NSTISSAM TEMPEST/2-92
30 December 1992

NSTISS
NATIONAL SECURITY TELECOMMUNICATIONS AND INFORMATION SYSTEMS SECURITY

PROCEDURES FOR

TEMPEST ZONING

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NATIONAL SECURITY TELECOMMUNICATIONS AND INFORMATION SYSTEMS SECURITY

NATIONAL MANAGER

30 December 1992

FOREWORD

1. [redacted]

2. Representatives of the National Security Telecommunications and Information Systems Security Committee may obtain additional copies of this advisory memorandum from:

Executive Secretariat
National Security Telecommunications and
Information Systems Security Committee
National Security Agency
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Fort George G. Meade, MD 20755-6000

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J. M. McCONNELL
Vice Admiral, U.S. Navy

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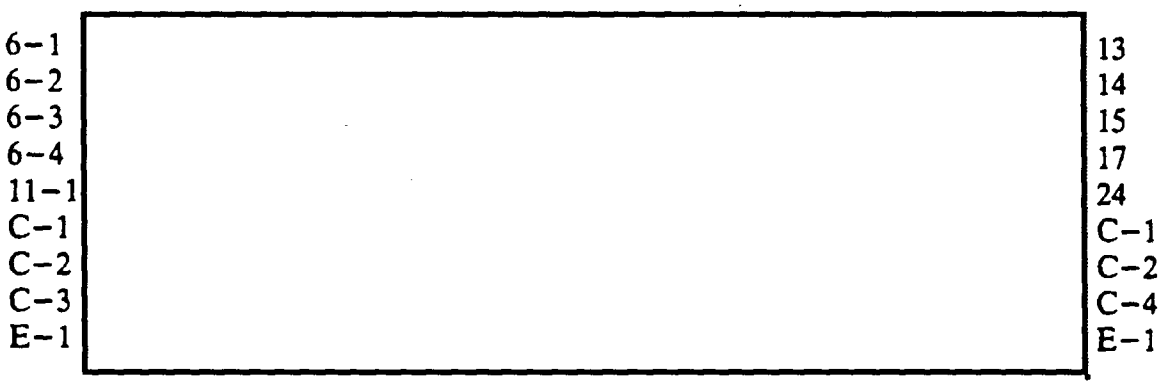

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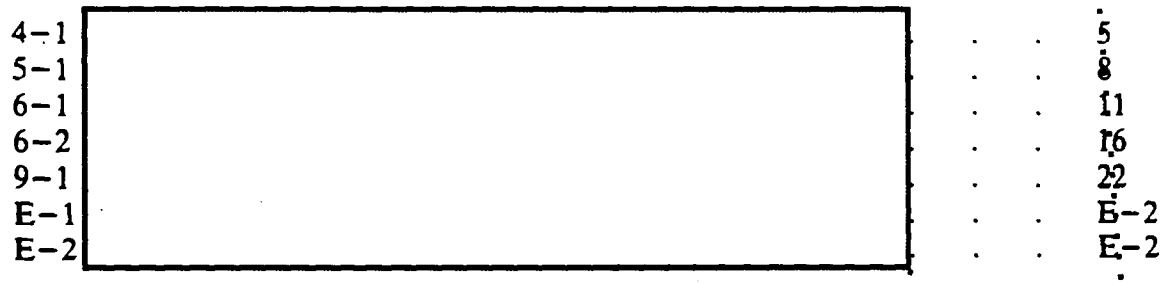

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PROCEDURES FOR TEMPEST ZONING

SECTION I - SCOPE AND APPLICABILITY

1. [redacted]

2. [redacted]

SECTION II - REFERENCES

3. Reference is made within this document to the following publications:

a. Jordon, Edward C. Ed., Reference Data For Engineers, 7th Edition, Chapter 33, Howard W. Sams & Co. Inc, 1985.

b. NSTISSAM TEMPEST/1-92, Compromising Emanations Laboratory Test Requirements, Electromagnetics, dated 15 December 1992.

c. NTISSI No. 7000, TEMPEST Countermeasures for Facilities, dated 17 October 1988.

d. NTISSP No. 300, National Policy on Control of Compromising Emanations, dated 3 October 1988.

e. Procedures for TEMPEST Zoning Information-Processing Equipment, Systems and Facilities, dated January 1985, published by NSA (superseded by this document).

f. TEMPEST Zone Assignments for Information-Processing Equipment and Facilities, issued annually, published by NSA.

SECTION III - BASIC REQUIREMENT

4. Requirement for TEMPEST Countermeasures - All electronic or electromechanical information-processing equipment can produce unintentional data-related or intelligence-bearing emanations (TEMPEST emanations) that, if

intercepted and analyzed, disclose the information transmitted, received, handled, or otherwise processed. **National Telecommunications and Information Systems Security Instruction (NTISSI) No. 7000** defines alternative TEMPEST Countermeasures. TEMPEST zoning is an effective method of achieving TEMPEST security in many instances.

5.

SECTION IV – FACILITY ZONING

6. Introduction – This section presents information regarding the theory behind and procedures for performing TEMPEST zone evaluations of facilities.

7. Objective – The objective of facility TEMPEST zoning is to characterize a facility's resistance to the escape of compromising emanations from various locations within the facility.

8. Zoning Software – All of the algorithms mentioned in the following discussion must be implemented in software.

9. Facility Zoning Theory – A basic understanding of the theory behind facility zoning is necessary to achieve accurate results in a time efficient manner. The following is a brief discussion of the fundamental theory behind facility zoning.

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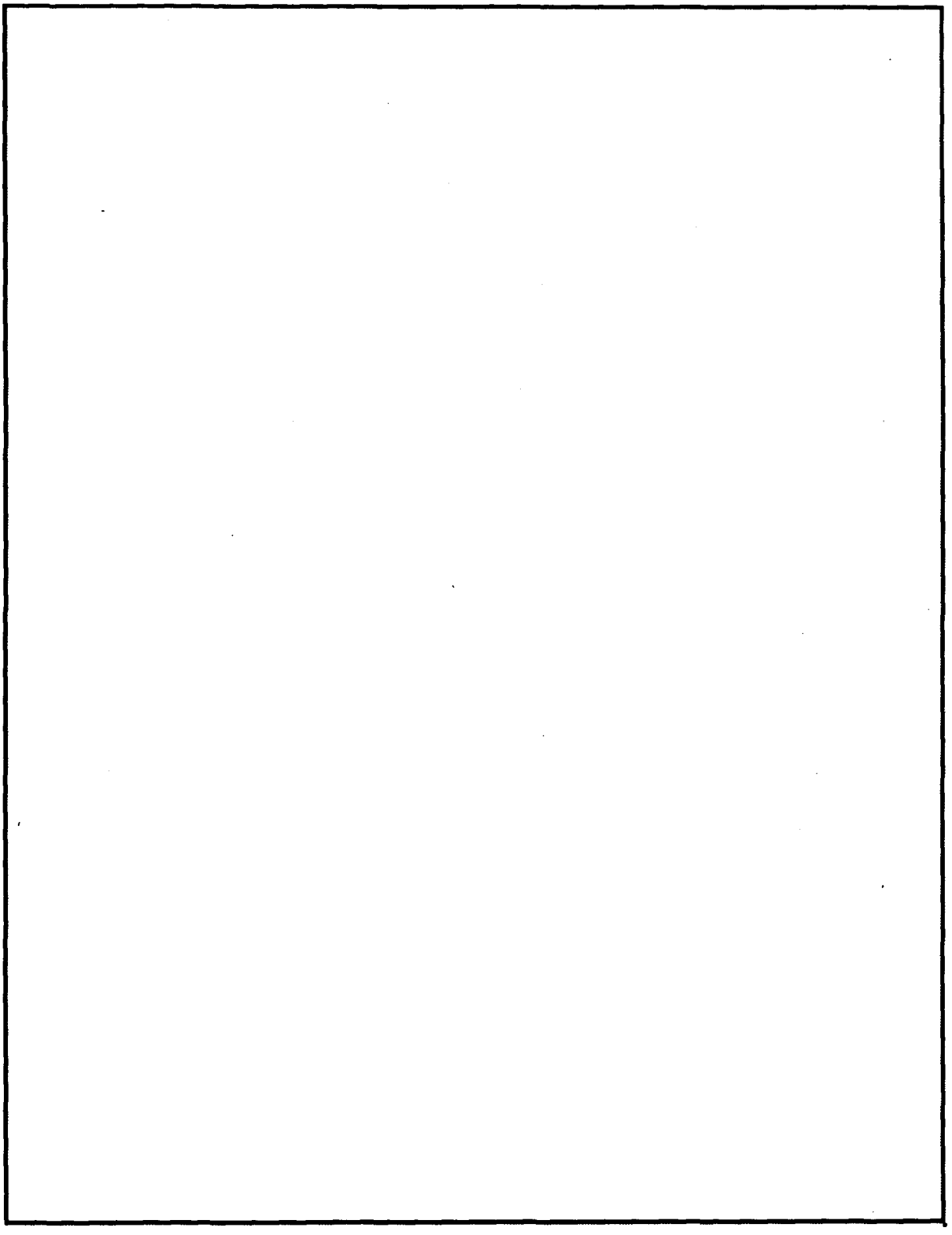

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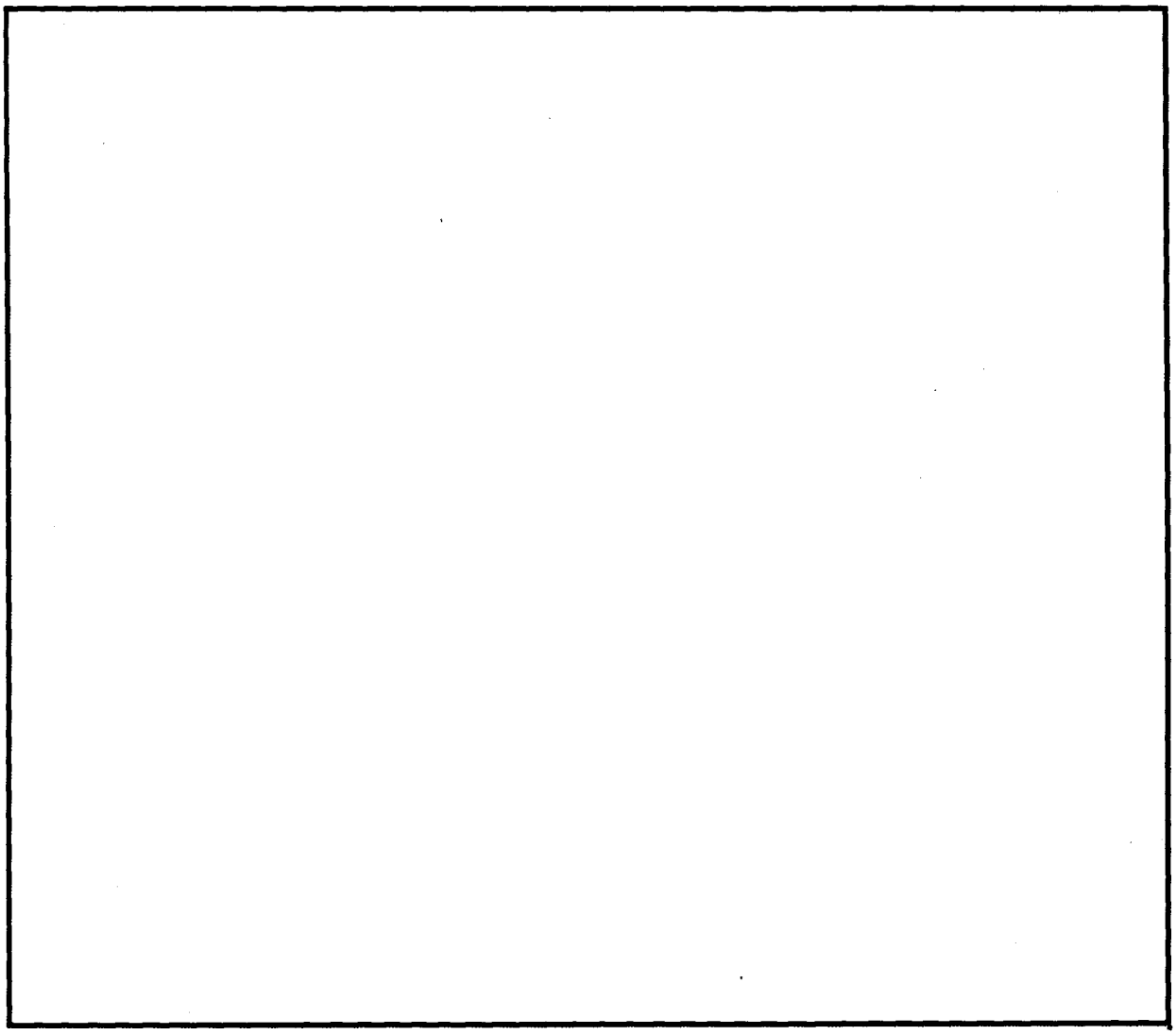

FIGURE 4-1

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TABLE 4-1

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FIGURE 4-2

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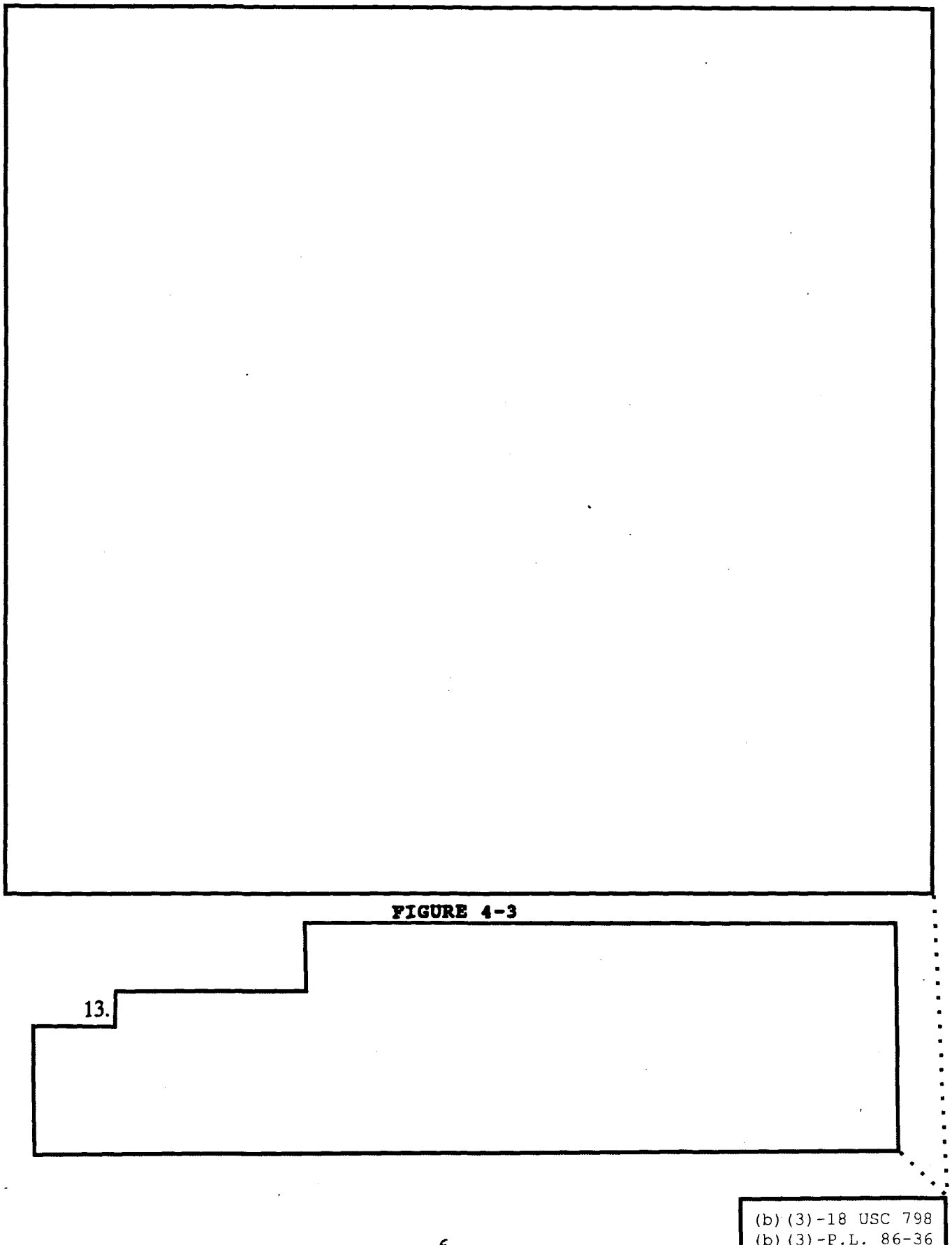

FIGURE 4-3

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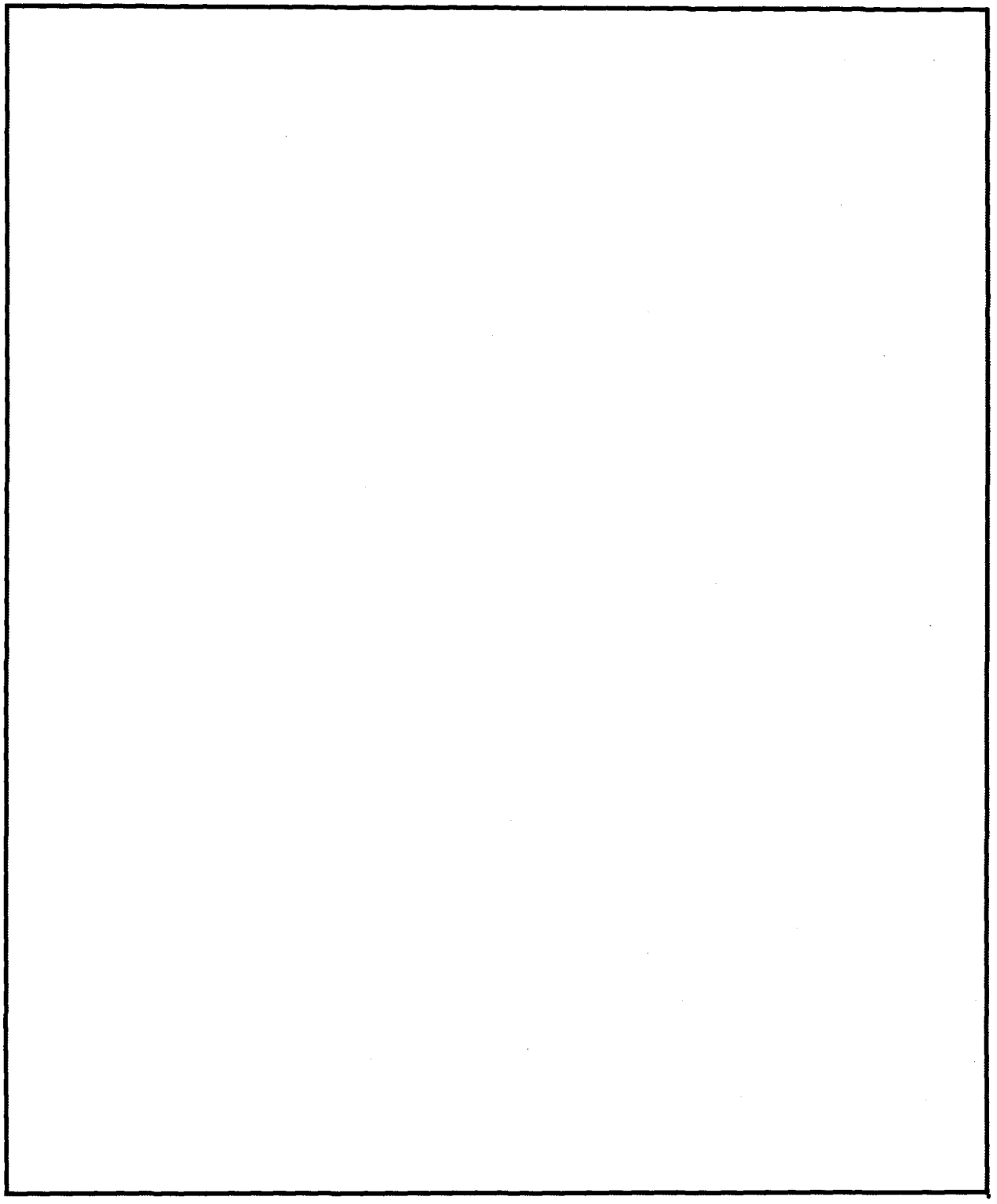

TABLE 5-1

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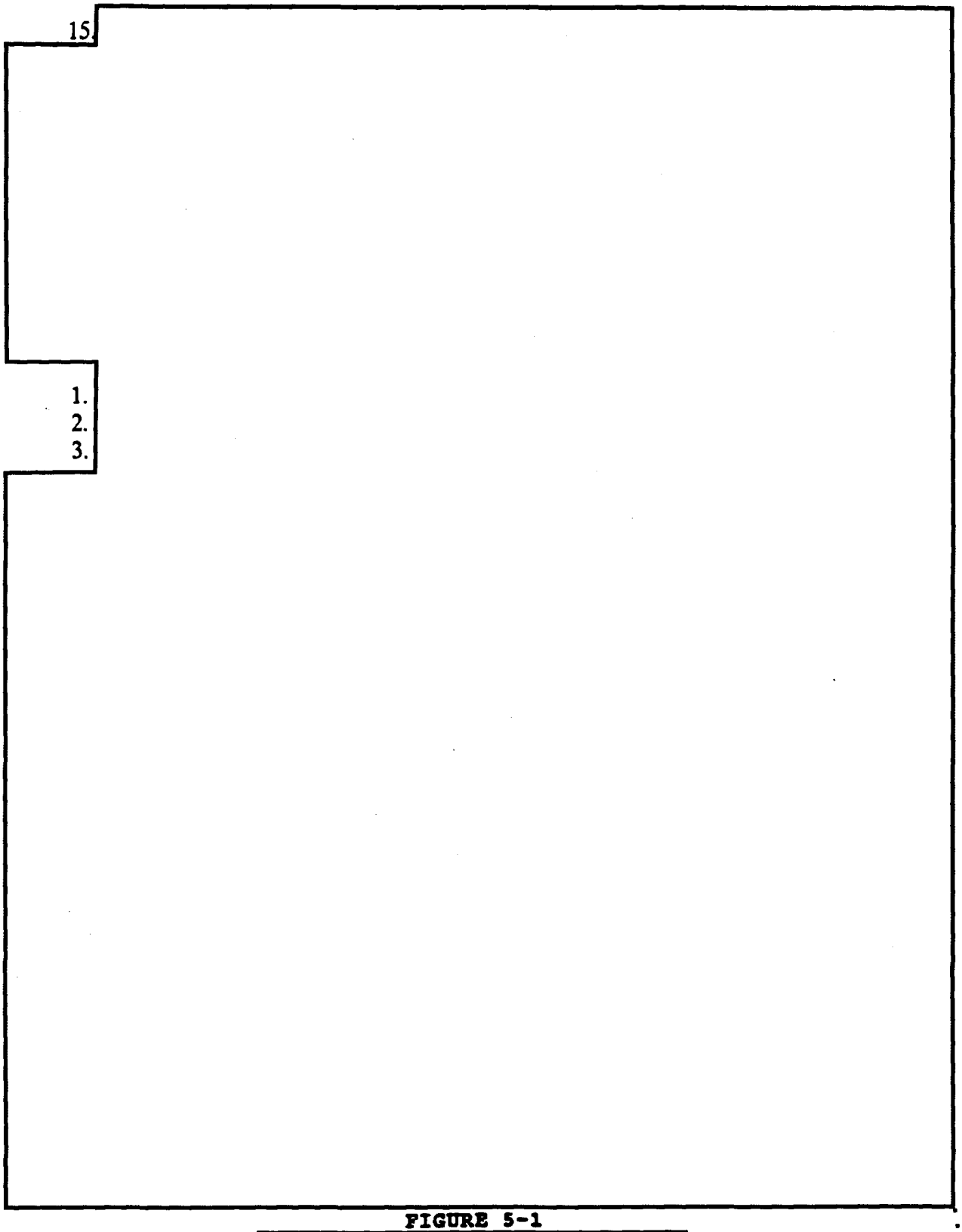

FIGURE 5-1

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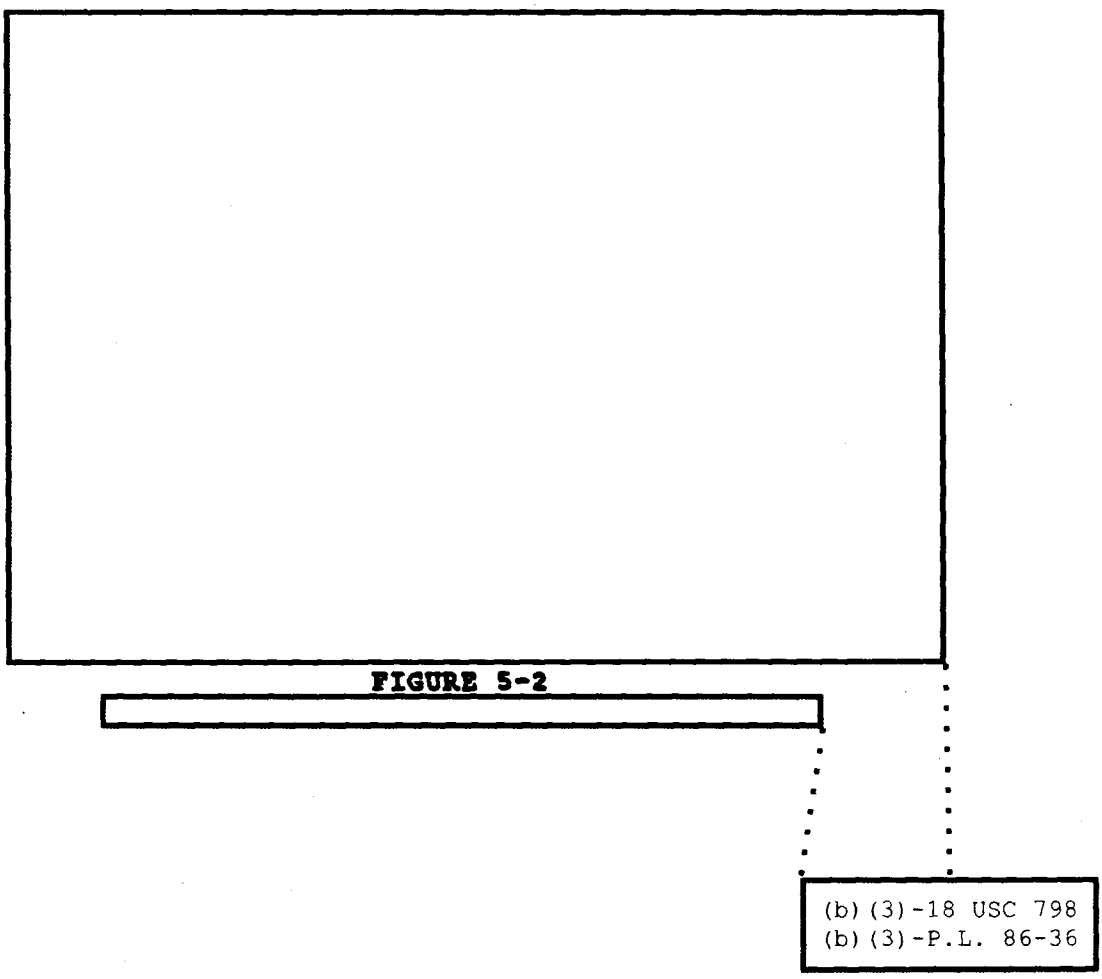

FIGURE 5-2

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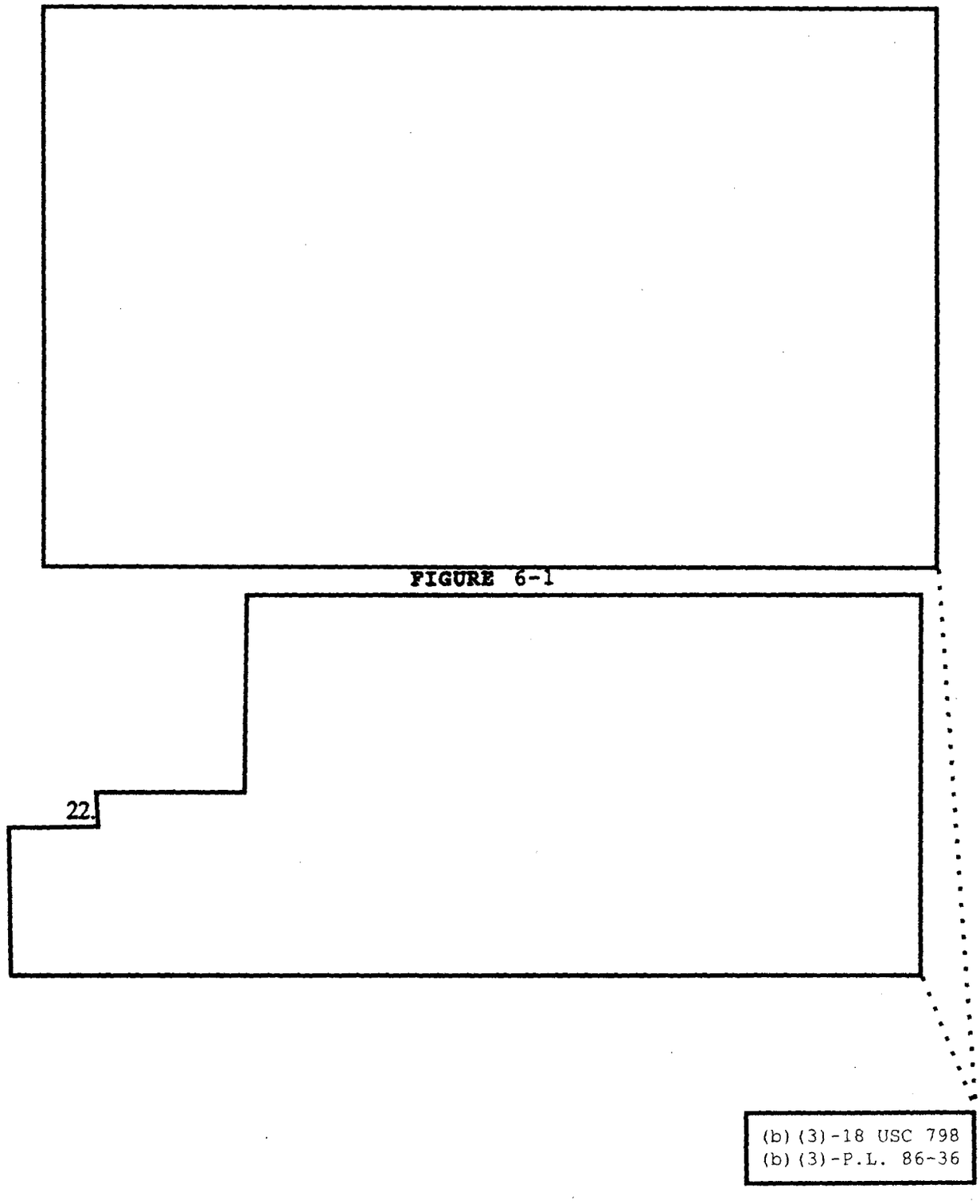

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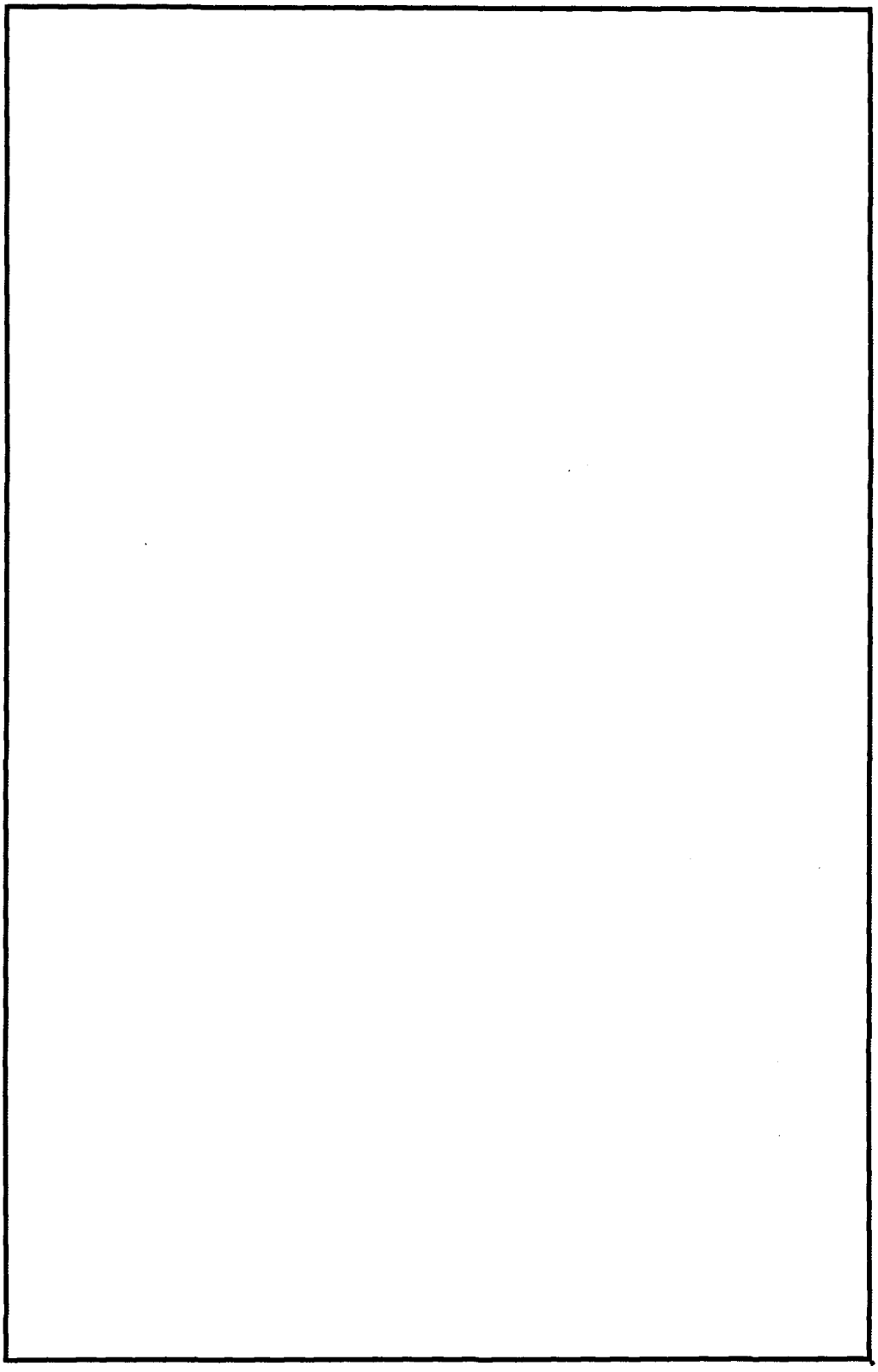

FIGURE 6-2

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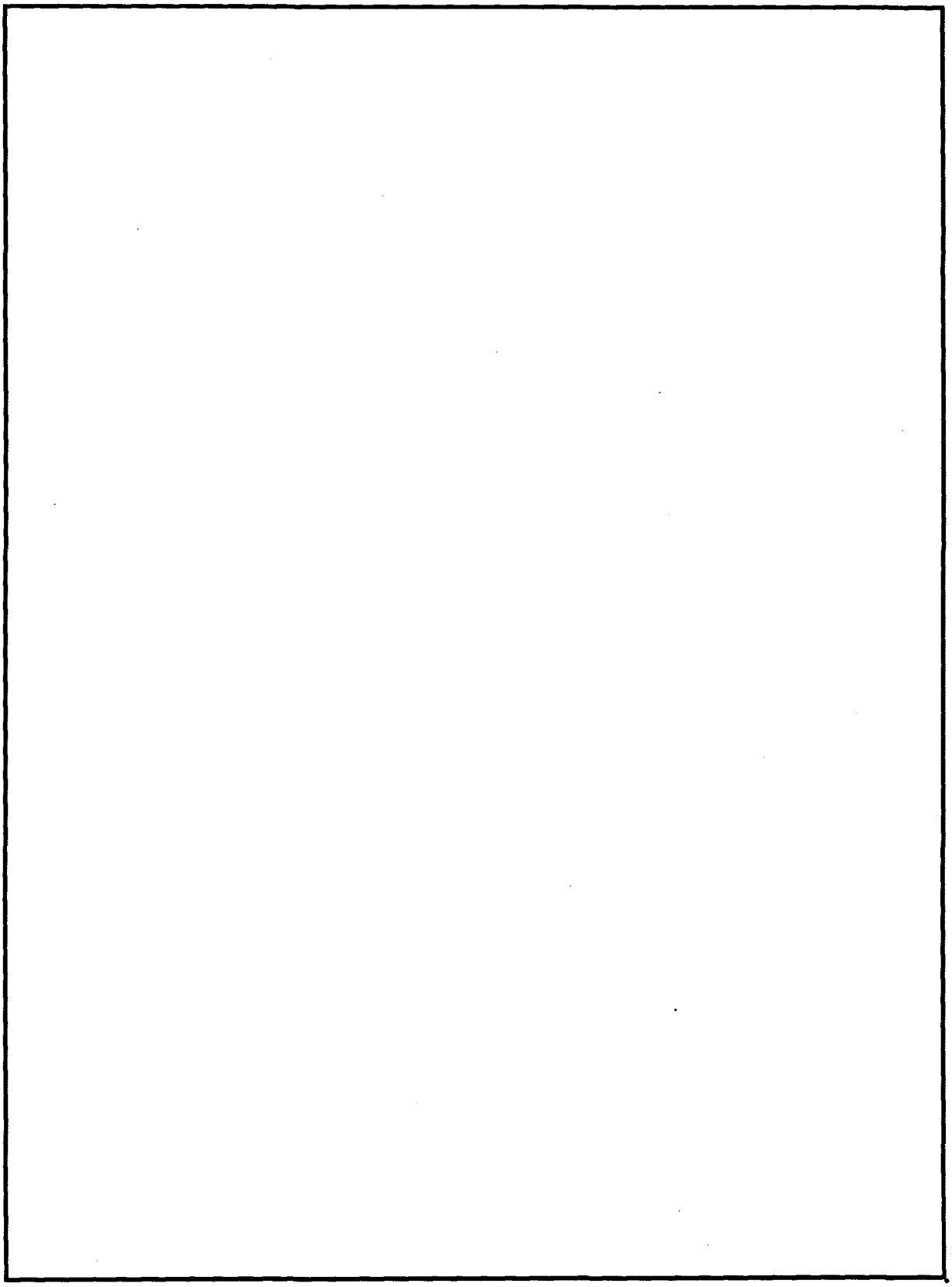

FIGURE 6-3

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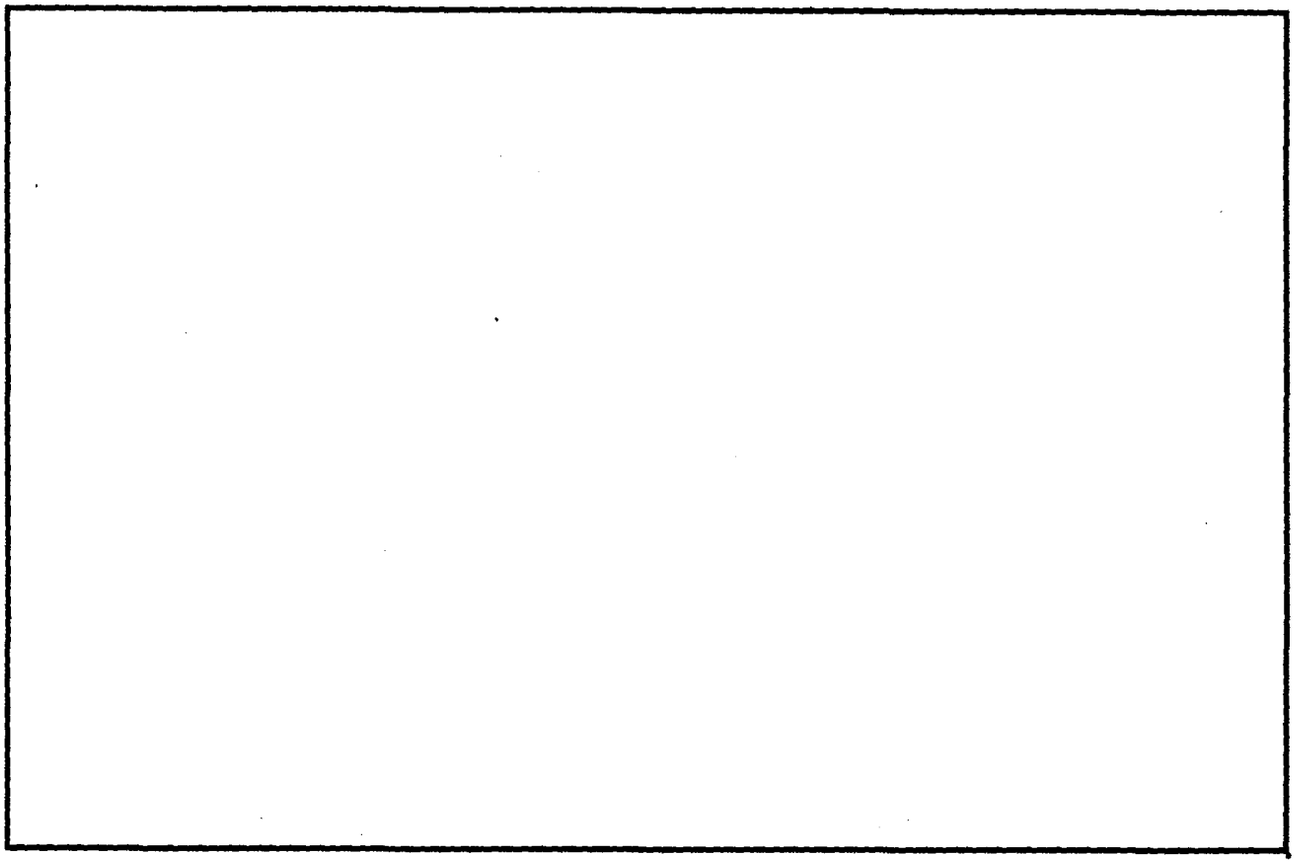

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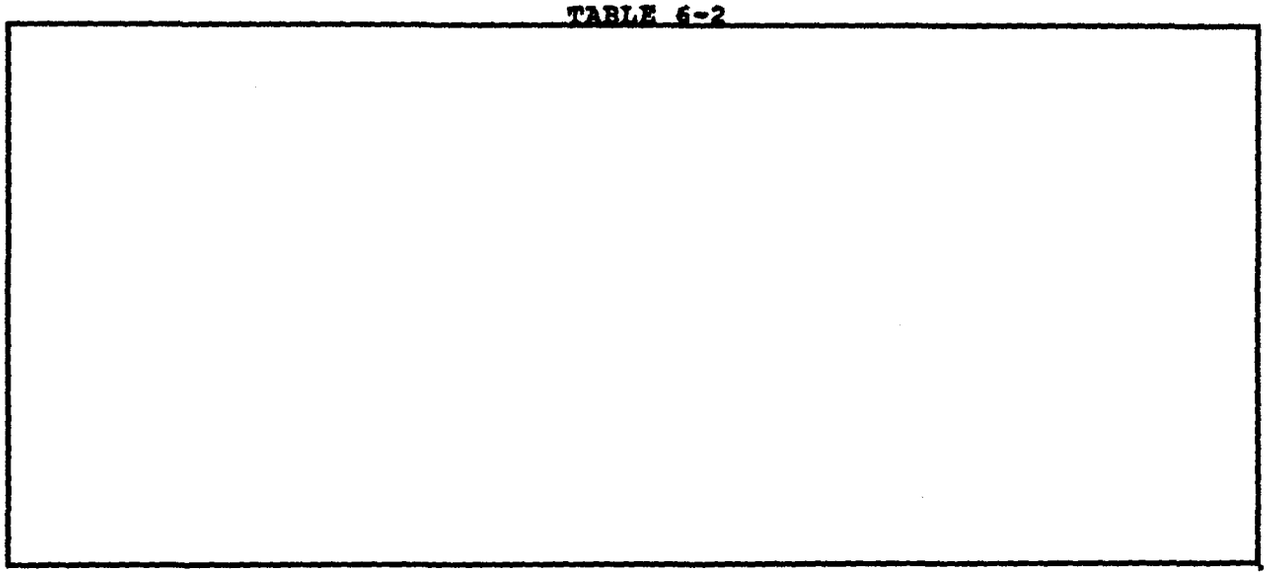

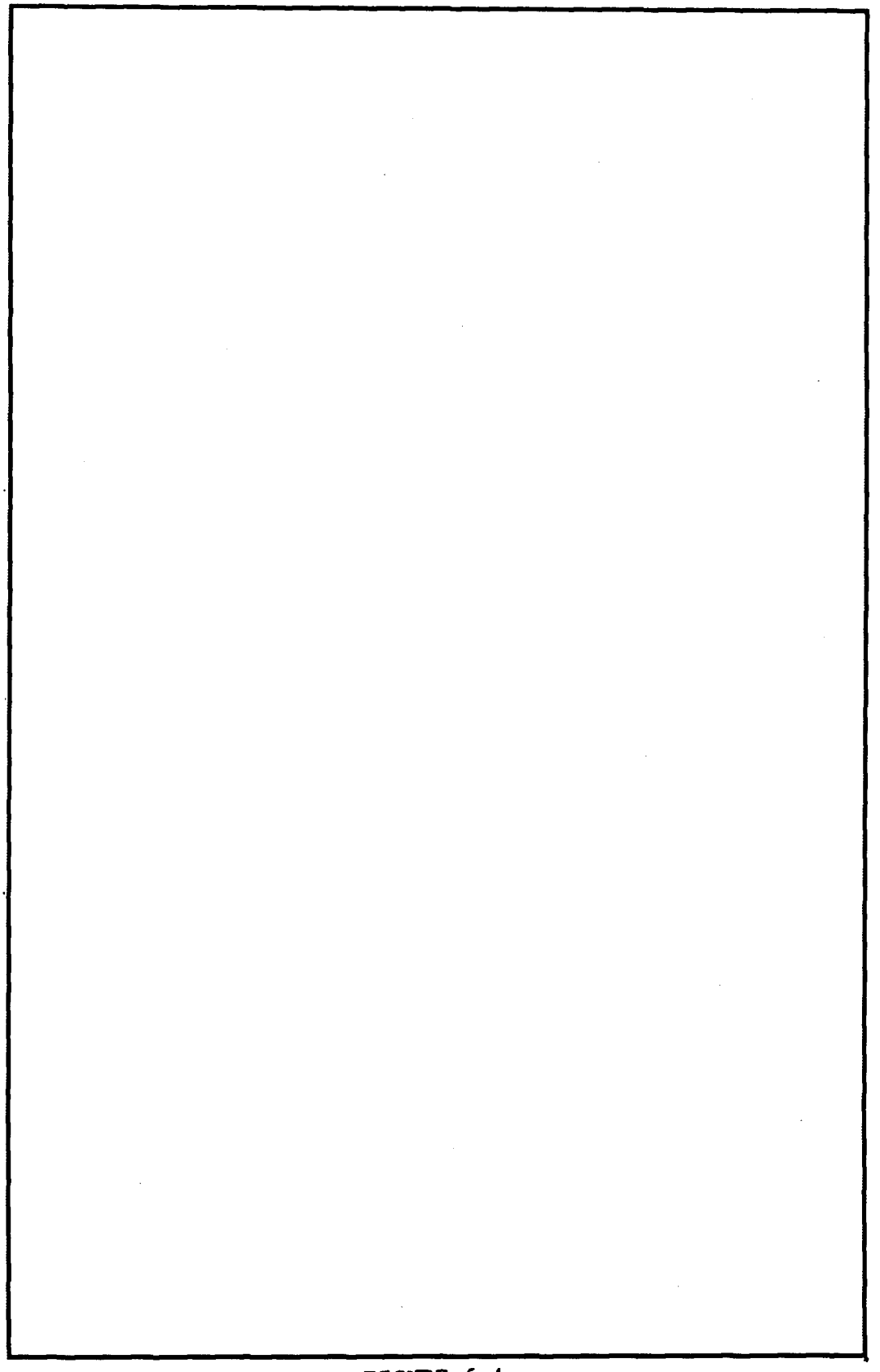

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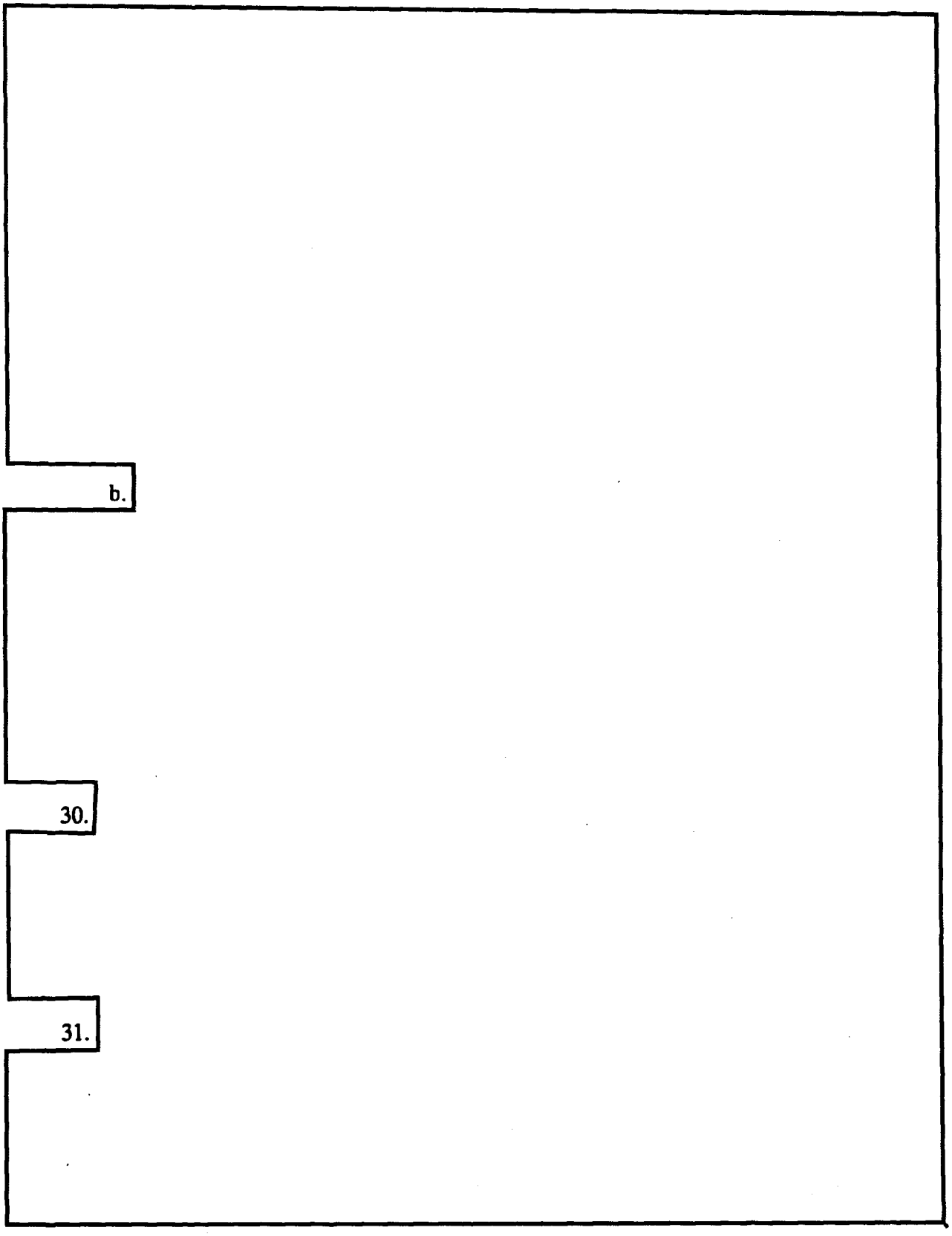

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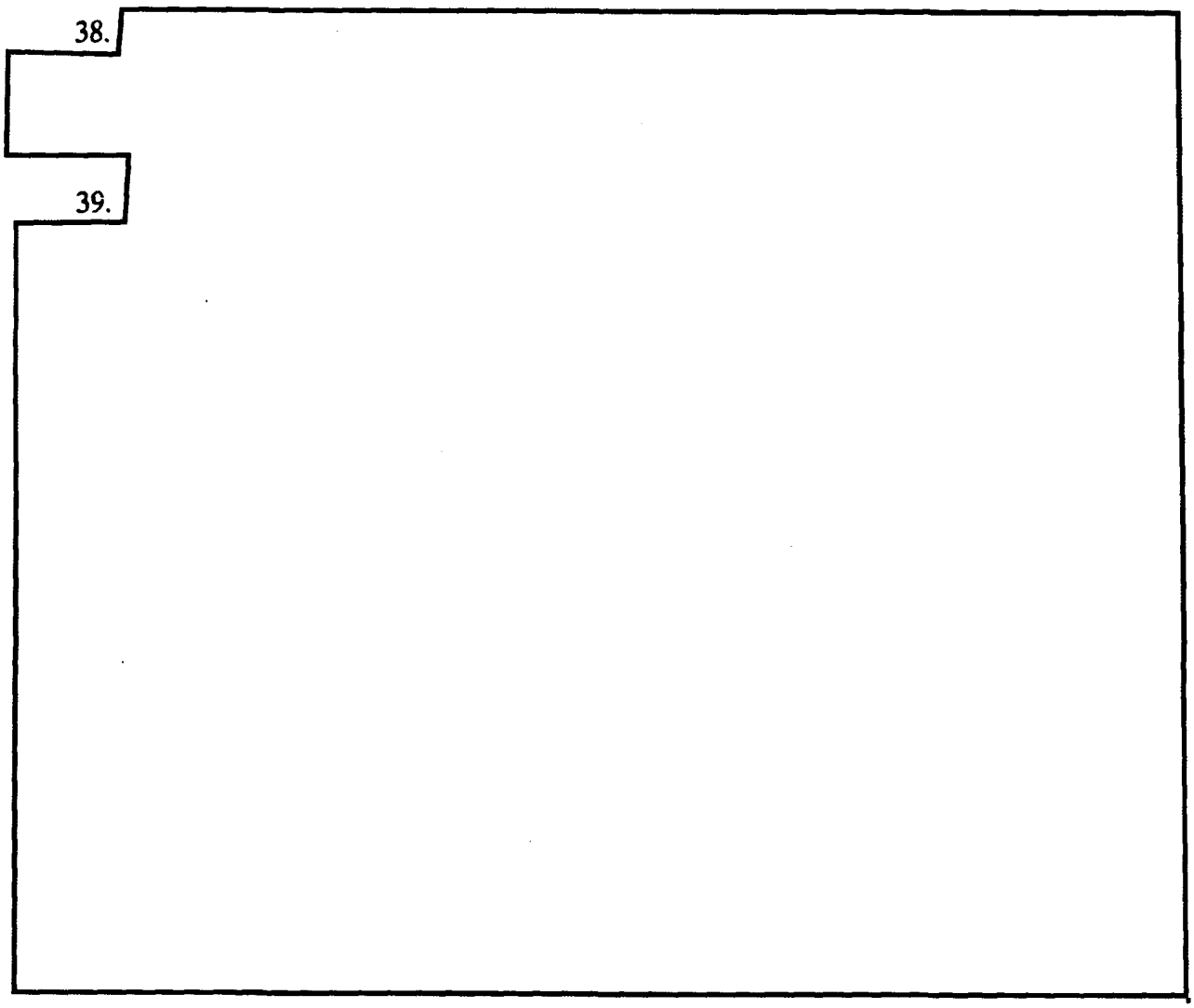

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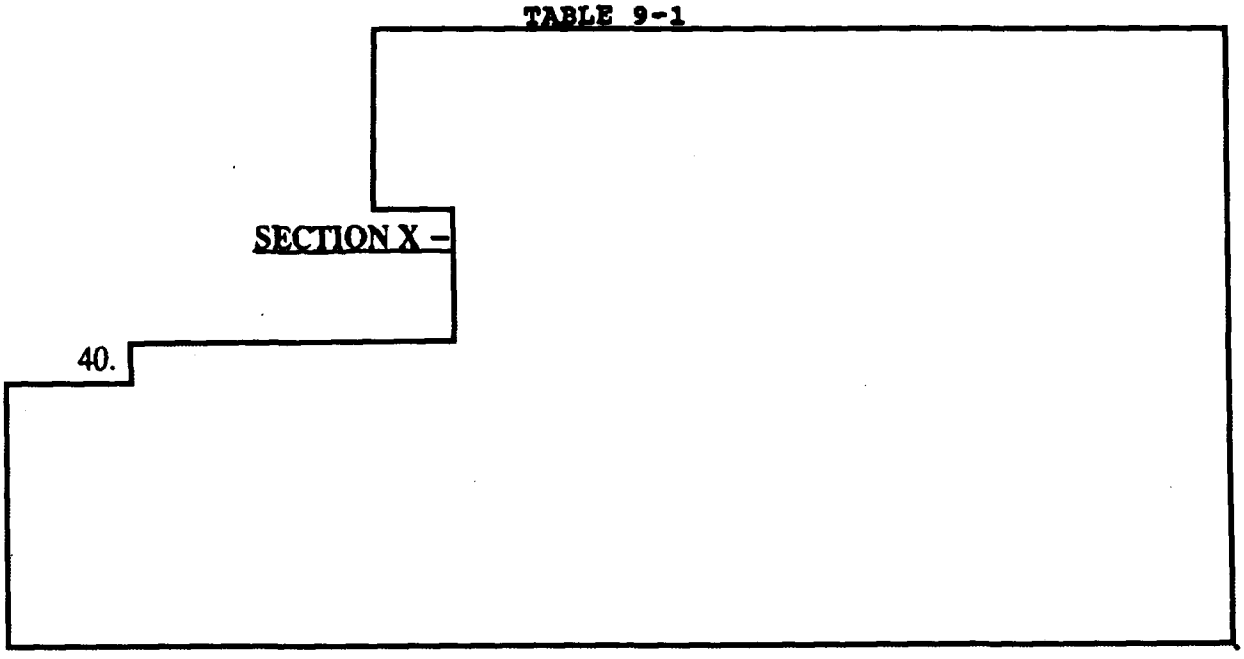

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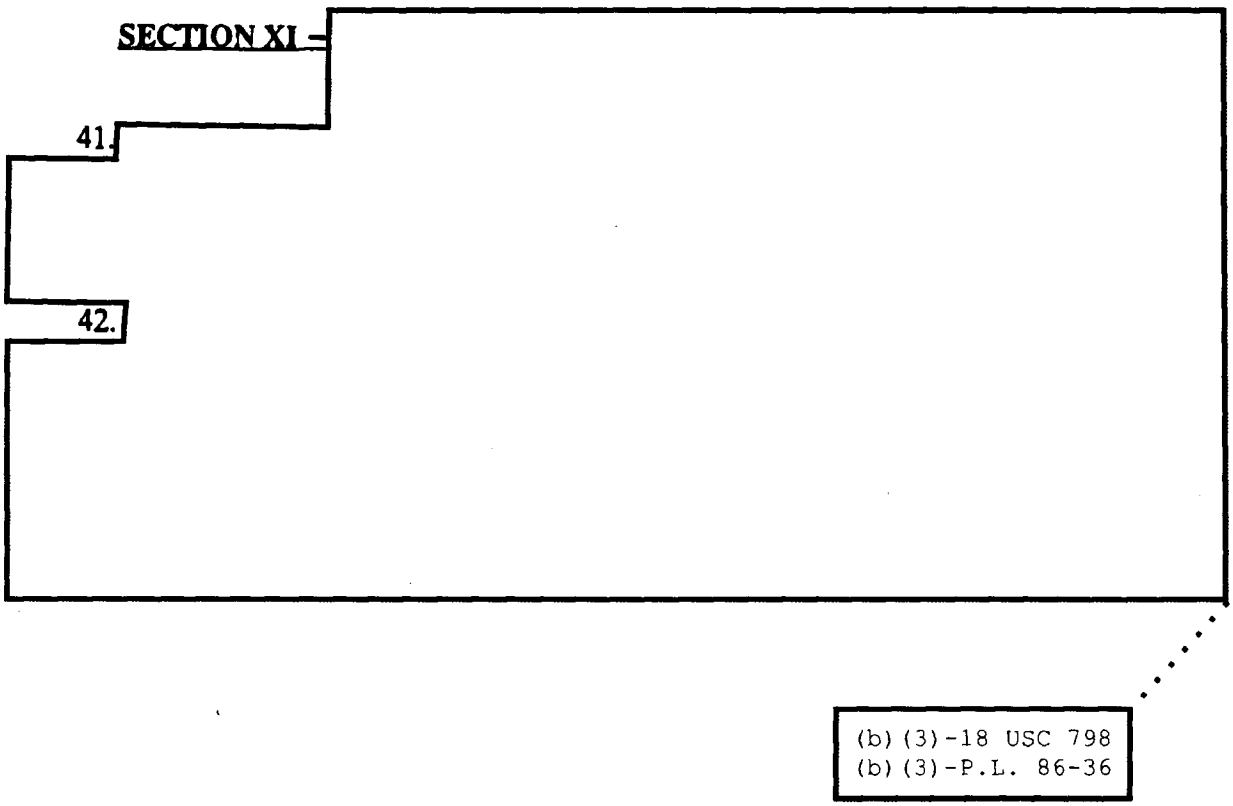
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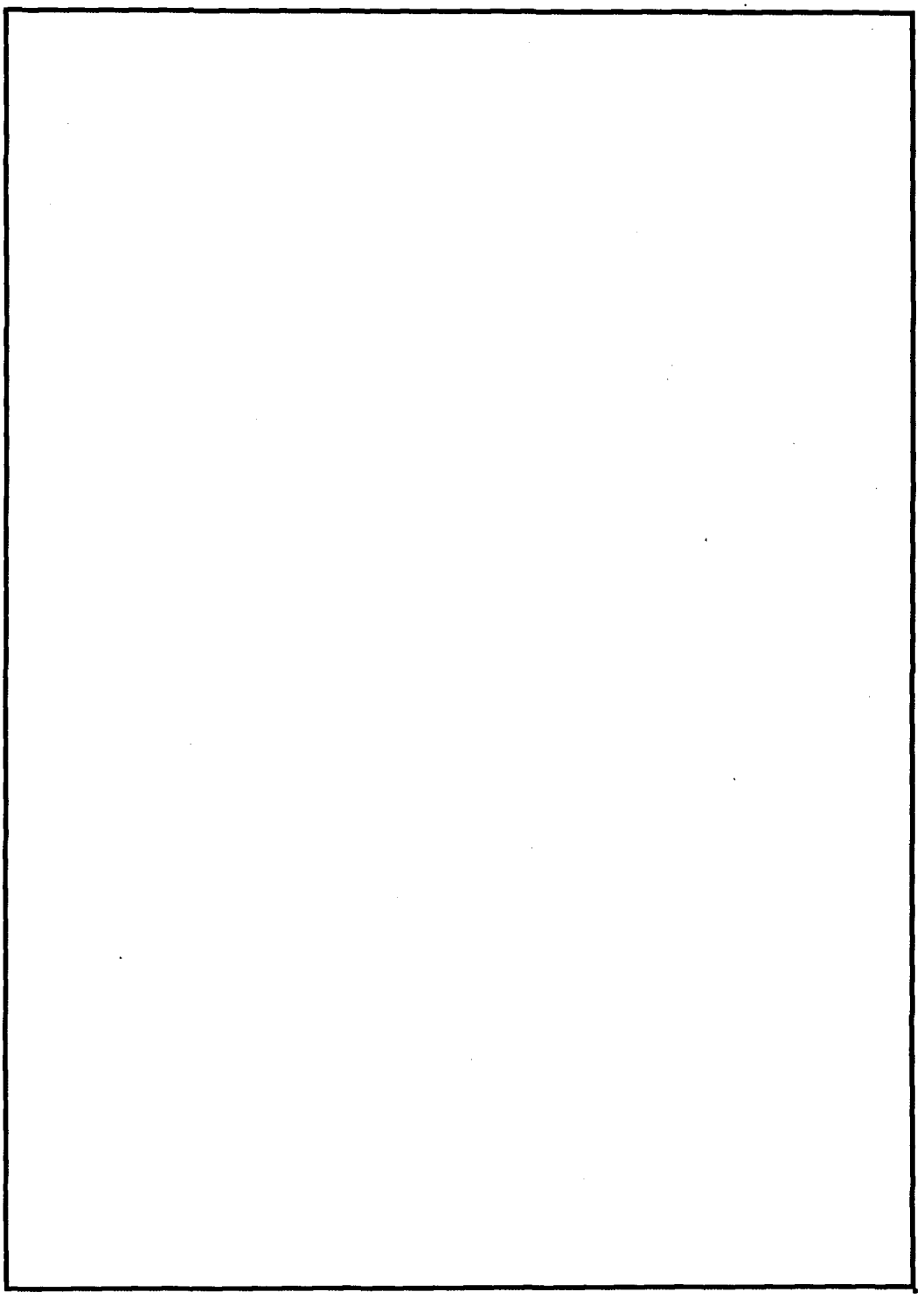

FIGURE 11-1

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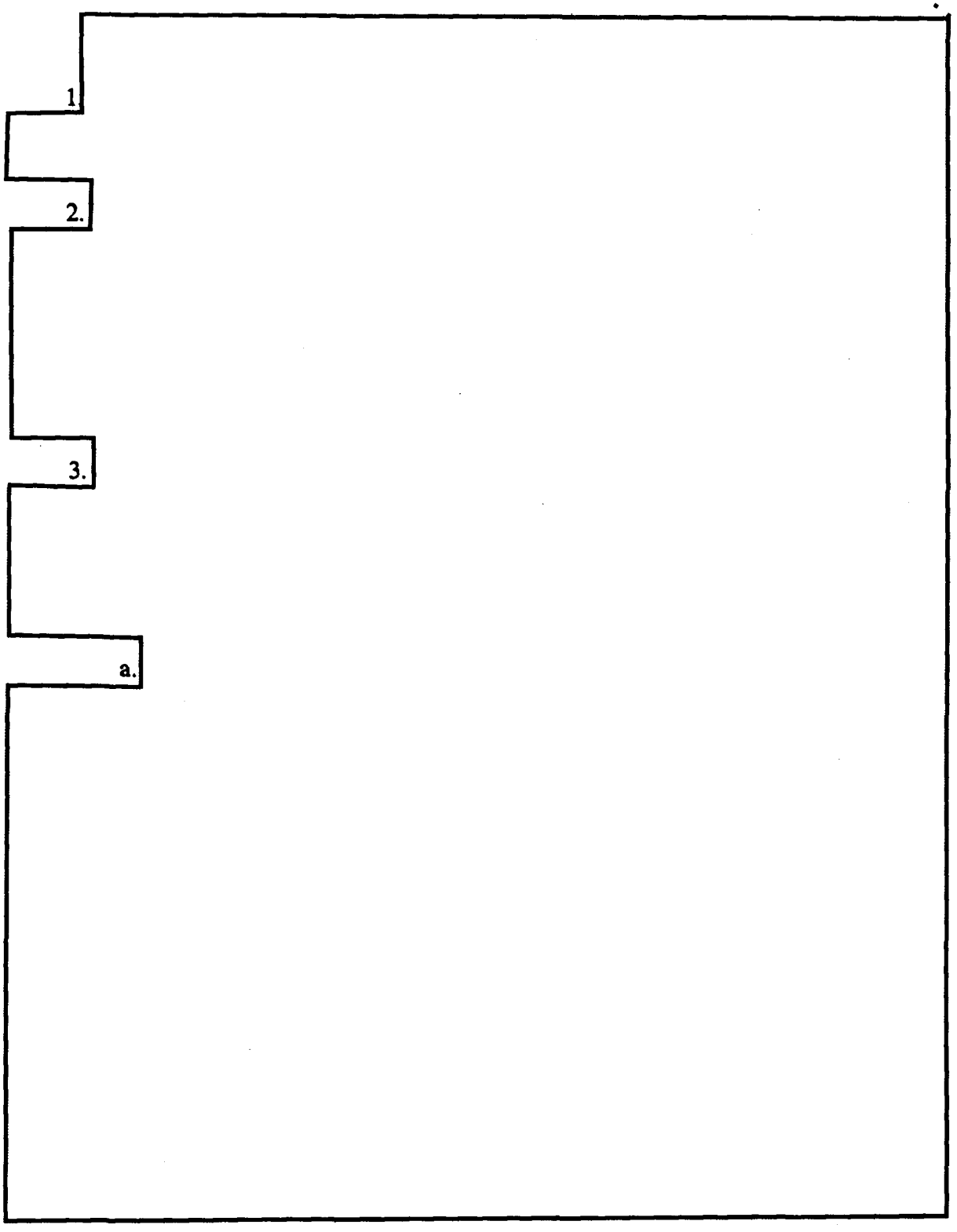
ANNEX A



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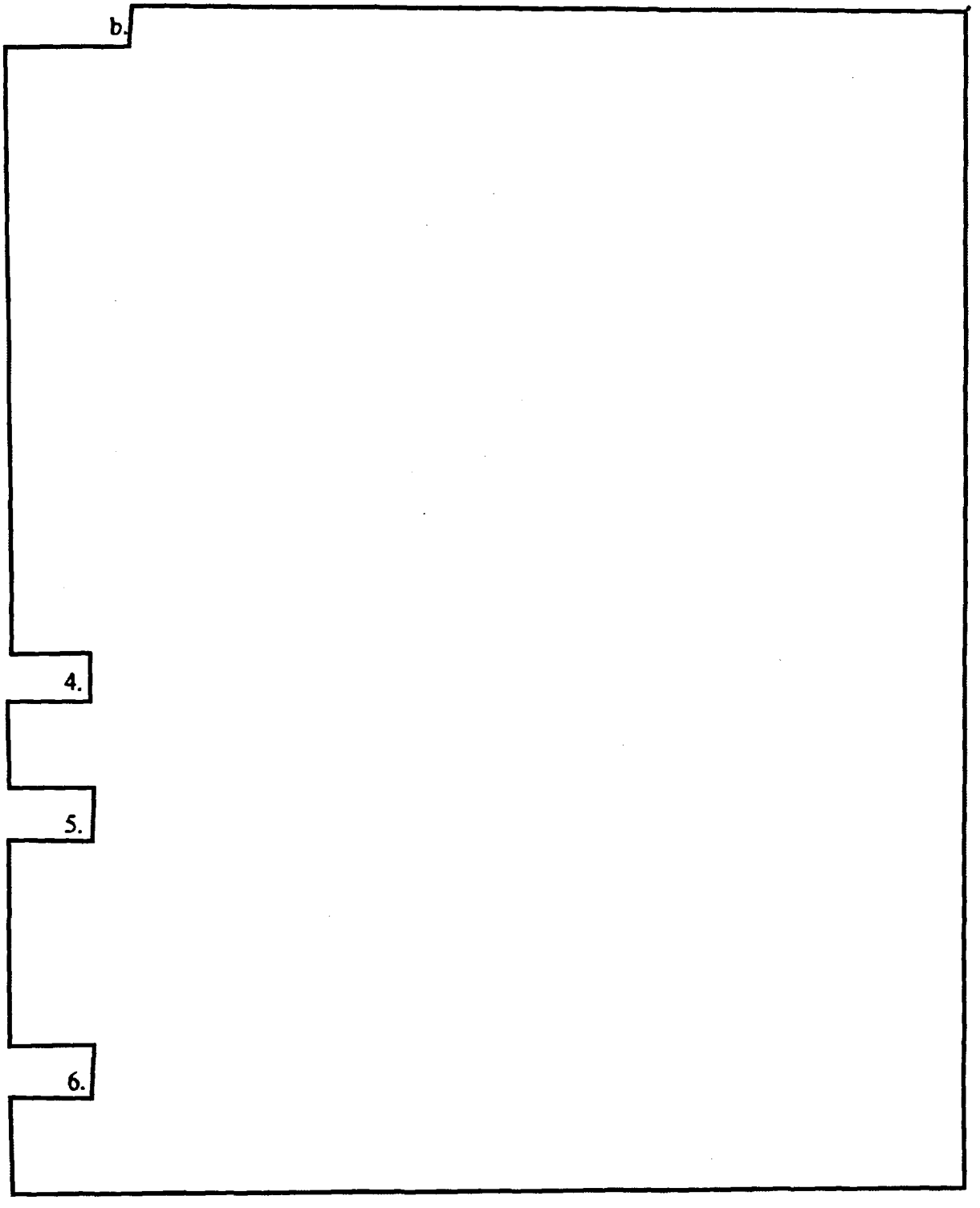

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ANNEX B

REGULATORY AGENCY REQUIREMENTS

1. National Telecommunications and Information Administration – In 1985, the National Security Agency obtained authorization from the National Telecommunications and Information Administration (NTIA) for U.S. Government departments and agencies to perform TEMPEST zone testing. Before granting this authorization, the NTIA requested that certain restrictions be placed on the zone test parameters. These restrictions were formalized in the NTIA publication, **"Manual of Regulations and Procedures for Federal Radio Frequency Management,"** dated May 1986, paragraph 7.9.5. The following is the content of this paragraph:

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ANNEX C

REQUIREMENTS FOR ZONING DOCUMENTATION

1. Facility Zone Test Plans – A well-prepared test plan will significantly reduce the amount of work necessary to perform a facility zone test, as well as help to reduce errors during the test.

a.

FIGURE C-1

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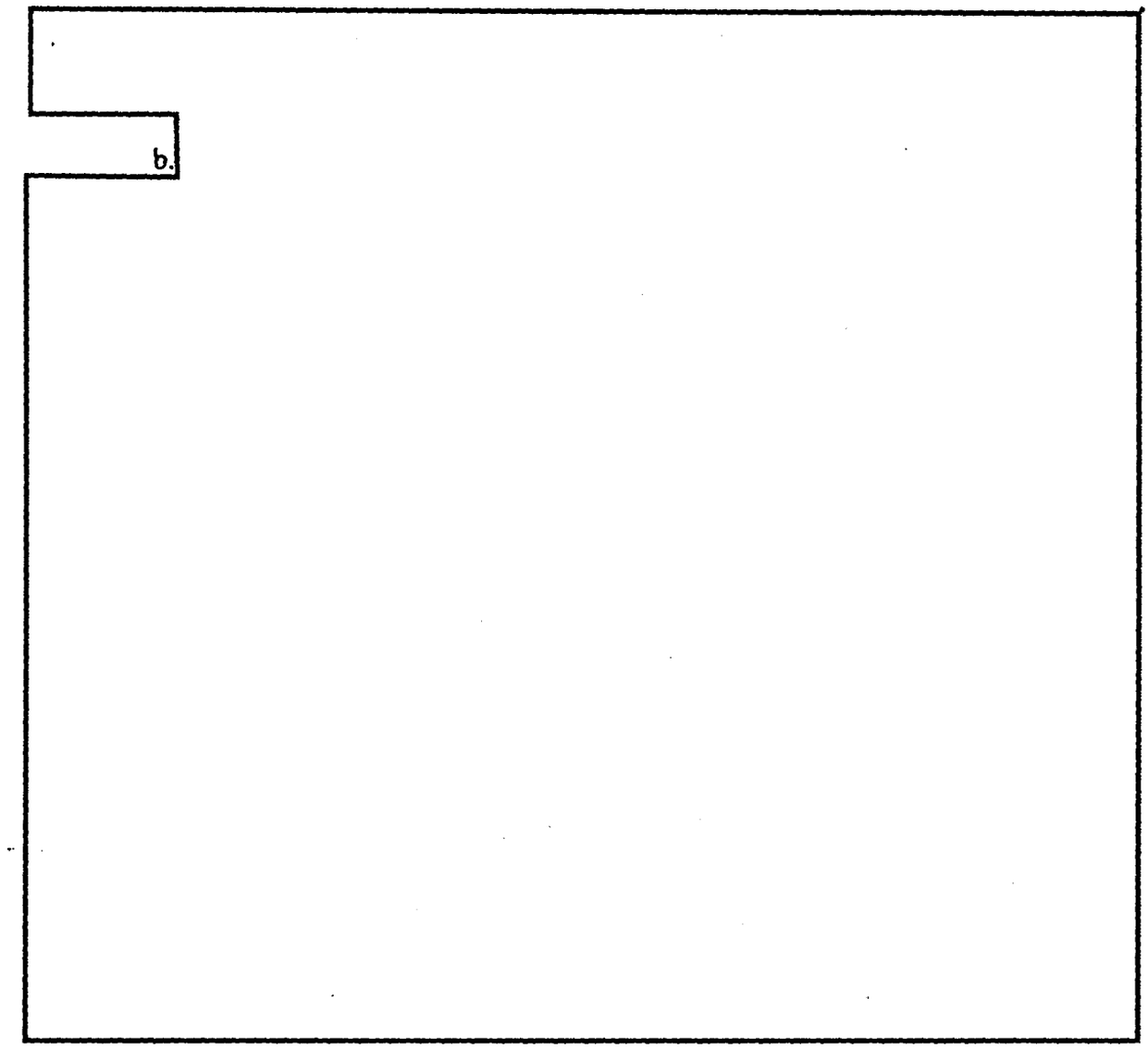
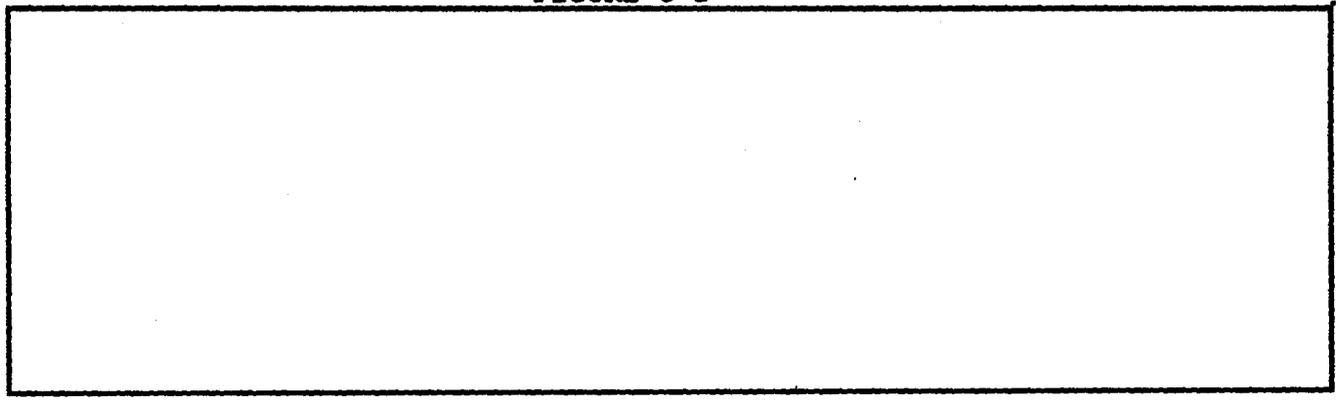


FIGURE C-2



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2. Facility Zone Test Reports – The following guidelines present the minimum requirements for a facility zone test report.

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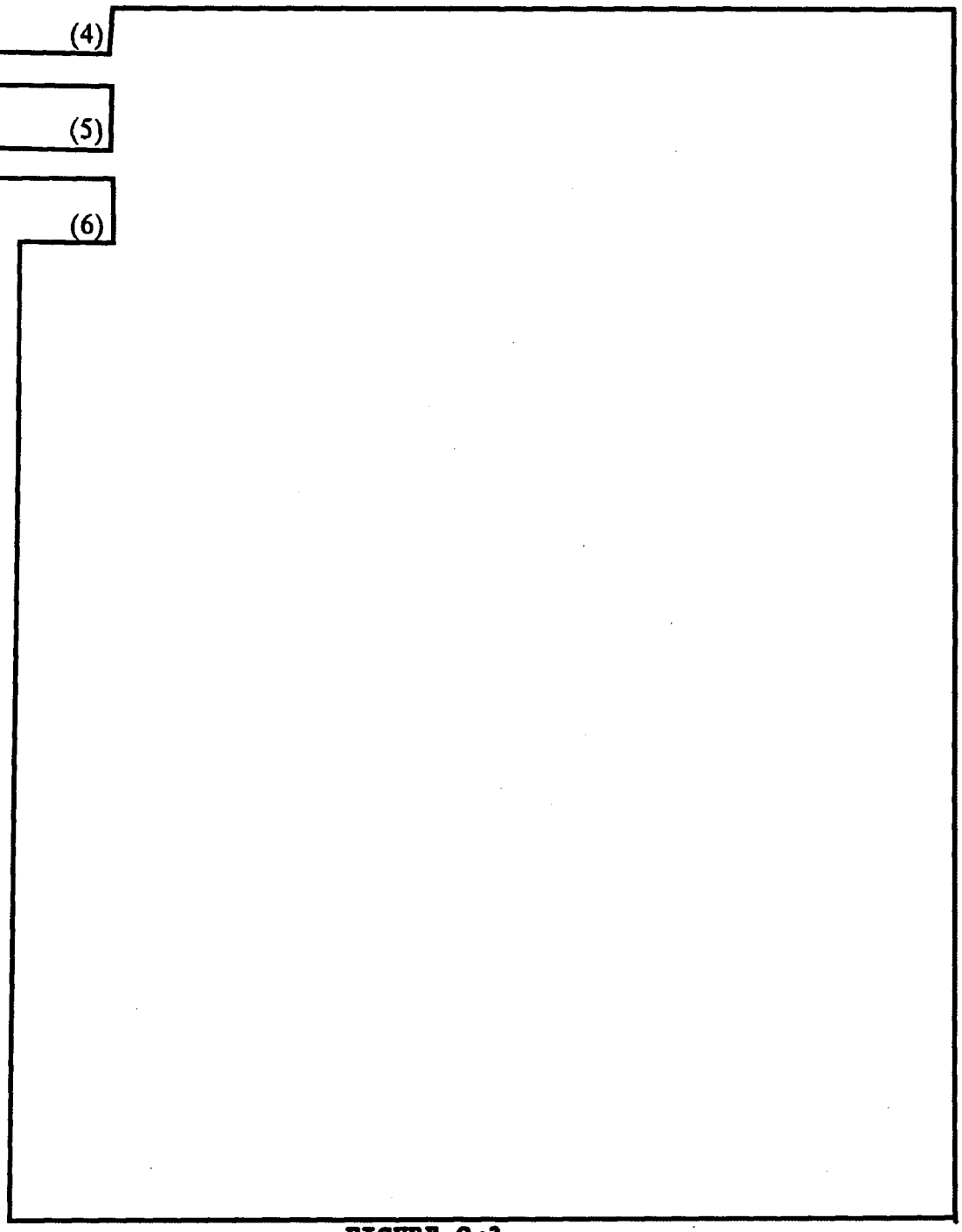

FIGURE C-3

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ANNEX D

CLASSIFICATION GUIDELINES

1 Classification Guidelines for Facility Zone Information

Item	Classification
Zoning Procedures – the step by step methods employed to obtain the facility and free space attenuation measurement data.	UNCLASSIFIED
Facility Zone Criteria – the attenuation levels necessary for each of the three facility zones.	UNCLASSIFIED
Facility Zone Ratings – the actual zone ratings of facilities or areas within facilities obtained by applying the zone criteria to the measured attenuation data.	CONFIDENTIAL
Facility Zone Maps – the graphic or narrative description which represents the zone ratings for a facility or areas within a facility.	CONFIDENTIAL

2. Classification Guidelines for Equipment Zone Information

Item	Classification
Equipment Zone Criteria – a listing, without specifying amplitude levels or frequency, referring to the limits which apply to the various zone ratings for equipment.	UNCLASSIFIED
Equipment Zone Ratings – the statement that an equipment meets the criteria for a particular zone.	UNCLASSIFIED
Equipment Zone Limits – the actual limits, including amplitude and frequency specifications which are specified by the equipment zone criteria. These limits are contained in NTISSAM TEMPEST/1–92.	CONFIDENTIAL

ANNEX E

COMPARISON OF "NEW" AND "OLD" ZONE LIMITS

1. Introduction – The equipment and facility zone limits published in this document are not the same as those published in the superseded document "Procedures for TEMPEST Zoning Information Processing Equipment, Systems and Facilities," dated January 1985. The new equipment limits are the Level I, II, and III published in NSTISSAM TEMPEST/1–92. The new facility limits match the new equipment limits.

2.

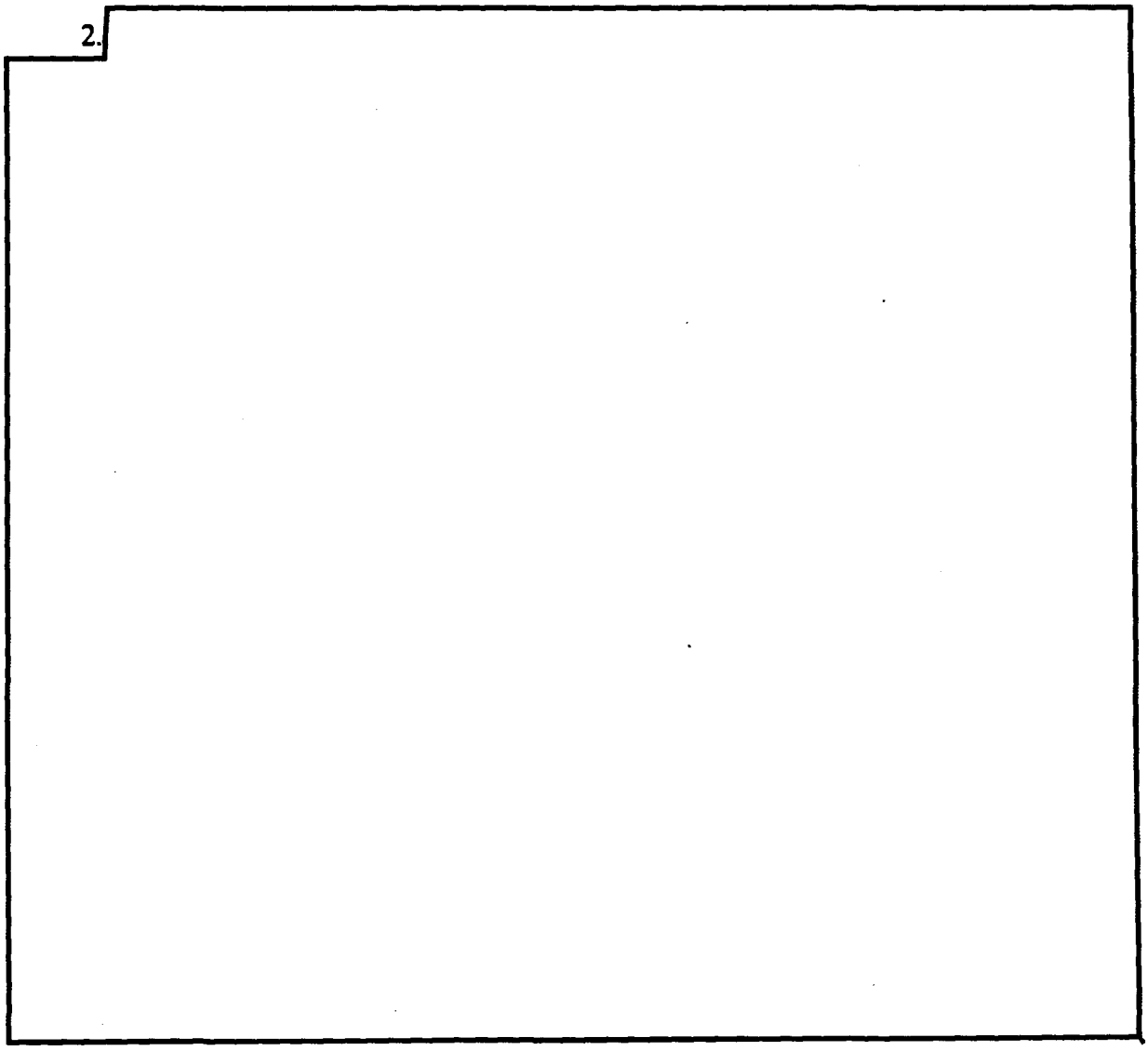

FIGURE E-1

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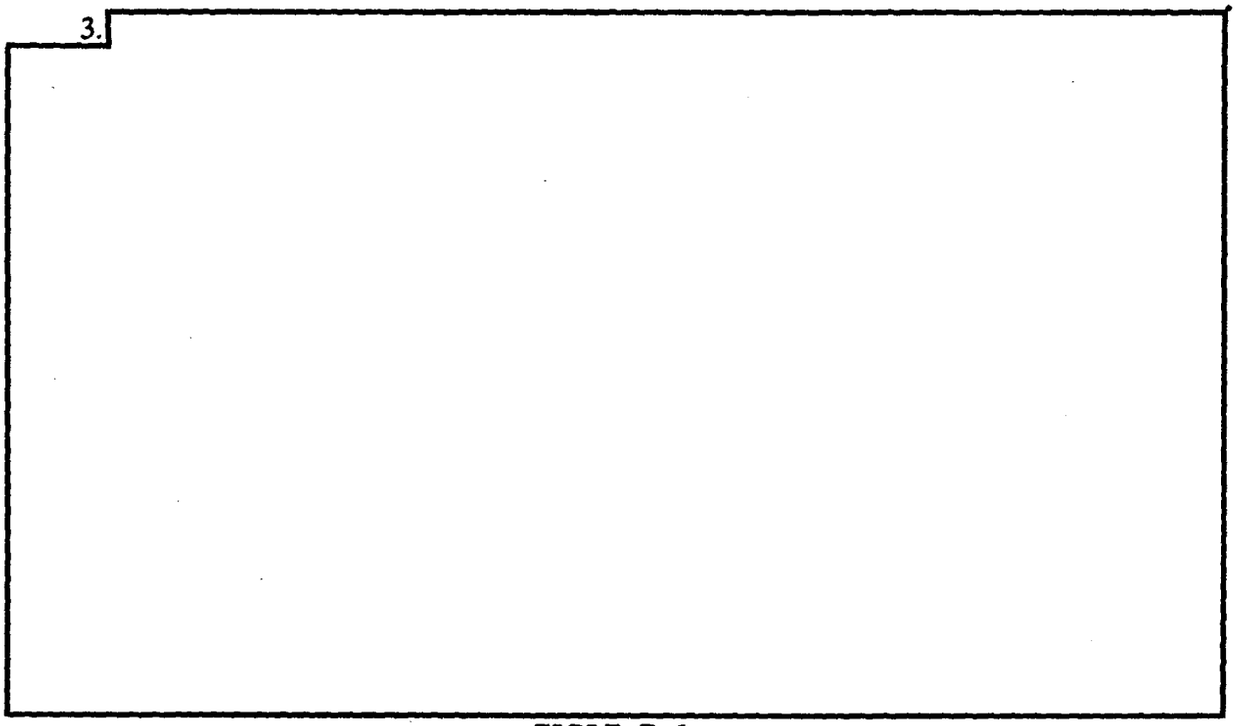


TABLE E-1

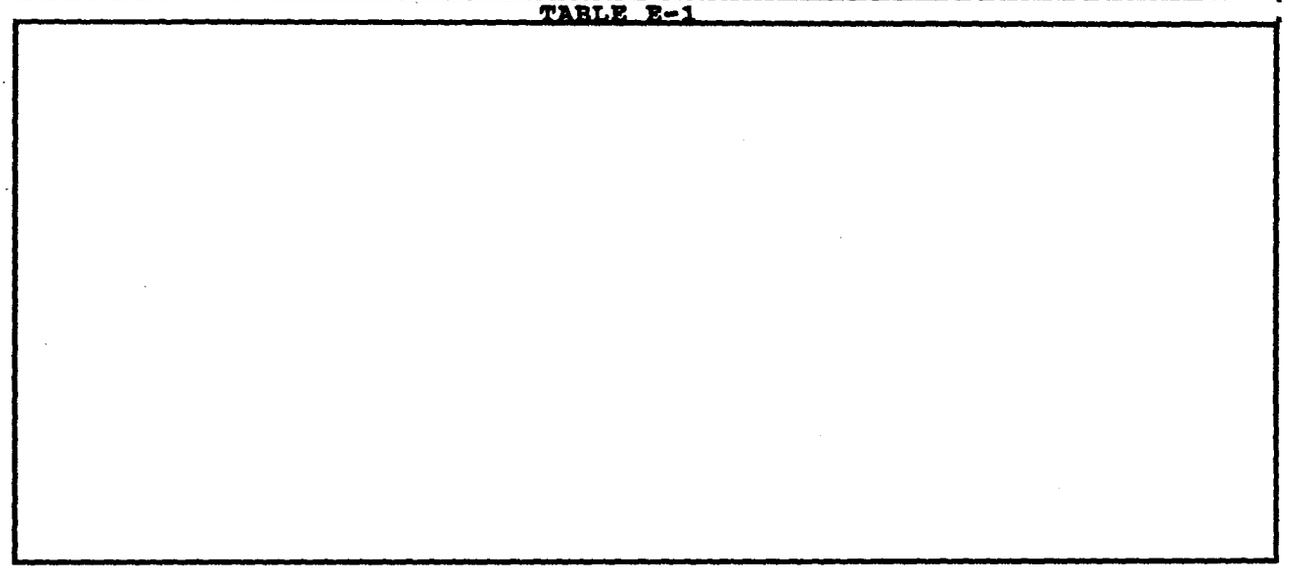
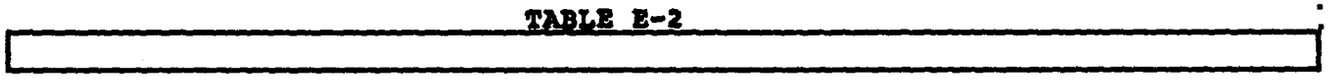


TABLE E-2



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ANNEX F

SHIELDING EFFECTIVENESS TESTING

1. Introduction – The basic procedures for performing facility TEMPEST zone evaluations presented in this document may also be used to perform shielding effectiveness evaluations. However, a few of the procedures must be modified, and extra precautions must be observed to ensure accurate results.

2. Procedural Modifications – The shielding effectiveness evaluation procedures described in the following paragraphs are modifications of the TEMPEST zone evaluation procedures presented in this document.

a.

b.

3. Special Precautions – With an antenna separation of only six meters, it will not be possible to transmit at maximum power when performing the reference measurement because the radiated power may saturate the preamplifier or spectrum analyzer. This saturation may occur even if the transmit power is reduced to an acceptable level. In order to prevent possible saturation of the receive system, it should be placed as far out of the line-of-fire of the transmit antenna as possible. Saturation of the receive system during reference measurement will invalidate any subsequent attenuation calculations made using that reference.

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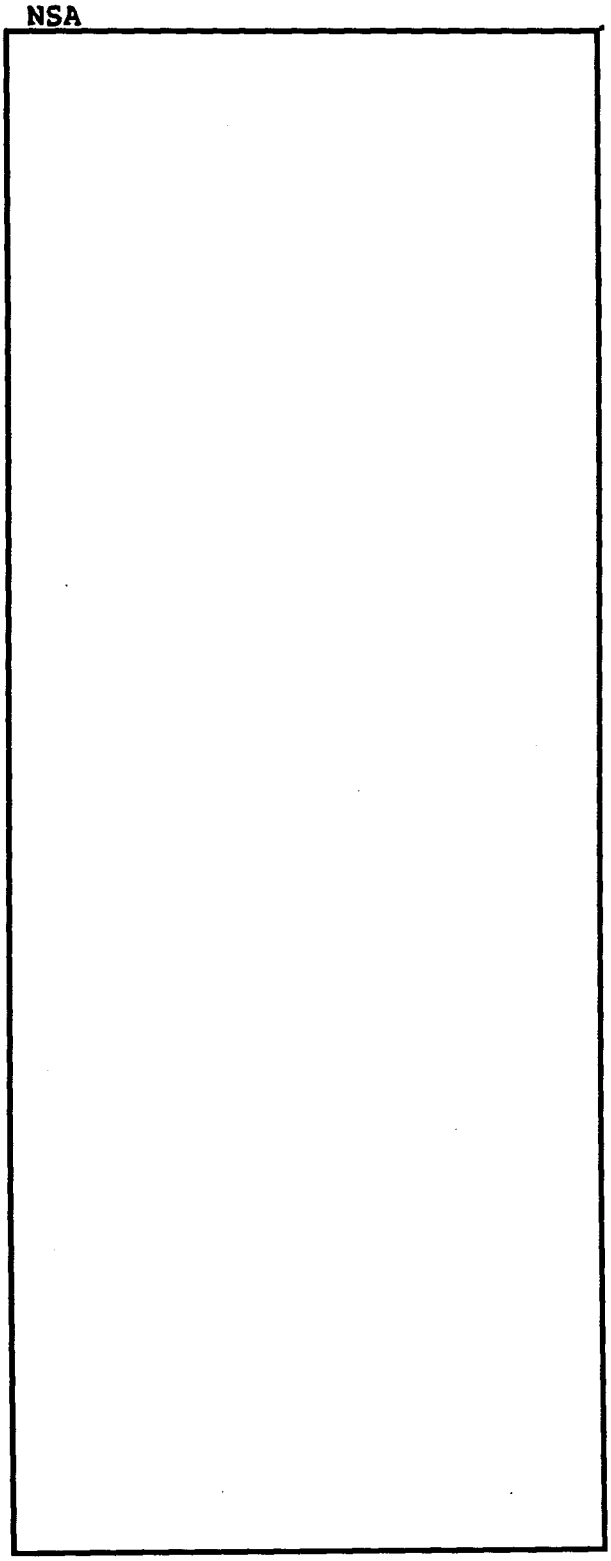

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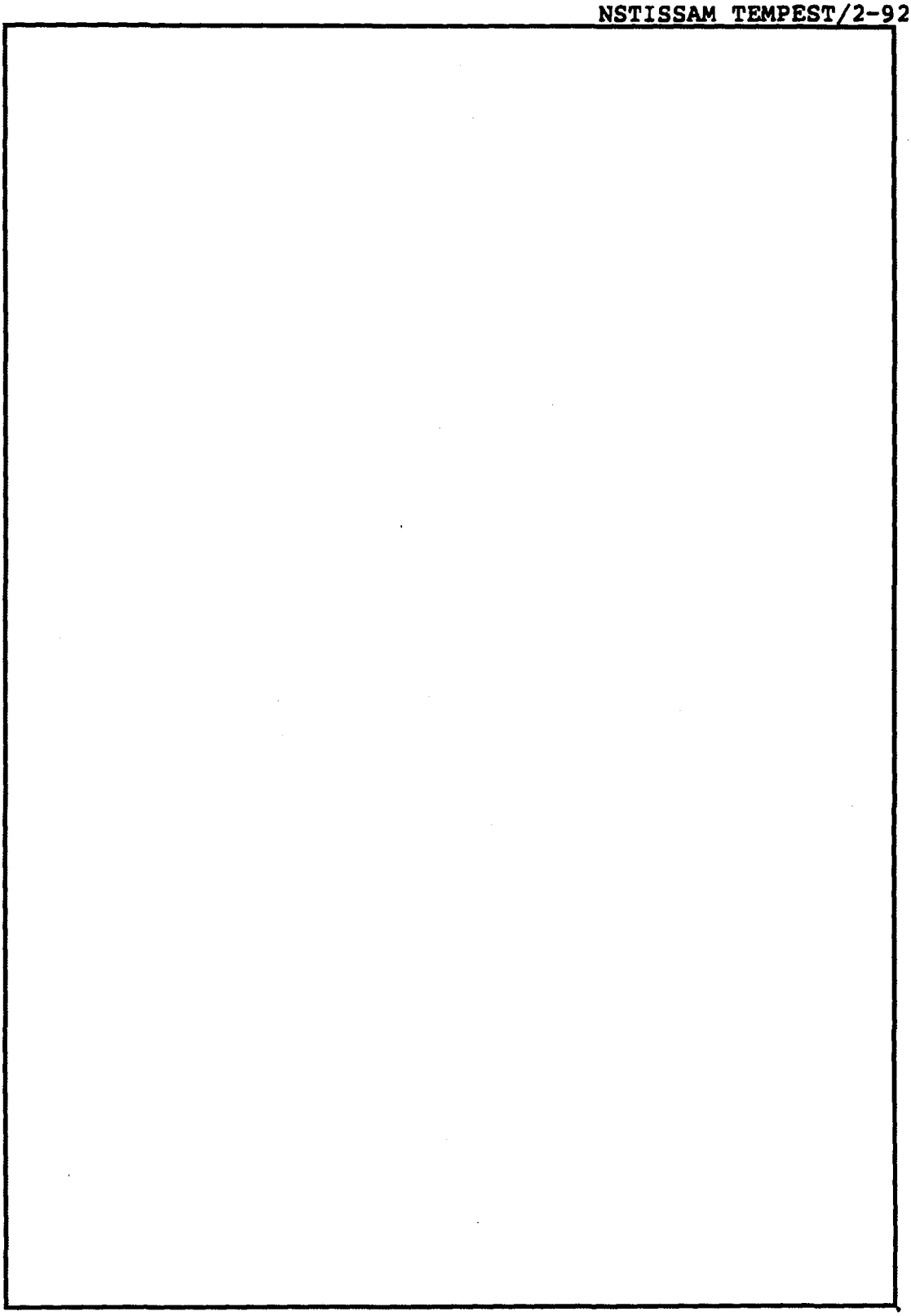

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