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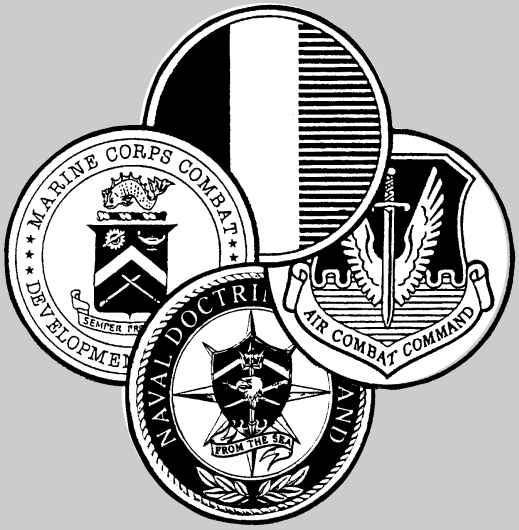

TALK II-SINCGARS

MULTISERVICE COMMUNICATIONS PROCEDURES FOR THE SINGLE-CHANNEL GROUND AND AIRBORNE RADIO SYSTEM

FM 11-1
MCRP 3-40.3A
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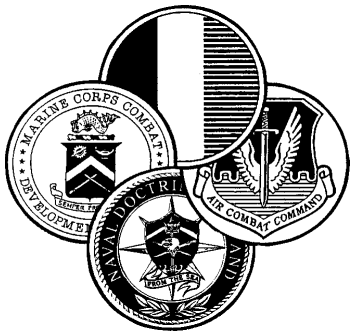
MAY 1996

MULTISERVICE TACTICS, TECHNIQUES, AND PROCEDURES

Marine Corps: PCN 14400000700



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PREFACE

1. Scope

This publication describes the basic Single-channel Ground and Airborne Radio Systems (SINCGARSs) owned and operated by each of the services, explaining the basic characteristics and capabilities, operating modes, and frequency hopping net operation procedures for each radio and service subsystem. It also explains multiservice operational procedures for using SINCGARS radios in joint operations; sets forth responsibilities of key joint and service agencies and individuals, and establishes planning and execution procedures for SINCGARS frequency hopping radio operations in joint environments.

2. Purpose

This publication standardizes joint operational procedures for the very high frequency-frequency modulation (VHF-FM) frequency hopping system, SINCGARS.

3. Application

This publication applies to the Army, Navy, Air Force (Combat Air Forces) and Marine Corps. It may also be used by multiservice and service component forces to conduct SINCGARS training and operations. Procedures herein may be modified to fit specific theater command and control procedures and allied and foreign national electromagnetic spectrum management requirements.

4. Implementation Plan

Participating service command offices of primary responsibility (OPRs) will review this publication, validate the information, and reference and incorporate it in service manuals, regulations, and curricula as follows:

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5. User Information

a. The TRADOC-MCCDC-NDC-ACC Air Land Sea Application (ALSA) Center developed this publication with the joint participation of the approving service commands. ALSA will review and update this publication as necessary.

b. We encourage recommended changes for improving this publication. Key your comments to the specific page and paragraph and provide a rationale for each recommendation. Send comments and recommendation directly to—

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c. This publication reflects current joint and service doctrine, command and control organizations, facilities, personnel, responsibilities, and procedures. Changes in service protocol, appropriately reflected in joint and service publications, will likewise be incorporated in revisions to this document.

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29 May 1996

TALK II - SINCGARS

Multiservice Communications Procedures for the Single-channel Ground and Airborne Radio System

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EXECUTIVE SUMMARY

TALK II - SINCGARS

Multiservice Communications Procedures for the Single-channel Ground and Airborne Radio System (SINCGARS)

Overview

To fight together and win on the modern battlefield, tactical air, land, and sea forces need an effective command, control, and communications (C3) system. Technological improvements in enemy jamming and electronic collection and exploitation seriously challenge the effectiveness of friendly tactical communications. With the development and fielding of SINCGARS-operative radios, the capabilities of sophisticated, complex enemy jammers have to a great extent been neutralized.

The worldwide operational need for a very high frequency-frequency modulation (VHF-FM) radio resistant to electronic attack (EA) is mandated by the requirement that Army, Marine Corps, Navy, and Combat Air Forces be capable of performing multiservice air, land, and sea operations in any theater. Such a capability is necessary to ensure successful combat operations. SINCGARS radios, with their single-channel and jam resistant features, provide interoperable communications between surface and airborne command and control assets. SINCGARS is replacing most of the existing tactical VHF-FM radios in the Department of Defense (DOD) inventory.

This publication standardizes procedures for the multiservice operation of SINCGARS. It addresses both physical and electronic interservice transfer of SINCGARS electronic protection (EP) information and communications security (COMSEC) keys necessary for jam resistant and secure operations. This publication, developed in conjunction with the contractors of the SINCGARS equipment, will enhance equipment and procedural interoperability.

This publication provides the approved TRADOC, MCCDC, Navy and Combat Air Forces multiservice SINCGARS communication procedures. It also provides procedures to effect interservice communications and enhance friendly operations in an electronic warfare (EW) environment.

SINCGARS Variants and Key Systems

The services have developed their own versions of SINCGARS radios to meet their needs. The Army has one airborne, one manpack, and six vehicular versions in both integrated COMSEC (ICOM) and non-integrated COMSEC (non-ICOM) models. The Air Force, Navy, and Marines will use the Army version of the manpack and vehicular radio. Likewise, the services have developed the necessary support equipment. The Army will use the Revised

Battlefield Electronic Communications-electronics Operating Instructions System (RBECS). The Marine Corps will use portions of RBECS to support SINCGARS net management functions. RBECS, or modifications thereof, will be integrated into ground units to enhance the communications process. The Air Force Key Data Management System (AFKDMS) supports the AF SINCGARS radios. For airborne users, the Navy will use the AN/ARC-210 radio and an MS-DOS PC or Tactical Air Mission Planning System (TAMPS) that will run the ARC-210 Fill Program (AFP). Navy shipboard SINCGARS will use the Army version of the SINCGARS radio and will also use RBECS. AFP allows the operator to create ARC-210 loadsets by entering single channel data, entering Have Quick data, and importing SINCGARS data in the form of an RBECS loadset files.

Effective secure communications between services is possible because all SINCGARS variants share common characteristics that permit interoperability.

Planning and Execution

The heart of this publication is the information on the planning and execution of operational procedures for employing SINCGARS. These procedures include the necessary responsibilities of the joint communications staff in managing SINCGARS in a combat zone. They also cover the availability, distribution, management of EP variables, and COMSEC keys.

Chapter I

EQUIPMENT AND OPERATIONS

1. Background

Air, land, and sea forces all require effective communications for command and control. Single-channel (SC) very high frequency (VHF) frequency modulation (FM) combat net radio systems provide the primary means of communication for command and control of a wide variety of combat forces.

Section A. SINCGARS Radios

2. Capabilities

Modern generations of combat net radio (CNR) systems are more capable and reliable than previous generations. The SINCGARS is the largest family of radios in this latest generation of combat radios. SINCGARS incorporates many features found on similar compatible radios. SINCGARS features include—

a. Frequency hopping (FH) modes.

b. Integrated communications security (ICOM).

c. Voice and data capability.

d. Built-in test (BIT).

e. Modular design.

f. Ground and airborne versions.

3. Common Characteristics

The services tailor their particular radio designs to satisfy service-unique requirements. These radios require the following common characteristics to ensure interoperability in multiple nets:

a. FH data waveform.

b. 30.000 to 87.975 megahertz (MHz) operating band.

c. SC FM operation: 30.000 to 87.975 MHz with 25 kilohertz (kHz) channel spacing (2320 channels).

d. SC FM frequency offsets (+/- 5, +/-10 kHz).

e. Compatibility with encrypted ultra high frequency (UHF) communications system (VINSON)-based (e.g., KY-57/ KY-58) communications security (COMSEC) for security of voice and data in FH and SC communication modes.

f. Use of a nonhopping, SC cue frequency for alerting a net control station (NCS) in an FH net.

g. Late net entry capabilities.

h. Electronic remote fill (ERF) capabilities:

(1) Cold start net opening (ERF of FH data over a single manual selected for net opening).

(2) FH update (ERF to update FH data during net operations).

(3) Transmission security key (TSK) for establishing an FH pattern for radios.

(4) Synchronize (sync) time.

(5) 3-digit net identification.

4. Service SINCGARS Radio Variants

All military services combat, combat support, and combat service support units