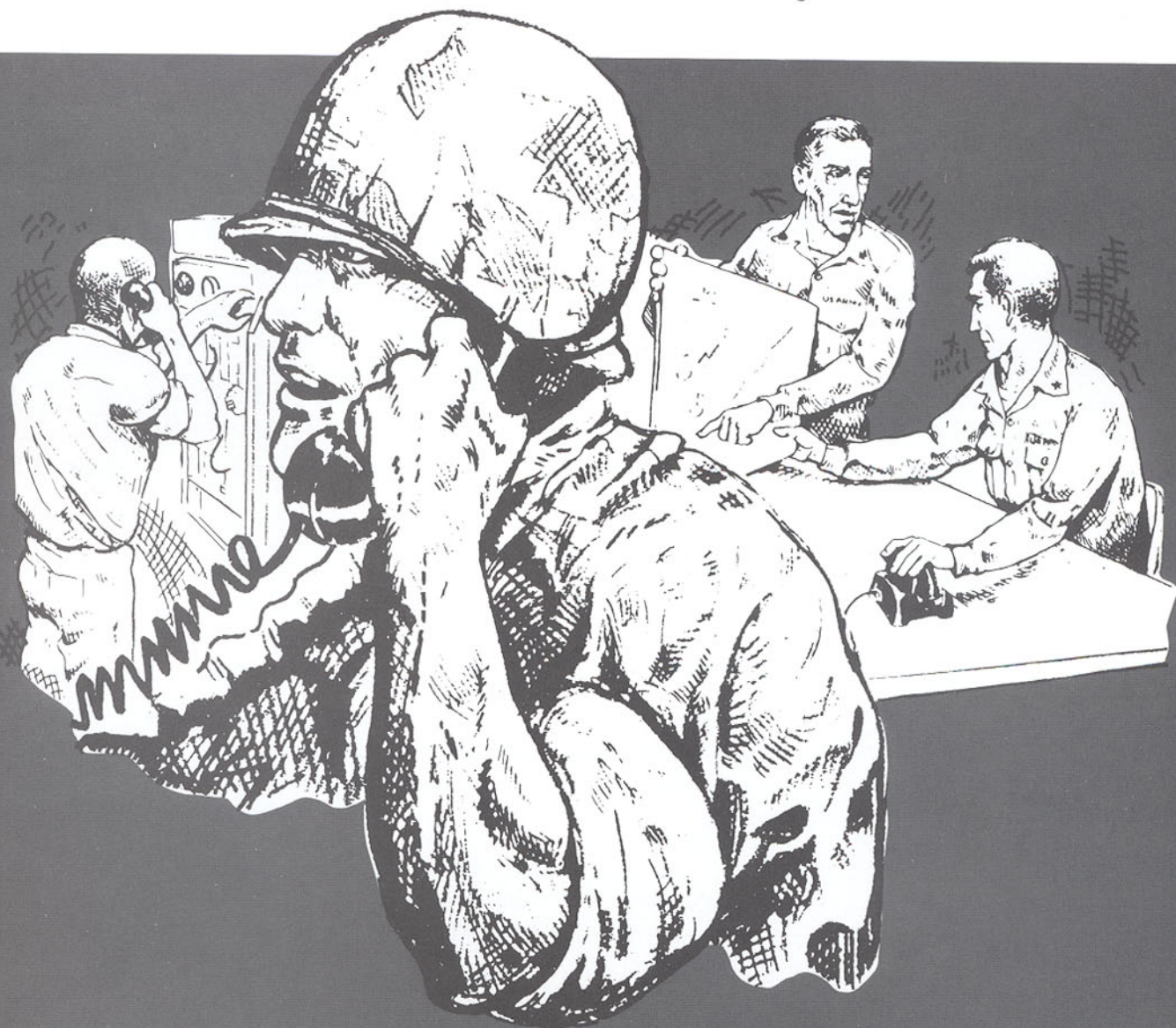


FM 24-22

Communications-Electronics Management System




Contents

Chapter 1. C-EMS Development	Page
Paragraph 1-1. Introduction	1-1
1-2. The Need for C-EMS	1-2
1-3. The Design of C-EMS	1-2
Chapter 2. Management Objectives	
Paragraph 2-1. Introduction	2-1
2-2. Management Policies	2-3
2-3. Standardization of Technical Parameters	2-3
2-4. Equipment Compatibility	2-4
2-5. Terminology	2-4
2-6. C-E Management	2-4
Chapter 3. The C-E System	
Paragraph 3-1. Introduction	3-1
3-2. Theater of Operations	3-2
3-3. Area Communications	3-3
3-4. Corps Communications System	3-5
3-5. Division Communications System	3-7
3-6. Brigade Communications System	3-8
Chapter 4. Management Structure	
Paragraph 4-1. Introduction	4-1
4-2. Theater and Theater Army C-E Management	4-2
4-3. Theater Communications Command (Army) (TCC(A))	4-3
4-4. Corps Level C-E Management	4-4
4-5. Division Level C-E Management	4-6
Chapter 5. C-E Planning	
Paragraph 5-1. Introduction	5-1
5-2. Relationship Between C-E Planning and Engineering	5-2
5-3. Preparation of C-E Estimates, Plans, and Orders	5-3
5-4. Procedures	5-5
5-5. Maintenance of Records	5-5
5-6. Assessment and Allocation of Resources	5-8
5-7. Responsibilities for Assessment and Allocation	5-9
5-8. Validation of User Requirements	5-9
5-9. Preferential Services	5-10
5-10. Issuing Technical Directives	5-11
5-11. Introduction of New Equipment	5-13
5-12. Radio Frequency Management	5-14
5-13. International Frequency Control	5-14
5-14. Frequency Management Channels	5-15
5-15. Theater Level Frequency Management	5-15
5-16. Theater Army Frequency Management	5-15
5-17. Corps Level Frequency Management	5-17

5-18. Division Level Frequency Management	5-18
5-19. The Automated CEOI	5-18
5-20. Contingency Planning	5-19
5-21. Recording User Locations	5-20
5-22. Security	5-20
5-23. Messenger Service	5-21
5-24. Directory Service	5-22

Chapter 6. C-E Systems Engineering

Paragraph 6-1. Introduction	6-1
 6-2. Network Layout	6-2
6-3. Traffic Engineering	6-4
6-4. Traffic Engineering Responsibilities	6-7
6-5. Telephone Traffic Engineering	6-7
6-6. Teletypewriter/Data Traffic Engineering	6-8
6-7. The Circuit Routing List/Bulletin	6-11
6-8. Traffic Diagrams	6-11
6-9. Traffic Route Bulletin	6-15
6-10. Line Route Map	6-15
6-11. Multichannel Systems and Radio Net Diagrams	6-17
6-12. System Performance Analysis	6-22
6-13. Electronic Counter-Countermeasures (ECCM)	6-24

Chapter 7. Control Functions

Paragraph 7-1. Introduction	7-1
7-2. Communications System Control Element (CSCE)	7-1
7-3. Communications Nodal Control Element (CNCE)	7-2
7-4. C-E System Deactivation	7-7

Appendix A. References

Appendix B. Telephone Numbering System, Transmission System Designation and Circuit Identification

Paragraph B-1. Tactical Telephone Numbering Plan	B-1
B-2. System Designation and Circuit Identification	B-3
B-3. System Designators	B-3
B-4. Circuit Designators	B-6
B-5. Priorities for System and Circuit Restoral	B-9

Appendix C. Special C-E Forms

Paragraph C-1. Introduction	C-1
C-2. Communications System Information Summary	C-2
C-3. C-E Trouble Record	C-9
C-4. Operational Resources Record	C-12
C-5. Traffic Status Record	C-15
C-6. Special Communications Authorization Request	C-18
C-7. Telecommunications Service Order	C-20
C-8. Communications System Document Change Order	C-24
C-9. Master Station Log	C-26
C-10. System and Circuit Status Record	C-28
C-11. System and Circuit Status Record, Card 2	C-32
C-12. Circuit Routing List	C-34

C-EMS Development



1-1. Introduction

For a long period during the evolution of warfare, communications were unsophisticated and nontechnical. The means of communications consisted chiefly of messengers, and manually and mechanically generated signals. The most important and effective means was the commander speaking directly to his subordinates. Centralized management of communications was unnecessary (as well as impossible) due to the limited speed and range of the communications system.

As communications methods were converted to electronic systems, certain elements of standardization were necessarily imposed, but the concept of decentralized control remained unchanged. Within broad limits, commanders were able to use their communications assets as they saw fit to enable them to control, in the best possible way, those forces under their command. Communications between units received low priority. This was reflected in the limited interface between units as each unit went about its own mission. When one unit had to talk to another, the pace of the battlefield allowed time for them to get together to iron out differences in communications procedures, and thus there was no real need for C-E standardization.

