

**MCRP 3-40.3B**  
**(Formerly MCRP 6-22C)**

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# **Radio Operator's Handbook**

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**U.S. Marine Corps**

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E R R A T U M

to

MCRP 3-40.3B

RADIO OPERATOR'S HANDBOOK

1. For administrative purposes, the publication short title has been reidentified. Change "MCRP 6-22C" to read: "MCRP 3-40.3B" of June 1999 wherever it appears in the Manual.

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FOREWORD

Marine Corps Warfighting Publication (MCWP) 6-22, *Communications and Information Systems*, provides the doctrine and tactics, techniques, and procedures for the conduct of communications and information systems across the spectrum of Marine air-ground task force (MAGTF) operations. Marine Corps Reference Publication (MCRP) 6-22C, *Radio Operator's Handbook*, complements and expands upon this information by detailing doctrine, tactics, techniques, and procedures for operating single-channel high frequency (HF), very high frequency (VHF), and ultrahigh frequency (UHF) radios. The primary target audience for this publication is Marine Corps radio operators and other users of single-channel radios.

MCRP 6-22C describes—

- | Basic radio principles.
- | Single-channel radio.
- | Equipment sighting and grounding techniques.
- | Antennas.
- | Interference.
- | Radio operations under unusual conditions.
- | Electronic warfare.

MCRP 6-22C provides the requisite information needed by Marine radio operators to understand, plan, and execute successful single-channel radio operations in support of the MAGTF.

MCWP 6-22C supersedes FMFM 3-35, *Radio Operator's Handbook*, dated 26 September 1991.

Reviewed and approved this date.

BY DIRECTION OF THE COMMANDANT OF THE MARINE CORPS

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# Radio Operator's Handbook

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## Chapter 1

# Radio Principles

Communications and information systems (CIS) are any systems whose primary functions are to collect, process, or exchange information. The fundamental requirement is to provide the Marine air-ground task force (MAGTF) commander with a reliable, secure, fast, and flexible communications network.

Communications and information systems automate routine functions, thereby freeing commanders and staffs to focus on those aspects of command and control that require experience, judgment, and intuition.

These systems and the personnel who install, operate, and maintain them play a key role in the command and control of the MAGTF. Communications and information systems support the commander and every staff section in every phase of operations planning and execution.

These systems facilitate information flow throughout the MAGTF and provide shared situational awareness, informed decisionmaking, and rapid dissemination of decisions.

The success of the MAGTF in the modern battlespace depends on the effective employment of communications and information systems. Single-channel radio (SCR) is one of the most important components of MAGTF CIS.

## Section I. Theory and Propagation

### BASIC COMPONENTS OF RADIO EQUIPMENT

The radio equipment for communication between two stations and the path the signal follows through the air is called a radio link. A radio link consists of seven components: the transmitter, power supply, transmission lines, transmitting antenna, propagation path, receiving antenna, and receiver (see figure 1-1).

The transmitter generates a radio signal. The power supply (i.e., battery or generator) supplies power for the operating voltage of the radio. The transmission line delivers the signal from the transmitter to the antenna.

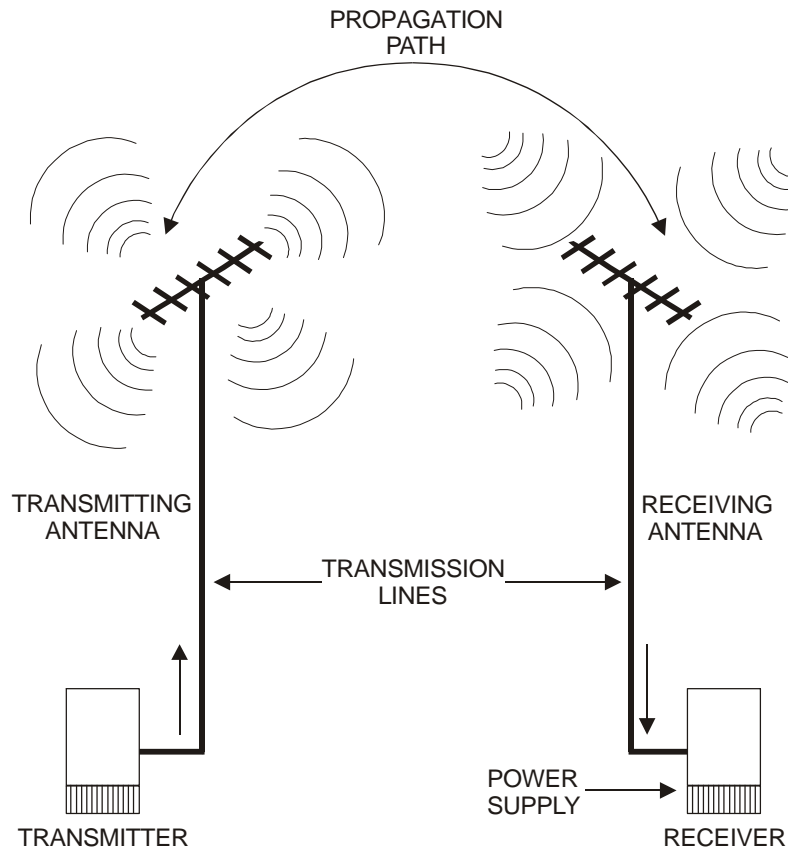


Figure 1-1. Radio Link.