ARMY, MARINE CORPS, NAVY, AIR FORCE

TADIL J

INTRODUCTION TO TACTICAL DIGITAL INFORMATION LINK J AND QUICK REFERENCE GUIDE

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AIR LAND SEA APPLICATION CENTER

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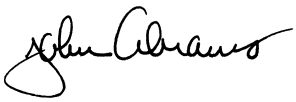
MULTISERVICE TACTICS, TECHNIQUES, AND PROCEDURES

FOREWORD

This publication has been prepared under our direction for use by our respective commands and other commands as appropriate.



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PREFACE

1. Scope

This publication introduces Tactical Digital Information Link (TADIL) J. It is a guide for warfighters who have limited or no experience or background in TADIL J and who need a quick orientation for supplemental or in-depth information. The term *TADIL J* is used throughout the publication as United States (US) standard terminology, though TADIL J is known as *Link 16* by the North Atlantic Treaty Organization (NATO).

The document provides a description of each US tactical data system (TDS) that currently implements TADIL J. TDS descriptions include command and control (C2) and noncommand and control systems (for example, fighter aircraft) and their nomenclatures, capabilities, and limitations. Planning and operations considerations, network design and requests, architecture examples, and other general operational information are included.

2. Purpose

This document applies to the operating forces of the US Army (USA), US Navy (USN), US Marine Corps (USMC), US Air Force (USAF), and anyone else desiring a basic understanding about TADIL J. It is a US unilateral-only document but it includes NATO and US allied information where appropriate. The information in this publication has been extracted from multiple sources, including allied, joint, and Service directives, standing operating procedures and handbooks, and related defense contractor system reference documents. These references are listed in Appendix F and in the References section.

This publication is intended primarily for use by warfighters at the tactical/ execution (unit) level who need to be familiar with or operate in a TADIL J environment. Preparation of this document was in a joint forum and information contained has been coordinated with respective Service doctrine commands and centers.

3. Application

This multiservice publication is approved for use by the USA, USMC, USN, and USAF. This publication provides unclassified guidance for TADIL J planning and operations and their roles in the multi-TADIL world; thus giving readers an understanding of TADIL J's impact on plans and operations. It assists warfighters in locating TADIL J reference manuals and points of contact, which in turn maximizes combat effectiveness.

4. Implementation Plan

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

b. **Army.** The Army will incorporate the procedures in this publication in US Army training and doctrinal publications as directed by the Commander, US Army Training and Doctrine Command (TRADOC). Distribution is in accordance with DA Form 12-99-R.

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5. User Information

a. The TRADOC-MCCDC-NWDC-Air Force Doctrine Center (AFDC) Air Land Sea Application Center (ALSA) developed this publication with the joint participation of the approving Service commands. ALSA will review and update this publication as necessary.

b. 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.

c. 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 recommendations directly to—

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TADIL J

Introduction to Tactical Digital Information Link J and Quick Reference Guide

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EXECUTIVE SUMMARY
TADIL J
Introduction to Tactical Digital Information Link J and Quick Reference Guide

Introduction

This publication provides multiservice procedures for TADIL J operations. It includes:

- An overview of TADIL J basic terminology and operational considerations.
- System capabilities and limitations.
- Network design and network architecture examples.
- General guidelines for identifying common problems and situations.
- The functions of TADIL J in different types of operations.

Overview

The All Services Combat Identification Evaluation Team (ASCIET) final report for 1996 stated "TADIL J/Link-16 Tactics, Techniques, and Procedures (TTPs) are immature." The Joint Requirements Oversight Council (JROC) tasked the Air, Land, and Sea Application (ALSA) Center to publish TADIL J multiservice TTPs to answer this deficiency. ALSA convened a working group of subject matter experts, 28 April to 1 May 1998, to analyze the requirements, research the material, and draft an initial product.

As this is prepared, TADIL J fielding and system implementation is immature and incomplete. Research conducted by the working group to scope the JROC task confirmed written deficiencies in TADIL J tactics and some techniques. However, procedures for TADIL J are adequately addressed in existing documents. These procedural documents include the Chairman Joint Chiefs of Staff Manual (CJCSM) 6120.01A, "Joint Multi-TADIL Operating Procedures (JMTOP)," published 24 Oct 97 (after the ASCIET findings of 96). It was an in-depth planning, employment, and operations manual that covered some techniques. The JMTOP is an evolving document originally containing material for TADILs A, B, and J. The current version (July 1999) also incorporates TADIL C, Army Tactical Data Link-1 and Interim Joint Tactical Information Distribution System (JTIDS) Message Standard (IJMS). The classified Joint Tactical Air Operations (JTAO) Interface Interoperability Handbook (also called the "Purple Book"), published by US Army Forces Command (FORSCOM) and last dated 1 Jun 95, is also widely recognized by operators as an excellent reference document. LOGICON documents, "Understanding TADIL Planning and Operations – A Guidebook for Operators, Planners, and Managers," dated Oct 1996 and "Understanding Link 16 – A Guidebook For New Users," dated September 1996, are excellent introductory level texts for link planning, employment, and operations. While many excellent references are available there is no comprehensive index or reference to catalog these for an operator.

The working group decided that to best meet the JROC tasking and to answer the operational need, two-companion documents are required. The first is an easily carried, widely distributed introduction to TADIL J and comprehensive QRG to familiarize the TADIL J novice with capabilities and systems of the TADIL J world. This guide would permit its users to function in a TADIL J environment at a rudimentary level and to provide direction for more comprehensive in-depth study if required. The working group has focused its effort on producing this document from the most current data available.

The companion document should be an in-depth manual developed as the fielding and systems implementation of TADIL J matures across the Services and multi-national environment. This document should be a joint publication much like Joint Publication 3-09.3, “Joint Tactics, Techniques, and Procedures for Close Air Support” and should address the multi-TADIL environment. This companion document remains to be developed.

PROGRAM PARTICIPANTS

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Chapter I

SYSTEM OVERVIEW

1. Description

Tactical digital information link (TADIL) J is an improved data link used to exchange near real time information. It is a communication, navigation, and identification system that supports information exchange between tactical command, control, communications, computers, and intelligence (C4I) systems. The radio transmission and reception component of TADIL J is the Joint Tactical Information Distribution System (JTIDS) or its successor, the Multifunctional Information Distribution System (MIDS). These high-capacity, ultra high frequency (UHF), line of sight (LOS), frequency hopping data communications terminals provide secure, jam-resistant voice and digital data exchange. JTIDS/MIDS terminals operate on the principal of time division multiple access (TDMA), wherein time slots are allocated among all TADIL J network participants for the transmission and reception of data. TDMA eliminates the requirement for a net control station (NCS) by providing a nodeless communications network architecture.

a. Network Capacity. More specifically, the capacity of a TADIL J network is apportioned among multiple *virtual circuits* on which messages dedicated to a single function are transmitted and received during specific time intervals.

(1) Network Participation Groups (NPGs) . These circuits, or functional groups, are known as NPGs and are the functional building blocks of a TADIL J network (see paragraph 2e).

(2) JTIDS Units (JUs). Participants in a TADIL J network, called JUs, are assigned to NPGs. The JU's mission and capabilities dictates the NPG to which a JU is assigned. JUs are designated as either command and control (C2) or non-C2.

(a) C2 JUs. A C2 JU is a JTIDS/MIDS-equipped platform, which, by virtue of its mission, is capable of directing the activities of other platforms that exercise C2 authority.

(b) Non-C2 JUs. A non-C2 JU is a JTIDS/MIDS-equipped platform with limited or no capability to direct the activities of other platforms. TADIL J gives each unit the capability to transmit its own crypto secure location and identification as a precise participant location and identification (PPLI) platform. JTIDS/MIDS also provides a navigation capability to mobile units.

b. Features. TADIL J features include the following:

(1) TDMA.

(2) Nodeless architecture.

(3) Net time reference (NTR).