waste valuable time. The speed should be kept constant throughout.
- If you are dictating a message make sure that you pause between phrases so that the recorder can write down the message.

### Pitch

Higher pitched voices are often transmitted more successfully than those of a lower pitch. This is why radio operators used in taxi control centres, telephone service operators, etc are often females.



Figure 27.1 Effective voice procedures are transferrable to other skills in the maritime industry