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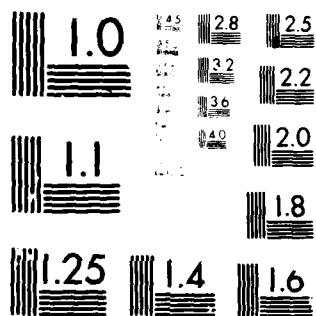
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FINAL REPORT
DETERMINATION OF THE FEASIBILITY OF REPLACING
SPECIAL PURPOSE TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT
WITH OFF-THE-SHELF ELECTRONIC TEST EQUIPMENT

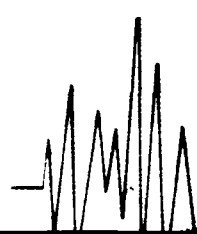
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SPECIAL EQUIPMENT SUPPORT DIVISION
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DIRECTORATE OF MAINTENANCE ENGINEERING
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Special Equipment Support Division
of the
Directorate of Maintenance Engineering
U.S. Army Communications and Electronics Materiel
Readiness Command (CERCOM)
Ft. Monmouth, New Jersey 07703
under Contract DAAB07-78-A-6606-BG-03

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FOREWORD

Under contract to the U.S. Army Communications and Electronics Materiel Readiness Command (CERCOM), ARINC Research Corporation determined the feasibility of replacing special purpose (SP) test, measurement, and diagnostic equipment (TMDE) with off-the-shelf (OTS) electronic test equipment (ETE) [or general purpose (GP) TMDE].

The work was performed under Contract DAAB07-78-A-6606, Delivery Order BG-03, a basic ordering agreement. The period of performance was 1 June 1979 to 28 April 1980.

ARINC Research Corporation gratefully acknowledges the invaluable assistance of Messrs. Vincent G. Calfapietra and Richard Pribyl of the Special Equipment Support Division, Directorate of Maintenance Engineering, CERCOM. We are also grateful to Messrs. Eli J. Dworkin and James A. Carter, of the same Directorate, for their interest and guidance during the study.

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ABSTRACT

This report describes the results of a contract effort to determine the feasibility of replacing special purpose TMDE with off-the-shelf electronic test equipment, i.e., general purpose TMDE. The results are based on a review of more than 1,000 special purpose (SP) TMDE listed in the DA TMDE Register (DA PAM 700-20/21) and a detailed review and analysis of 20 selected SP TMDE and the end systems they support.

The contract under which the work was performed is one of a group of contracts related to the CERCOM TMDE standardization effort.

SUMMARY

The work reported on herein was performed under a contract that is one of a group related to the CERCOM TMDE standardization effort. It was specifically directed toward determining the feasibility of substituting off-the-shelf electronic test equipment (general purpose TMDE) for special purpose TMDE. The study consisted of five interrelated tasks:

- Identify Special Purpose (SP) TMDE Assets,
- Update General Purpose (GP) TMDE Data Base,
- Determine Test Capabilities of Selected SP TMDE,
- Identify Common and Unique Test Requirements,
- Determine Best Mix of Off-The-Shelf Electronic Test Equipment (OTS ETE) for Each Selected SP TMDE.

The results are based on detailed examination of the technical performance characteristics of 20 SP TMDE selected from more than 1,000 items previously categorized as SP TMDE.

The conclusions reached are as follows:

- A significant portion of the present inventory of SP TMDE could be replaced by a prudent selection of GP TMDE based on the 20 SP TMDE,
- The use of groups of multipurpose GP TMDE in place of SP TMDE could result in significant cost savings (or avoidance).

The following actions are recommended:

- Remove identified SP TMDE from inventory at the direct support/general support/depot (DS/GS/D) levels and return to stock for issuance to O-level requirements, and replace these items at DS/GS/D levels with functionally equivalent GP TMDE.
- Update Maintenance Allocation Charts (MACs) to reflect present equipment requirements.
- Study additional selected SP TMDE to further substantiate the conclusions reached and to expand the list of items that can be replaced by GP TMDE.

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CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND

Through the years, the U.S. Army has acquired an enormous inventory of special purpose (SP) test, measurement, and diagnostic equipment (TMDE). SP TMDE is defined in MIL-STD-1309B as follows:

Special Purpose Test Equipment. Equipment used for test, repair and maintenance of a specified system, subsystem or module, having application to only one or a limited number of systems.

For comparison purposes, the definition of general purpose (GP) TMDE as presented in MIL-STD-1309B is also shown:

General Purpose Test Equipment. Test equipment which is used for the measurement of a range of parameters common to two or more equipments or systems of basically different design.

The procurement of SP TMDE over the past several years has broadened to include various makes and models that typically can be used with only one Communications-Electronics (C-E) end item or system. Currently, this expanded inventory includes SP TMDE with overlapping or redundant capabilities, resulting in increased logistics costs. Further, the procurement and reprocurement costs of SP TMDE are often excessive because of the one-time development and production setup costs associated with their procurement and the typical low densities of each type acquired over which these costs are amortized.

SP TMDE usually represents a composite of GP TMDE capabilities that can be combined for convenience into a single configuration for testing a specific C-E end item. The stimuli and measurement capabilities of the SP TMDE are usually limited to those specifically required to support the designated end item. These limitations, which may be cost-effective in the support of a given weapon system, often prevent using the TMDE in support of other C-E systems. Significant cost benefits might be realized if GP TMDE could be identified that satisfy most SP TMDE applications, particularly at the higher levels of maintenance. In addition, surveys of the off-the-shelf (OTS) electronic test equipment (ETE) market indicate that

some commercial manufacturers offer products that consist of various combinations of GP TMDE, e.g., a spectrum analyzer, signal generator, and power meter combined into a radio or radar test set. These OTS combination sets could potentially replace several SP TMDE now in the Army's inventory.

In 1976 ARINC Research initiated a project for the U.S. Army Communications and Electronics Materiel Readiness Command (CERCOM) to perform an engineering analysis and determination of U.S. Army TMDE requirements. This project was part of an overall Army program to standardize TMDE and to minimize the number of GP items. The study was directed toward preparing specifications to facilitate the competitive procurement of GP OTS ETE and resulted in the development of 98 Military (OTS ETE) Specifications. However, hundreds of TMDE were specifically excluded from consideration in that study because they were defined as SP TMDE. There is now a need to address those excluded SP TMDE as well as new SP TMDE added to the Department of the Army (DA) TMDE Register since 1976. It is also necessary to update the GP TMDE data base developed in 1976 to include new GP TMDE added to the DA TMDE Register since that time. This update will assist CERCOM in developing detailed economic analyses to support the replacement of the existing Army GP TMDE inventory with OTS ETE.

To address SP TMDE and update the GP TMDE data base, ARINC Research Corporation was tasked, under Contract DAAB07-78-A-6606, Delivery Order BG-03, to perform an engineering analysis of SP TMDE to determine the feasibility of replacing SP TMDE with OTS ETE or appropriate GP TMDE and to update the existing GP TMDE data base.

1.2 OBJECTIVE

The overall objective of the study is to determine the feasibility of replacing SP TMDE with OTS ETE. Specific project objectives are as follows:

- Identify and describe U.S. Army SP TMDE assets
- Update GP TMDE data base
- Determine capabilities of and requirements for selected SP TMDE
- Identify common and unique test requirements
- Determine the best mix of OTS ETE for each selected item of SP TMDE

1.3 OVERVIEW OF WORK PERFORMED

Achievement of the study objectives required a series of interrelated tasks.

In Task 1 the SP TMDE assets of the U.S. Army, as reflected in DA PAM 700-21/20, were identified and categorized into SP TMDE families. The individual technical characteristics of each SP TMDE item were then encoded for subsequent display and analysis in computer printouts. As a result of the analysis, a composite of technical characteristics for each SP TMDE family was developed.

In Task 2 the ARINC Research GP TMDE data base developed under Contract DAEA18-72-A-0005/0007 was updated to include all GP TMDE listed in the current DA TMDE Register. This update added items that were "new" since the last update and deleted items that were no longer in the Register. The final step in this task was to update the TMDE Cross-Reference List (TCRL), developed under the same contract, to include the newly added GP TMDE.

In Task 3, 20 items of SP TMDE were selected for detailed analysis during the remainder of the study. The technical characteristics as described in their respective technical manuals were encoded for each of the selected items, and the test and measurement requirements of the end items they supported were reviewed. In parallel with this analysis, a field survey was conducted to confirm the selected SP TMDE application, test procedures, and needs.

During Task 4, test requirements and capabilities of all items of SP TMDE and the end items they supported were examined to determine which were common and which were unique. Common requirements are defined as those common to many types and classes of equipment. Unique requirements are defined as peculiar or specific to one type or class of equipment. For each *common* test requirement or capability, a Military (OTS ETE) Specification and a U.S. Army Preferred Items List (PIL) TMDE that met or exceeded the testing need were identified. For each *unique* test requirement or capability, we planned to examine up to five OTS ETE that met or exceeded the test needs. The characteristics of these OTS ETE were to be encoded for subsequent analysis. However, we were unable to identify a large enough quantity of such OTS ETE to permit a comparison and therefore terminated this phase of the effort. Finally, during Task 4, we were to make a separate evaluation of the field environment in which the selected SP TMDE is employed to determine the conditions under which the OTS ETE must operate.

In Task 5 the best mix of OTS ETE that met both the common and unique test requirements and capabilities for all selected SP TMDE and their respective supported end items was determined by identifying PIL items of GP TMDE whose performance characteristics were at least as good as those of the SP TMDE. In addition, the technical characteristics of the other SP TMDE (encoded during Task 1) were reviewed to determine the potential for any additional SP TMDE replacements.

Task 6 was the preparation of this final report, which presents the results of each of the previous tasks and the conclusions and recommendations of the study.

1.4 REPORT ORGANIZATION

Chapter Two describes the study approach, Chapter Three presents the results, and Chapter Four provides the conclusions and recommendations. Appendixes A through F present supporting details.

Because of their bulk, two appendixes are published separately in Volume II of this report:

- Appendix C - U.S. Army Special Purpose TMDE Parameters
- Appendix D - Definition of Special Purpose Specfications

CHAPTER TWO

TECHNICAL APPROACH

The technical approach used to meet the project objectives consisted of the following tasks:

- Task 1: Identify and Describe SP TMDE Assets
- Task 2: Update GP TMDE Data Base
- Task 3: Determine Selected SP TMDE Test Capabilities
- Task 4: Identify Common and Unique Test Requirements
- Task 5: Determine Best Mix of OTS ETE for Each Selected SP TMDE
- Task 6: Prepare Final Report

2.1 TASK 1: IDENTIFY AND DESCRIBE ARMY SP TMDE ASSETS

The Army's present inventory of SP TMDE was identified, and descriptive and key technical characteristics were encoded for subsequent display and analysis in computer printouts. These data were derived from SB 700-20, DA PAM 700-20/21, appropriate technical manuals (see Appendix A for list of publications), and the computer printouts and listings developed under Contract DAEA18-72-A-0005/0007. These latter listings contain brief descriptive data related to the SP TMDE that were excluded from the GP TMDE study previously mentioned. The following list presents the data elements that were encoded for each SP TMDE, where these data were available in the data sources described above:

- Joint Electronic Type Designator (JETD)
- Manufacturer's Model Number and FSCM (Federal Supply Code for Manufacturers)
- Nomenclature
- National Stock Number (NSN)
- Line Item Number (LIN)
- Technical Characteristics as Listed in DA PAM 700-20/21
- C-E End Item Supported
- SP TMDE Technical Manual Number (Operator Manual)

In addition to these data elements, each SP TMDE was assigned an SP TMDE family code to facilitate grouping and analysis of similar SP TMDE. The family code consists of three numerical characters, with each code depicting a specific type of SP TMDE (e.g., 039 Power Meter, AC, 311 Radio System Test Set). These family codes were originally developed as part of an earlier effort (DAEA18-72-A-0005/0007) that categorized SP TMDE as Family Code 200. While the sequence is arbitrary, it permits assembly of like TMDE by computer. The original list had some unassigned blocks of numbers (3XX, 5XX), and those were arbitrarily assigned to newly identified SP TMDE families. The SP TMDE family codes are listed in Appendix B.

To complete Task 1, a composite of technical characteristics of each family of SP TMDE was extracted, encoded, and displayed in a computer print-out. The composite reflects the maximum and minimum values of each technical parameter encoded, e.g., frequency range of 10 MHz to 1.6 GHz, bandwidth of 3 kHz to 150 MHz.

To reduce project cost and period of performance, the computer input (card types) and output (computer printouts and listings) transactions developed under Contracts DAEA18-72-A-0005/0007 and BG-02 were used to encode and display data related to this study. Minor modifications were introduced as required. The data base structure is described in detail in ARINC Research Publication 1076-01-1-1693, dated December 1977, *Establish Project Data Base Structure for the Definization of Specifications for Families of Off-The-Shelf (OTS) Electronic Test Equipment* (provided to CERCOM under Contract DAEA18-72-A-0005, Delivery Order BG-02).

2.2 TASK 2: UPDATE GP TMDE DATA BASE

The GP TMDE data base* developed under Contract DAEA18-72-A-0005/0007 was updated to reflect those GP TMDE which were added to the DA TMDE Register since June 1976. This update was accomplished by comparing the existing data files with the current DA TMDE Register (April 1979) and encoding the new TMDE listed in the Register by appropriate identification data for inclusion in the data base. Further, all TMDE listed in the data base that did not have a corresponding entry in the Register were assigned a Family Code of "999" (999 = NOT LISTED DA PAM 700-20/21). The technical parameters shown in the Register were then reviewed and, where applicable, one or more of the 98 Military (OTS ETE) Specifications were designated as potential replacements. The results of the review were then encoded and the TMDE Cross Reference List (TCRL) updated to reflect the newly added GP TMDE.

*While frequency counters and oscilloscopes are included in the GP TMDE data base, they were not included in the TCRL because none of the 98 Military (OTS ETE) Specifications represent these families of TMDE.

2.3 TASK 3: DETERMINE SELECTED SP TMDE TEST CAPABILITIES AND REQUIREMENTS

Task 3 was initiated with the selection of a number of SP TMDE for study. The following criteria were used in the selection:

- SP TMDE must be Standard A (listed in SB 700-20).
- The technical manuals for the selected SP TMDE and the specific end item they support, if applicable, must be listed in TM 11-5800-213-L.
- Each selected SP TMDE will be primarily an electronic test set rather than an electromechanical test set.
- The latest model in the SP TMDE or end item series will be selected, if publications are available.
- Neither the selected SP TMDE nor their respective supported end items should be a classified system, since this might preclude an analysis of the various test requirements.

Of the many items that satisfy these criteria, 20 were selected arbitrarily to include as many family codes as possible. The selected SP TMDE were used to determine the feasibility of replacing SP TMDE with OTS ETE and therefore formed the basis for a detailed review and analysis during the remainder of the study. Technical source data for SP TMDE and their respective supported end items are listed in Appendix A.

Following the selection process, the detailed technical parameters (as described in their respective technical manuals) for each selected item of SP TMDE were encoded for subsequent listing in various computer printouts. These printouts facilitated the analyses of Task 3 and all subsequent tasks, e.g., in determining the existence of similar or overlapping test capabilities, total test capability, and alternate test methods.

The C-E end item supported by each selected item of SP TMDE was evaluated to determine the requirements of the tests to be performed by the SP TMDE, the maintenance level at which these tests are performed, and the results expected from each test. The C-E end item technical manuals are the designated source documents for this analysis and are listed in Appendix A. A survey was conducted through CERCOM field representatives (Logistics Assistance Offices) to confirm the selected SP TMDE's field application and test procedures. For this survey, a questionnaire was devised (see Figure 2-1).

2.4 TASK 4: IDENTIFY COMMON AND UNIQUE TEST REQUIREMENTS

Using the results of Task 3, we examined each test requirement for each separate SP TMDE to determine which are common (i.e., could be met by an item of GP TMDE) and which are unique to the C-E end item. For each common test requirement, we identified Military (OTS ETE) Specifications

Type Designator _____ Nomenclature _____

End Item Supported _____

Do you use the item indicated for the purpose intended?

☐

More than
85%
of the time

☐

50 to 85%
of the time

☐

15 to 50%
of the time

☐

Less than
15%
of the time

If not more than 85% of the time, why not?

Explain _____

What do you use?

List items _____

Would you prefer using GP TMDE instead of SP TMDE?

Explain _____

What test procedures do you follow?

Identify TM and paragraph no. _____

(continued)

Figure 2-1. SP TMDE QUESTIONNAIRE

What level of maintenance does each test represent?

Operator/Crew

General Support

Organizational

Depot

Direct Support

Are any supplemental items of TMDE used other than those shown in the TM?

List

If the designated SP TMDE is unavailable (NORM, calibration, etc.), could you perform the required test with GP TMDE?

Yes

No

Explain

What are the environmental conditions under which the TMDE is used?

Fixed (Sheltered)

Field (Exposed)

Figure 2-1. (continued)

that met the test requirement. Where applicable, we also identified a TMDE item in the U.S. Army Preferred Items List (PIL) that met the test requirement.

For each C-E end item with unique test requirements that must be satisfied by the SP TMDE as designed, it was planned to identify up to five OTS ETE that met or exceeded those requirements. In this way the availability or nonavailability of existing OTS ETE that could satisfy the unique test requirements would be determined. However, very few specific items could be identified, and this portion of the effort was terminated.

In Task 4 a separate evaluation was to be made of the field environment in which the selected SP TMDE or replacement OTS ETE must function. This evaluation required review of the respective C-E end item technical manuals and, particularly the Maintenance Allocations Charts (MAC), to determine whether the OTS ETE is a suitable replacement for the SP TMDE, given the expected operational employment conditions in which it must perform. It was also planned to examine the differences between the SP TMDE and the potential replacement OTS ETE to determine relative ease of field operations for the field user or for a fixed site environment. A questionnaire was prepared for distribution to the Logistics Assistance Offices so that the field data needed for the evaluation could be obtained. Unfortunately, data were not received in response to the questionnaires in time for inclusion in this report. Should these data be received later, CERCOM can readily extract data pertinent to the TMDE usage and field environment.

Those SP TMDE which are considered not to be replaceable by OTS ETE (e.g., special test harnesses designed specifically for use with a particular C-E end item) were excluded from Task 5.

2.5 TASK 5: DETERMINE BEST MIX OF OTS ETE FOR EACH SELECTED SP TMDE

For each of the applicable SP TMDE, the best mix of OTS ETE that met common test requirements of the C-E end item supported was determined. Every effort was made to select items of OTS ETE that could perform the required functions by themselves, with "add ons" that would, for example, extend range and broaden capability, as necessary. If there were available several items of OTS ETE (GP TMDE) that could provide the functions required, only one of which was on the PIL, the item selected was the PIL item.

2.6 TASK 6: PREPARE FINAL REPORT

This final report was prepared to present the scope, objectives, technical approach, results, and conclusions and recommendations of the study.

CHAPTER THREE

STUDY RESULTS

This chapter presents the results of a study effort to determine the feasibility of replacing SP TMDE with OTS ETE.

3.1 TASK 1: IDENTIFY AND DESCRIBE ARMY SP TMDE ASSETS

Initially, 1,044 items of U.S. Army SP TMDE were identified as Family Code 200 and had been excluded from the earlier study of GP TMDE. These SP TMDE were assigned to family codes other than 200 in accordance with their usage and technical characteristics. Of these initial items, 593 were assigned to newly established family codes. The number in each of these families is shown in Table 3-1*. The remaining 451 TMDE were placed in other TMDE families that were excluded from this study (e.g., hydraulic, electromechanical) or were classified as GP TMDE. These SP TMDE family codes are presented in Appendix B, and the performance parameters are listed in Appendix C. Appendix D definitizes the SP specifications for each SP TMDE family and facilitates the comparison of technical parameters between U.S. Army SP TMDE within that family. Appendix E lists the composite SP specification parameters for each SP TMDE family.

3.2 TASK 2: UPDATE GP TMDE DATA BASE

The results of Task 2 were transmitted to CERCOT via a letter report, with the following updated listings as attachments:

- Alphanumeric listing by type designator
- Alphanumeric listing by manufacturer's model number
- Alphanumeric listing by family code
- Part I TMDE Cross-Reference List
- Part II TMDE Cross-Reference List

*Because of their length, the tables and the figure are presented at the end of this chapter.

3.3 TASK 3: DETERMINE SELECTED SP TMDE TEST CAPABILITIES AND REQUIREMENTS

The SP TMDE listed in Table 3-2 were selected to determine the feasibility of replacing SP TMDE with OTS ETE. Appendix D contains the detailed technical parameters of each selected SP TMDE. Appendix E presents the specification parameters of the selected SP TMDE. Appendix F lists the selected SP TMDE in the following sequences: Type Designator Sequence, SP TMDE Family Code Sequence, LIN Sequence, and End Item(s) Supported Sequence. Examination of the test capabilities (from SP TMDE technical manuals) and test requirements (from C-E end item technical manuals) disclosed that there were some MACs in which the SP TMDE item was not identified. The requirement for such SP TMDE is developed by reference (in the SP TMDE technical manual) to the C-E end item it is intended to support.

3.4 TASK 4: IDENTIFY COMMON AND UNIQUE TEST REQUIREMENTS

The test requirements (determined from the technical manuals for the supported end items) and the test capabilities (determined from the technical manuals for the SP TMDE) were examined for the specific purpose of identifying common and unique test requirements. As previously stated, common requirements have been defined as those which are common to many types and classes of equipment. For example, measurements of transmitter output frequency or power are common to all transmitters. The determination of pulse train coding, however, may be unique to transponder test sets and require special (or unique) test equipment or test techniques. The special (or unique) modulation techniques utilized in navigational systems (e.g., VOR, LOC, ILS) would qualify those test requirements as unique.

The results of Task 4 are presented in Figure 3-1, which provides test description, purpose, and maintenance level at which the test is performed for each of the SP TMDE items listed in Table 3-2. From the specifications prepared for OTS ETE under Contract DAAB07-78-A-6606/BG-0001, specifications were selected whose requirements were at least as demanding as the test requirements of the end item supported by the SP TMDE. In addition, U.S. Army PIL TMDE were selected that provided the same functional capabilities as the SP TMDE, also shown in Figure 3-1.

After establishing the existence of an item of GP TMDE that is functionally equivalent to the identified SP TMDE, we judged that the GP TMDE could replace the SP TMDE in question. However, we considered SP TMDE, when designated for use at the O-level, to have such features as convenience (usually no need to set stimuli or interpret responses -- go/no-go indications), simplicity (no mistake in application since use is limited to one specific end item), and ruggedness (usually designed for field environment rather than fixed or sheltered environment). At higher maintenance levels, there is usually an adequate supply of GP TMDE (e.g., multimeters, frequency counters, signal generators) already available at the facility as defined in its TDA. This GP TMDE could replace the SP TMDE, releasing it for return to stock for issue against O-level requirements. Of course, if there is no GP TMDE functional equivalent, no substitution is possible and the SP TMDE must be retained at all levels. Table 3-3 summarizes the recommendations for each of the items of SP TMDE.

A planned part of Task 4 was the evaluation of the questionnaires returned from the Logistics Assistance Offices (LAOs). As pointed out earlier, no data were returned from the LAOs; therefore, no results have been summarized.

3.5 TASK 5: DETERMINE BEST MIX OF OTS ETE FOR EACH SELECTED SP TMDE

U.S. Army PIL TMDE that provided the test capabilities required were selected. This selection results in the smallest number of types of equipment for the maximum range of measurements. In performing various tests at DS/GS/D maintenance levels, it would be desirable to have the most versatile TMDE available to minimize the numbers of equipments required and the investment. The best mix was determined, therefore, by selecting those TMDE which met a given set of performance requirements and, with appropriate relatively low-cost accessories, could extend their range to include several additional sets of requirements. The selected best mix for the various measurements is presented in Table 3-4, which also shows the SP TMDE that would be replaced by the GP TMDE.

For the 20 selected SP TMDE studied, the usage distribution is as follows:

- Five for organizational maintenance, exclusively
- Seven for higher-level (DS/GS/D) maintenance use only
- Eight for use at all levels

It is recommended that all of the five used at the organizational level only be retained in inventory for simplicity, convenience, and ruggedness at the O-level maintenance operation. These items of TMDE are intended for use in system performance verification; troubleshooting; and failure sectionalization, localization, and isolation. Of the eight used at all levels, five could be replaced by GP TMDE (one of these is used at the O-level; all five are used at higher levels). The other three used at higher levels must be retained because functionally equivalent GP TMDE do not exist. Of the seven used only at the higher levels, four must be retained in inventory because functionally equivalent GP TMDE do not exist. The other three can be replaced. In summary, of the thirteen SP TMDE used at the O-level, twelve must be retained and one can be replaced by GP TMDE. Of the fifteen SP TMDE used at DS/GS/D levels, seven must be retained and eight can be replaced by GP TMDE. Of the seven SP TMDE that must be retained at higher-level maintenance, one is a precision holding fixture and one is a dedicated test harness. The remaining five could conceivably be replaced by assorted GP TMDE that are semi-permanently wired together, with existing or added controls preset to the desired values. These arrangements would undoubtedly bear a striking resemblance to the SP TMDE being replaced but would not offer the convenience of the SP TMDE.

Table 3-1. POPULATION OF SP TMDE FAMILIES

Family Code	Nomenclature	Quantity
007	BATTERY TEST SET	19
039	POWER METER AC	5
046	SIGNAL GENERATOR COMB	2
048	SIGNAL GENERATOR TWO-TONE	2
058	SIGNAL GENERATOR VARIABLE PHASE	1
64	STRIP CHART RECORDER	16
083	WORD GENERATOR	6
115	RELAY TEST SET	18
123	POWER SUPPLY TEST SET	17
124	ENGINE ANALYZER	12
311	RADAR SYSTEM TEST SET	47
312	RADAR TRANSMITTER TEST SET	4
313	RADAR RECEIVER TEST SET	12
314	RADAR ANTENNA TEST SET	4
315	RADAR SIGNAL PROCESSOR TEST SET	10
317	RADAR DISPLAY TEST SET	6
318	TRANSPONDER TEST SET	21
321	RADIO COMMUNICATION SYSTEM TEST SET	65
322	RADIO COMMUNICATION TRANSMITTER TEST SET	14
323	RADIO COMMUNICATION RECEIVER TEST SET	13
324	RADIO COMMUNICATION ANTENNA TEST SET	5
325	RADIO COMMUNICATION MODEM/CODEC TEST SET	5
331	RADIO NAVIGATION SYSTEM TEST SET	15
332	RADIO NAVIGATION TRANSMITTER TEST SET	2
333	RADIO NAVIGATION RECEIVER TEST SET	18
334	RADIO NAVIGATION ANTENNA TEST SET	3
337	RADIO NAVIGATION DISPLAY TEST SET	2
340	SUBASSEMBLY TEST SET	15
341	CRYSTAL TEST SET	8

(continued)

Table 3-1. (continued)

Family Code	Nomenclature	Quantity
360	OPTICAL TEST SET	33
361	PHOTOGRAPHIC TEST SET	22
362	INFRARED TEST SET	13
381	WEAPONS MISSILE TEST SET	24
382	WEAPONS CONVENTIONAL TEST SET	16
383	WEAPONS NUCLEAR	12
384	CONCEALED PERSONNEL TEST SET	3
390	SIGNAL SIMULATORS TEST SET	3
391	AUDIO OUTPUT TEST SET	6
511	NAVIGATION INERTIAL SYSTEM TEST SET	4
512	NAVIGATION INERTIAL SENSOR TEST SET	11
513	NAVIGATION INERTIAL COMPUTER TEST SET	6
514	NAVIGATION INERTIAL DISPLAY TEST SET	3
515	NAVIGATION INERTIAL SERVO TEST SET	10
521	NAVIGATION RADAR SYSTEM TEST SET	4
522	NAVIGATION RADAR TRANSMITTER/RECEIVER TEST SET	2
523	NAVIGATION RADAR SIGNAL PROCESSOR	1
541	AUTOPILOT/STABILIZATION SYSTEM TEST SET	19
542	AUTOPILOT/STABILIZATION SENSOR TEST SET	12
543	AUTOPILOT/STABILIZATION COMPUTER TEST SET	5
544	AUTOPILOT/STABILIZATION ACTUATOR TEST SET	2
560	TELEPHONE TEST SET	15

Table 3-2. LIST OF SELECTED SPECIAL PURPOSE TMDE INCLUDED IN STUDY				
Type Designator	Special Purpose TMDE*			End Item(s) Supported by Type Designator or Equipment Category
	Nomenclature	Line Item Number**	Family Code†	
AN/AAM-36	TEST SET, OPTICAL ALIGNMENT	V82238	360	AN/AAS-24
AN/APM-123(V)3	TEST SET, TRANSPONDER	V99347	318	AN/APX-44
AN/ARM-5A	TEST SET, RADIO	V86383	333	VHF NAV RECR
AN/ARM-45A	TEST SET, RADIO	V86784	321	AN/ARC-73
AN/ARM-92B	TEST SET, RADIO	V90287	332	AN/ARN-82A
AN/ARM-93	TEST SET, DIRECTION FINDER SET	V73847	331	AN/ARN-83
AN/ARM-94	TEST SET, TRANSMITTER	V99295	322	AN/ART-41A
AN/ARM-109	TEST SET, ANTENNA COUPLER	V63589	324	CU-1658/A
AN/ASM-80A	ANALYZER FLIGHT	A55704	541	AN/ASW-12
AN/ASM-113	SIMULATOR, NAVIGATIONAL SIGNAL	T56676	513	AN/ASN-33
AN/ASM-299	TEST SET, ATTITUDE HEADING REFERENCE SET	V81485	521	AN/ASN-76
AN/ASM-330	TEST SET, FLIGHT CONTROL SET	V69841	541	AN/ASW-29
AN/FCM-5B	TEST SET, TELEPHONE	V94192	560	TELEPHONE SYSTEMS
AN/GPM-46A	TEST SET, RADAR	V83917	311	AN/APS-94B & C
AN/GRM-33C	TEST SET, RADIO	V87547	221	SSB RADIOS
AN/GRM-55C	TEST SET, ELEC CKT PI UNIT	V76519	340	RT-505
AN/UPM-33A	TEST SET, RADAR	V84328	311	RADAR SYSTEMS
AN/URM-157A	TEST HARNESS, RADIO SET	V62066	321	AN/ARC-102
TS-147D/UP	TEST SET, RADAR	V85150	311	RADAR SYSTEMS
TS-538C/U	GENERATOR, SIGNAL	V88438	322	RADIOSONDE XMTR

*See Appendix F for various sequential listings.

**All SP TMDE listed are Logistic Control Code A.

†See Appendix B for description of SP TMDE Family Codes.

Table 3-3. RETAIN OR REPLACE RECOMMENDATIONS FOR RETENTION AND REPLACEMENT

Selected SP TMDE Included in Study				Army GP TMDE Functional Equivalent		Recommendation (Retain or Replace) (SP TMDE)	
Type Designator	DA PIL Item	Maintenance Level at Which Used		Measurements Performed	Type Designator	DA PIL Item	
		O	DS/GS/D				O-Level
AN/AAM-36	Yes		X	Optical	None		Retain
AN/APM-123	Yes	X	X	Frequency	CP772A/U, PL1320/U	Yes	Retain
				Receiver sensitivity	AN/URM-64A-1	Yes	Retain
				Transmitter power	AN/USM-161	Yes	Retain
				Coding	AN/USM-281C	Yes	Retain
AN/ARM-5A	Yes	X		System performance	AN/URM-70, MD83A	Yes	Retain
AN/ARM-45	Yes		X	Frequency	CP772A/U, CV-2002U	Yes	Replace
				Receiver sensitivity	AN/USM-44C	Yes	Replace
					AN/URM-105	Yes	Replace
				Transmitter power	AN/URM-120	Yes	Replace
					ME/303A/U	Yes	Replace
					AN/URM-105	Yes	Replace
AN/ARM-92B			X	System performance	None		Retain
AN/ARM-93	Yes		X	Frequency	AN/USM-205A	Yes	Replace
					CP772A/U	Yes	Replace
				Receiver performance	AN/USM-205A	Yes	Replace
					TS-585/U	Yes	Replace
					AN/URM-105	Yes	Replace
					ME-459/U	Yes	Replace
				DF Control performance	AN/USM-205A	Yes	Replace
					AN/URM-105	Yes	Replace
					AN/USM-140	Yes	Replace
				Inverter performance	AN/URM-105	Yes	Replace
					CP772A/U	Yes	Replace
AN/ARM-94	Yes	X	X	Frequency	CP772A/U, CV2002/U	Yes	Retain
				Power out	AN/URM-120	Yes	Retain
				Frequency deviation	ME-57/U	Yes	Retain
AN/ARM-109	No		X	System performance	None		Retain
AN/ASM-80A	Yes	X	X	System performance	None		Retain
AN/ASM-113	Yes	X	X	System performance	None		Retain
AN/ASM-299	Yes	X		System performance	None		Retain
AN/ASM-330	No	X	X	Troubleshooting	None		Retain
				System performance	None		Retain
AN/FCM-5B	Yes	X		Fault isolation/location	TS-26A/TSM	Yes	Retain
					ZM-48/U	Yes	Retain
				System performance	None		Retain
AN/GPM-46A	Yes	X	X	System performance	TS-352/U	Yes	Retain
				Special tests	None		Retain
AN/GRM-33C	Yes		X	System performance	IP1216(P)/GR	Yes	Replace
					PL1406/U, PL1388/U	Yes	
					SG1125/U	Yes	

(continued)

Table 3-3. (continued)

Selected SP TMDE Included in Study				Army GP TMDE Functional Equivalent		Recommendation (Retain or Replace) (SP TMDE)	
Type Designator	DA PIL Item	Maintenance Level at Which Used		Measurements Performed	Type Designator	DA PIL Item	
		O	DS/GS/D				O-Level
AN/GRM-55C	Yes	X	X	Troubleshooting	AN/USM-44C	Yes	Retain
					AN/USM-205A	Yes	Retain
					ME-303A/U	Yes	Retain
					CP-77A/U	Yes	Retain
					AN/URM-120	Yes	Retain
					IP1216(P)/GR	Yes	Retain
					PLL406/U, PLL388/U	Yes	Retain
				System performance	AN/USM-44C	Yes	Replace
					ME-303A/U	Yes	Replace
					CP-772A/U	Yes	Replace
AN/UPM-33	Yes	X	X	System performance	IP1216(P)/GR	Yes	Replace
					PLL400/U	Yes	Replace
					F1414/U	No	Replace
					PLL388/U	Yes	Replace
AN/URM-157	Yes		X	System performance	None		Retain
TS-147D/UP	Yes	X		Frequency	CP-772A/U, PLL320/U	Yes	Retain
				Sweep width	IP1216(P)/GR	Yes	Retain
					PLL388/U	Yes	Retain
					PLL400/U	Yes	Retain
					F1414/U	Yes	Retain
				Power out	AN/USM-161	Yes	Retain
				Receiver sensitivity	MX8364A(P)/USM308	Yes	Retain
					PLL304/USM308(V)	Yes	Retain
TS-538C/U	No	X		Pulse train	None	None	Retain
				Frequency	CP772A/U, PLL320/U	Yes	Retain
				Receiver sensitivity	AN/URM-64A-1	Yes	Retain
				Power out	AN/USM-161	Yes	Retain

Table 3-4. GP TMDE BEST MIX RECOMMENDATION				
Measurement Parameter	GP TMDE Instrument Nomenclature	GP TMDE Type Designator	Range of Measurements	SP TMDE* Items Replaced
Frequency	Electronic Digital Counter	CP-772A/U	0 to 50 MHz (no plug-ins)	AN/ARM-93 AN/GRM-55C
	Electronic Digital Counter with Plug-Ins	CV-2002/U	20 MHz to 512 MHz	AN/ARM-45 AN/ARM-94
	Electronic Digital Counter with Plug-Ins	PL-1320/U	50 MHz to 18 GHz	AN/APM-123 TS-147D/UP TS-538C/U
Power	Test Set, RF Power	AN/USM-161	2 μ W to 10 mW, 10 MHz to 10 GHz	AN/APM-123 TS-147D/UP TS-538C/U
	Test Set, RF Power	AN/URM-120	0 to 1 kW, 2 MHz to 1 GHz	AN/ARM-45 AN/ARM-94 AN/GRM-55C
Multi-Function	Multimeter	TS-585C/U	0 to 5 W, 30 Hz to 10 kHz	AN/ARM-93
	Multimeter	AN/URM-105	0 to 1 kVdc, 0 to 1 kVac, 30 Hz to 10 kHz	AN/ARM-45 AN/ARM-93
	Multimeter	TS-352B/U	100 mV to 1 kVac, 75 μ A to 10 Adc, 25 Hz to 5 kHz	AN/FCM-5B AN/GPM-46A
	Multimeter	ME-303A/U	0 to 300 Vac, 0 to 1500 Vdc, 0 to 150 mAdc, 20 Hz to 700 MHz	AN/ARM-45 AN/GRM-55C
AC Volts	Telephone Test Set	TS-26A/TSM	0 to 600 Vdc, 0 to 100 k Ω	AN/FCM-5B
	Electronic Voltmeter	ME-459/U	10 μ V to 30 Vac, 10 Hz to 10 MHz	AN/ARM-93
Receiver Sensitivity	Signal Generator	AN/USM-205A	10 Hz to 10 MHz, -70 to +20 dBm	AN/ARM-93 AN/GRM-55C
	Signal Generator	AN/USM-44C	10 MHz to 480 MHz, -127 to +13 dBm	AN/ARM-45 AN/GRM-55C
	Signal Generator	AN/URM-70 with MD-83A/URM	50 MHz to 400 MHz (FM)	AN/ARM-45
	Generator Subassembly	MX-8364A (P)/USM-308	1 kHz to 30 GHz	TS-147D/UP
	Generator Subassembly with Plug-Ins	PL-1304/USM-308(V)	8.0 GHz to 12.4 GHz, 30 mW	TS-147D/UP
	Generator Subassembly with Plug-Ins	PL-1240A/USM-308(V)	4.0 GHz to 8.0 GHz, 15 mW	
	Generator Subassembly with Plug-Ins	PL-1242/USM-308(V)	1.0 GHz to 4.0 GHz, 10 mW	
	Signal Generator	AN/URM-64A-1	900 MHz to 2.1 GHz, -120 to 0 dBm	AN/APM-123 TS-538C/U
Frequency Deviation	Modulation Meter	ME-57A/U	20 MHz to 1 GHz, $\Delta f = 0$ to 1000 kHz	AN/ARM-94
Resistance	Resistance Bridge	ZM-4B/U	1 m Ω to 10 M Ω	AN/FCM-5B
Frequency Spectrum	Spectrum Analyzer	IP-1216(P)/GR PL-1388/U PL-1406/U SG-1125/U	100 kHz to 1.25 GHz	AN/FRM-33C AN/GRM-55C
	Spectrum Analyzer with Plug-Ins	IP-1216(P)/GR PL-1400/UP	10 MHz to 40 GHz	TS-147D/UP
*Common test requirements.				

TYPE DESIGNATOR: AN/AAM-36

NOMENCLATURE: Optical Alignment Test Set

PUBLICATION: TM11-6625-1733-12

PIL ITEM: Yes

OTS
ETE
SPEC

PARAMETER
RANGE

MAINTENANCE
LEVEL

PURPOSE

TEST DESCRIPTION

COMMON

None

UNIQUE

Troubleshooting

Operational
Testing
Alignment

Sectionalization/
Localization/
Isolation

Verify System
Performance
Verify System
Performance

DS/GS

DS/GS

GS

Classified

Classified

Classified

None

None

None

None

None

None

END ITEM SUPPORTED: AN/AAS-24

(continued)

Figure 3-1. TEST DESCRIPTION

TYPE DESIGNATOR: AN/APM-123(V) 3

NOMENCLATURE: Transponder Set Test Set

PUBLICATION: TM11-6625-667-12

PIL ITEM: Yes

TEST DESCRIPTION	PURPOSE	MAINTENANCE LEVEL	PARAMETER RANGE	OTS		PIL ITEM
				ETE	SPEC	
<u>COMMON</u> Xmtr Freq Xmtr Pwr Out Rcvr Sens Rcvr Tuning	Verify System Performance	O/DS/GS/D	1030 MHz	52		CP-772A/PL-1320/U
	Verify System Performance	O/DS/GS/D	-6 dBm	62		AN/USM-161
	Verify System Performance	O/DS/GS/D	-9 dBm	15		AN/URM-64A-1
	Verify System Performance	O/DS/GS/D	1090 MHz	52		CP-772A/PL-1320/U

UNIQUE

Coding	Verify System Performance	O/DS/GS/D	Mode 1,2,3/A,C,4	None
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END ITEM SUPPORTED: AN/APX-44

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/ARN-5A

NOMENCLATURE: Radio Test Set

PUBLICATION: TM11-6625-828-12

PIL ITEM: Yes

<u>TEST DESCRIPTION</u>	<u>PURPOSE</u>	<u>MAINTENANCE LEVEL</u>	<u>PARAMETER RANGE</u>	<u>OTS</u>			<u>PIL ITEM</u>
				<u>ETE</u>	<u>SPEC</u>		
<u>COMMON</u>							
VOR/LOC System Test	Verify System Performance	0	108 to 132 MHz 1-10K μ V @ 51 ohms 30Hz, 90Hz, 150Hz, 9960 Hz (Modulation)	18			AN/URM-20
							MD83A/ARN Modulator*

UNIQUE

None

END ITEM SUPPORTED: VHF Nav Rcvrs

*Not on PIL.

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/ARM-45A

NOMENCLATURE: Radio Test Set

PUBLICATION: TM11-6625-409-12

PIL ITEM: Yes

<u>TEST DESCRIPTION</u>	<u>PURPOSE</u>	<u>MAINTENANCE LEVEL</u>	<u>PARAMETER RANGE</u>	<u>OTS</u>		<u>PIL ITEM</u>
				<u>ETE</u>	<u>SPEC</u>	
<u>COMMON</u>						
Rcvr Sensitivity	Verify System Perf. Repair	DS GS/D	3µv	17,28		AN/USM-44C AN/URM-105
Rcvr Tuning	Verify System Perf. Repair	DS GS/D	116-152MHz	49		CP-772A/Uw/CV-2002/U
Xmtr Tuning	Verify System Perf. Repair	DS/GS GS/D	116-150MHz	28,49		AN/URM-105 CP-772A/Uw/CV-2002/U
Xmtr Pwr. Out	Verify System Perf. Repair	DS/GS GS/D	25w (+44 dBm)	28,40, 62		AN/URM-120 ME-303A/U AN/URM-105
<u>UNIQUE</u>						
None						

END ITEM SUPPORTED: AN/ARC-73

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/ARM-92B

NOMENCLATURE: Radio Test Set

PUBLICATION: TM11-6625-2709-12

PIL ITEM: No

OTS
ETE
SPEC

PARAMETER
RANGE

MAINTENANCE
LEVEL

PURPOSE

PIL ITEM

TEST DESCRIPTION

COMMON

None

UNIQUE

Adjust/Align

Verify System Perf.

DS

108.00 to
126.95MHz

None

Repair

Verify System Perf.

GS/D

None

Overhaul/Calibrate

Verify System Perf.

D

None

ALSO REQUIRES:

DC Power Supply
AC Power Supply
VOR Signal Generator
VOR Modulator
Output Meter
Multimeter
Glideslope Generator
Marker Beacon Generator

END ITEM SUPPORTED: AN/ARN-82A

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/ARM-93

NOMENCLATURE: Direction Finder Set Test Set

PUBLICATION: TM11-6625-821-12

PIL ITEM: Yes

<u>TEST DESCRIPTION</u>	<u>PURPOSE</u>	<u>MAINTENANCE LEVEL</u>	<u>PARAMETER RANGE</u>	<u>OTS</u>	<u>PIL ITEM</u>
				<u>ETE</u>	<u>SPEC</u>
<u>COMMON</u>					
Rcvr Tests	Verify System Perf.	DS/GS/D	90-1800 KHz	1	AN/USM-205A
				61	TS-585/U
				28	AN/URM-105
				37	ME-459/U
Tuning Accuracy	Verify System Perf.	GS/D	3	AN/USM-205A	
			48	CP-772A/U	
DF Control	Verify System Perf.	DS/GS/D	3	AN/USM-205A	
			28	AN/URM-105	
Inverter	Verify System Perf.	GS/D	*	AN/USM-140	
			28	AN/URM-105	
			48	CP-772A/U	

UNIQUE

Antenna Tests
Indicator Tests
Tuning Time

None
None
None

END ITEM SUPPORTED: AN/ARN-83

*Oscilloscopes not included in OTS ETE specifications.

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/ARM-94

NOMENCLATURE: Transmitter Test Set

PUBLICATION: TM11-6625-834-12

PIL ITEM: Yes

TEST DESCRIPTION	PURPOSE	MAINTENANCE LEVEL	PARAMETER RANGE	OTS		PIL ITEM
				ETE	SPEC	
Transmitter Freq.	Verify System Perf.	O/DS/GS	215-260 MHz	49	CP-772A/Uw/CV-2002/U	
Transmitter Pwr Out	Verify System Perf.	O/DS/GS	50w (Max) (+47 dBm)	61/62	AN/URM-120	
Transmitter Freq. Dev.	Verify System Perf.	O/DS/GS	+100 KHz	57	ME-57/U	

UNIQUE

None

3-16

END ITEM SUPPORTED: AN/ART-41A
(No requirement appears in MAC
TM11-5850-218-12)

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/ARM-109

NOMENCLATURE: Antenna Coupler Test Set

PUBLICATION: TM11-6625-1636-14

PIL ITEM: No

<u>TEST DESCRIPTION</u>	<u>PURPOSE</u>	<u>MAINTENANCE LEVEL</u>	<u>PARAMETER RANGE</u>	<u>OTS</u>		<u>PIL ITEM</u>
				<u>ETE</u>	<u>SPEC</u>	
<u>COMMON</u>						
None				None		None
<u>UNIQUE</u>						
Inspect Test Service Replace Repair	Verify System Perf.	DS		None		None
Adjust Align Repair	Verify System Perf.	GS		None		None
Overhaul Rebuild	Verify System Perf.	D		None		None

END ITEM SUPPORTED: CU-1658/U

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/ASM-80A

NOMENCLATURE: Flight Line Analyzer

PUBLICATION: TM11-6625-518-12

PIL ITEM: Yes

OTS
ETE
SPEC
PIL ITEM

PARAMETER
RANGE

MAINTENANCE
LEVEL

PURPOSE

TEST DESCRIPTION

COMMON

None

UNIQUE

Inspect
Test
Service
Adjust
Replace
Repair

Test
Service
Adjust
Replace

Verify System Perf. 0 None None

Verify System Perf. GS None None

ALSO REQUIRES: Stopwatch
Multimeter AN/URM-105
Tool Kit TK-105/G

END ITEM SUPPORTED: AN/ASW-12 (continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/ASM-113

NOMENCLATURE: Navigation Signal Simulator

PUBLICATION: TM11-6625-479-12

PIL ITEM: Yes

OTS
ETE
SPEC

PARAMETER
RANGE

MAINTENANCE
LEVEL

PURPOSE

TEST DESCRIPTION

COMMON

None

UNIQUE

System Test

Verify System Perf.

O/DS/GS/D

None

ALSO REQUIRES: AN/URM-105 at O-level

END ITEM SUPPORTED: AN/ASN-33
(TM11-5826-218-12 MAC does not call out
AN/ASM-113. TM11-5826-218-35 does not
list AN/ASM-113 in list of "Test Equip-
ment Required.")

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/ASM-299

NOMENCLATURE: Attitude-Heading Reference Set, Test Set

PUBLICATION: TM11-6615-254-12

PIL ITEM: Yes

<u>TEST DESCRIPTION</u>	<u>PURPOSE</u>	<u>MAINTENANCE LEVEL</u>	<u>PARAMETER RANGE</u>	<u>OTS ETE SPEC</u>	<u>PIL ITEM</u>
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COMMON

None

UNIQUE

Inspect
Test
Service
Install

Verify System Perf. 0

None None

ALSO REQUIRES: Stopwatch
Tool Kit TK-101/G
Multimeter AN/URM-105

END ITEM SUPPORTED: AN/ASN-76

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/ASM-330

NOMENCLATURE: Flight Control Set Test Set

PUBLICATION: TM11-4920-293-12

PIL ITEM: No

<u>TEST DESCRIPTION</u>	<u>PURPOSE</u>	<u>MAINTENANCE LEVEL</u>	<u>PARAMETER RANGE</u>	<u>OTS</u>	<u>ETE</u>	<u>SPEC</u>	<u>PIL ITEM</u>
<u>COMMON</u>							

ALSO REQUIRES: AN/URM-105
ME-30E/U

END ITEM SUPPORTED: AN/ASW-29

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/FCM-5B

NOMENCLATURE: Test Set

PUBLICATION: TM11-2030

PIL ITEM: Yes

<u>TEST DESCRIPTION</u>	<u>PURPOSE</u>	<u>MAINTENANCE LEVEL</u>	<u>PARAMETER RANGE</u>	<u>OTS</u>		<u>PIL ITEM</u>
				<u>ETE</u>	<u>SPEC</u>	
<u>COMMON</u>						
Line Capacitance Insulation Res. Line Resistance	Identify Line Fault	0		39		TS-26A/TSM
Open, Short, Ground, Cross Test	Identify Fault Type	0		39		TS-26A/TSM
Varley Loop Test	Locate Fault	0		25		ZM-4B/U
Foreign Battery TG Current	Verify System Perf.	0		39		TS-352B/U
Res Unbalance	Verify System Perf.	0		25		ZM-4B/U
<u>UNIQUE</u>						
Originate Local Trunk Originate TP Jack Ckt. Monitor TP/TG Jack Ckt. Sectionalize Fault Patching	Verify Syst. Perf.	0		None		
END ITEM SUPPORTED: Telephone Systems						
(continued)						

END ITEM SUPPORTED: Telephone Systems

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/GPM-46A

NOMENCLATURE: Radar Test Set

PUBLICATION: TM11-6625-561-12

PIL ITEM: Yes

TEST DESCRIPTION	PURPOSE	MAINTENANCE LEVEL	PARAMETER RANGE	OTS		PIL ITEM
				ETE	SPEC	
COMMON	Voltate Test	O/DS/GS/D	-300 to +285 VDC	28		TS-352/U
	Rcvr/Xmtr Test	O/D	100 μ A	24		TS-352/U
UNIQUE	Trigger & Gate Pulse	O/D		None		None (Use calibrated oscilloscope)
	Power Supply Overload	O/GS/D		None		None
	Power Indicator and Panel	O/GS/D		None		None
	Illumination					

END ITEM SUPPORTED: AN/APS-94B and C and
Other Radars

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/GRM-33C

NOMENCLATURE: Radio Test Set

PUBLICATION: TM11-5820-523-12

PIL ITEM: Yes

<u>TEST DESCRIPTION</u>	<u>PURPOSE</u>	<u>MAINTENANCE LEVEL</u>			
			<u>PARAMETER RANGE</u>	<u>OTS ETE SPEC</u>	<u>PIL ITEM</u>
<u>COMMON</u> General Sideband Anal Narrow Band Anal Distortion Measure- ments	Verify System Perf.	DS/GS/D	Freq. 1.5-64.5 MHz Sweep Width 0-2/ 0-100 KHz Sweep Rate 0.1, 1.0, 0.1-30 Hz Rate Resolution 10 Hz Image Reject 42dB (min) Sensitivity 200mv (lo) 5mv (hi)	67	IP-1216(P)/GR PL-1388/U PL-1406/U SG-1125/U

UNIQUE

None

END ITEM SUPPORTED: All SSB Radios

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/GRM-55C

NOMENCLATURE: Electronic Plug-In Unit Test Set

PUBLICATION: TB11-6625-514-35/1

PIL ITEM: Yes

<u>TEST DESCRIPTION</u>	<u>PURPOSE</u>	<u>MAINTENANCE LEVEL</u>	<u>PARAMETER RANGE</u>	<u>OTS</u>	<u>ETE</u>	<u>SPEC</u>	<u>PIL ITEM</u>
<u>COMMON</u>							
Troubleshooting	Sectionalization	0	0-65 MHz Modulated @ 150 Hz/1 KHz	{	3		AN/USM-44C
					1		AN/USM-205A
					37		ME-303A/U
					49		CP-772A/U
					61		AN/URM-120
				67		IP-1216 (P) /GR	
							PL-1388/U
							PL-1406/U
							SG-1125/U
{ Operational Testing Alignment }	Verify System Perf.	DS/GS/D GS/D*		{	3		AN/USM-44C
					37		ME-303A/U
					49		CP-772A/U
					61		AN/URM-120
					67		IP-1216 (P) /GR
							PL-1388/U
							PL-1406/U
							SG-1125/U
<u>UNIQUE</u>							

END ITEM SUPPORTED: RT-505/PRC

*Not used at DS/GS/D level except to verify fault indication and verify system performance after maintenance action.

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/UPM-33A

NOMENCLATURE: Spectrum Analyzer

PUBLICATION: TM-1249

PIL ITEM: Yes

<u>TEST DESCRIPTION</u>	<u>PURPOSE</u>	<u>MAINTENANCE LEVEL</u>	<u>PARAMETER RANGE</u>	<u>OTS</u>	<u>ETE</u>	<u>SPEC</u>	<u>PIL ITEM</u>
<u>COMMON</u>							
Freq. Range	Verify System Perf.	O/DS/GS/D	8470-9630 MHz	53			IP-1216(P)/GR
If Bandwidth	Verify System Perf.	O/DS/GS/D	50 KHz	68			w/PL-1388/U
Sig. In Atten.	Verify System Perf.	O/DS/GS/D	3-70 dB	*			PL-1400/U
Rcvr. Gain	Verify System Perf.	O/DS/GS/D	100 dB	*			F-1414/U**
Freq. Swing	Verify System Perf.	O/DS/GS/D	40-50 MHz	12			
Sweep Rate	Verify System Perf.	O/DS/GS/D	10-30 Hz	68			
Power Out	Verify System Perf.	O/DS/GS/D	0 dBm				

END ITEM SUPPORTED: All X-Band Airborne Radar

*Attenuator required; these are classed as "accessories" for which no specifications were developed.
 **Not on PIL but in DA PAM 700-21.

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: AN/URM-157A

NOMENCLATURE: Radio Set Test Harness

PUBLICATION: TM11-6625-622-40

PIL ITEM: Yes

OTS
ETE
SPEC
PIL ITEM

PARAMETER
RANGE

MAINTENANCE
LEVEL

PURPOSE

TEST DESCRIPTION

COMMON

None

UNIQUE

Troubleshooting
& Perf. Meas.

Verify System Perf. GS

None None

ALSO REQUIRES:

Sig. Gen. AN/URM-127
Freq. Counter AN/USM-207A
Multimeter ME-26 ()/U
Oscilloscope AN/USM-281A
Sig. Gen. AN/URM-25F
Spec. Anal. TS-723A/U
Tube Tester TV-2/U
TV-7/U

Radio Test Set TS-1956/URC
Transistor Test Set TS-1836/U
VTVM AN/URM-145
AN/USM-98
ME-30 ()/U
Receiver R-1122/GR
Spec. Anal. AN/UPM-84E

END ITEM SUPPORTED: AN/ARC-102

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: TS-147D/UP

NOMENCLATURE: Test Set

PUBLICATION: TM11-1247B

PIL ITEM: Yes

<u>TEST DESCRIPTION</u>	<u>PURPOSE</u>	<u>MAINTENANCE LEVEL</u>	<u>PARAMETER RANGE</u>	<u>OTS</u>		<u>PIL ITEM</u>
				<u>ETE</u>	<u>SPEC</u>	
<u>COMMON</u>						
Rcvr. Tuning	Verify System Perf.	0	8.5-9.6 GHz	53		CP-772A/Uw/PL-1320/U
				68		IP-1216 (P) /GR
						PL-1388/U
						PL-1400/U
Xmtr. Tuning	Verify System Perf.	0	8.5-9.6 GHz			F-1414/U*
				53		CP-772A/Uw/PL-1320/U
				68		IP-1216 (P) /GR
						PL-1388/U
FM Sweep Width	Verify System Perf.	0	0-40 MHz			PL-1400/U
						F-1414/U*
				68		IP-1216 (P) /GR
						L-1388/U
Xmtr Pwr. Out	Verify System Perf.	0	+7 to +30 dBm			PL-1400/U
						F-1414/U*
				63		AN/USM-161w/20 dB
						MX-8364A(P) /USM-308
Rcvr. Sens.	Verify System Perf.	0	-7 to -85 dBm	7		w/PL-1304/USM-308 (V)
<u>UNIQUE</u>						
Rcvr. Pulse Train	Verify System Perf.	0			None	None

END ITEM SUPPORTED: All X-band Radar Systems

END ITEM SUPPORTED: All X-band Radar Systems

*Not on PIL but in DA PAM 700-21.

(continued)

Figure 3-1. (continued)

TYPE DESIGNATOR: TS-538 C/U

NOMENCLATURE: Test Set

PUBLICATION: TM11-6625-821-12

PIL ITEM: No

<u>TEST DESCRIPTION</u>	<u>PURPOSE</u>	<u>MAINTENANCE LEVEL</u>	<u>PARAMETER RANGE</u>	<u>OTS ETE SPEC</u>	<u>PIL ITEM</u>
<u>COMMON</u> Freq. Measurement Rcvr. Sens. Xmtr. Pwr. Out	Verify System Perf.	0	1615-1715 MHz	52	CP-772A/Uw/PL-1320/U
	Verify System Perf.	0	-107 to -20 dBm	16	AN/URM 64A1
	Verify System Perf.	0	150 to 250 mW (+22 to +24 dBm)	62	AN/USM-161
<u>UNIQUE</u>					
None					

3-29

END ITEM SUPPORTED: Radiosonde

Figure 3-1. (continued)

CHAPTER FOUR

CONCLUSIONS AND RECOMMENDATIONS

ARINC Research reached the following conclusions from this study of the feasibility of replacing SP TMDE with OTS ETE or with groups of GP TMDE:

- It appears that most SP TMDE can be replaced by individual GP TMDE at the DS/GS/D maintenance levels. However, many of these SP TMDE should be retained at the organizational maintenance level because of the small number of DA-authorized GP TMDE at that level.
- SP TMDE that do not have functionally equivalent GP TMDE (e.g., special wiring harnesses, mechanical holding fixtures) must be retained in the inventory.
- The use of groups of multipurpose GP TMDE in place of SP TMDE may result in a significant cost saving (or avoidance). Further study will be required to substantiate this conclusion.
- While there may be commercial items of OTS ETE that could functionally replace SP TMDE, these items are themselves SP TMDE. Replacing SP TMDE by these limited-function, noncompetitive items would require careful assessment in such areas as mean time between failures (MTBF), mean time to calibrate (MTTC), mean time to repair (MTTR), and initial cost before a decision to use them was made.

On the basis of the analysis, ARINC Research recommends the following actions:

- Evaluate (quantify) the cost saving (avoidance) achieved by replacing SP TMDE with groups of multipurpose GP TMDE. Following this action, removal/replacement actions should be evaluated.
- Consider removing the identified items of SP TMDE from inventory at DS/GS/D levels and return to stock for issue against O-level requirements, on the basis of the results of the cost-benefit study.
- As the need for additional TMDE develops, consider replacing the identified items at DS/GS/D levels with items of GP TMDE having functional equivalence. All of the recommended replacement items (GP TMDE) are listed on the Army PIL and should be available at

the DS/GS/D sites in accordance with their respective TDAs. Revision of MACs, changes in technical manuals (procedures), and changes in test harnesses will be required.

- Retain SP TMDE items at all levels to which they are issued, where such items are indeed unique (e.g., no available GP TMDE with functional equivalence, test harness peculiar to unit under test, mechanical holding fixture).
- Study additional items of SP TMDE to establish another list of GP TMDE to be substituted. A comparison of that list with the list developed in this study could identify the additional GP TMDE required to replace these SP TMDE at higher maintenance levels.
- Update end-item MACs to reflect the present equipment requirements, since some of the MACs do not call out the SP TMDE with which some maintenance facilities are now being routinely equipped.
- Consider replacing SP TMDE with GP TMDE to satisfy common test requirements (e.g., measurement of frequency, voltage, current, power), and devise SP TMDE to satisfy the unique test requirements only (e.g., pulse coding, pulse train timing, waveform), thus separating the unique test items from the common test items.

APPENDIX A

LIST OF PUBLICATIONS

The publications listed on the following pages were used in support of this study to provide source data on test requirements of end items and test capabilities of SP TMDE.

DA PAM 700-21-1	DTC SEP 78	
DA PAM 700-21/20	DTC APR 79	
MIL-STD-13908	DTD MAY 75	
SB 700-20	DTD JAN 79	
TB 11-6625-416-35		TS-147D/UP
TB 11-6625-479-35/1		AN/ASM-113
TB 11-6625-E12-35/1		AN/GPM-46A
TM 11-12478	W/C1,2	TS-147D/UP
TM 11-1249	W/C1,2,4,5,6,7	AN/LPM-33A
TM 11-2030	W/C1,2,3,4	AN/FCM-5E
TM 11-4920-293-12	W/C1	AN/ASM-330
TM 11-4920-293-24P		AN/ASM-330
TM 11-4920-293-35		AN/ASM-330
TM 11-4920-293-45	W/C1	AN/ASM-330
TM 11-5800-213-L	DTC MAY 79	
TM 11-5820-398-12	W/C1,2,3,4	RT-505
TM 11-5820-398-34P		RT-505
TM 11-5820-398-35		RT-505
TM 11-5820-523-12	W/C1,2	AN/GRM-33C
TM 11-5820-523-35		AN/GRM-33C
TM 11-5820-523-35/1		AN/GRM-33C
TM 11-5821-217-12	W/C2,3,4	AN/ARC-73
TM 11-5821-217-20P		AN/ARC-73
TM 11-5821-217-34		AN/ARC-73
TM 11-5821-217-34P		AN/ARC-73
TM 11-5821-217-50		AN/ARC-73
TM 11-5821-248-12	W/C1,2,3,4	AN/ARC-102
TM 11-5821-248-20P		AN/ARC-102
TM 11-5821-248-34P		AN/ARC-102
TM 11-5821-248-35	W/C1,2	AN/ARC-102
TM 11-5826-218-12	W/C1,2	AN/ASN-33
TM 11-5826-218-12	W/C1,2	AN/ASN-33
TM 11-5826-218-20P		AN/ASN-33
TM 11-5826-218-20P		AN/ASN-33
TM 11-5826-218-34P		AN/ASN-33
TM 11-5826-218-34P		AN/ASN-33
TM 11-5826-218-35		AN/ASN-33
TM 11-5826-218-35		AN/ASN-33
TM 11-5826-225-12	W/C1,2	AN/ARN-83
TM 11-5826-225-20P		AN/ARN-83
TM 11-5826-225-34P		AN/ARN-83
TM 11-5826-225-35	W/C1,2,3	AN/ARN-83
TM 11-5826-226-20	W/C1,2	AN/ARN-82A
TM 11-5826-226-34	W/C1,2,3	AN/ARN-82A
TM 11-5826-226-34P		AN/ARN-82A
TM 11-5826-226-50-1		AN/ARN-82A
TM 11-5826-226-50-2		AN/ARN-82A
TM 11-5850-218-12	W/C1,2	AN/APT-41A
TM 11-5850-218-20P		AN/APT-41A
TM 11-5850-218-35	W/C1,2,3	AN/APT-41A

TM 11-5850-218-35P		AN/ART-41A
TM 11-5850-241-12	W/C1,2,3	AN/AS-24
TM 11-5850-241-34/1	W/C1	AN/AS-24
TM 11-5850-241-34/2		AN/AS-24
TM 11-5850-241-34P		AN/AS-24
TM 11-5850-241-50/1-1	W/C1	AN/AS-24
TM 11-5850-241-50/1-2	W/C1	AN/AS-24
TM 11-5850-241-50/1-3	W/C1	AN/AS-24
TM 11-5850-241-50/2		AN/AS-24
TM 11-5895-217-12	W/C3,4	AN/APX-44
TM 11-5895-217-35	W/C1,2,3,5,6,7	AN/APX-44
TM 11-5895-284-12	W/C1	AN/APS-948+C
TM 11-5895-284-35/1		AN/APS-948+C
TM 11-5895-284-35/2	W/C1	AN/APS-948+C
TM 11-5895-284-35/4		AN/APS-948+C
TM 11-5985-326-20		CU-1658/U
TM 11-5985-326-34P	W/C1	CU-1658/U
TM 11-5985-326-35	W/C1	CU-1658/U
TM 11-6615-204-12		AN/ASW-12
TM 11-6615-204-20P		AN/ASW-12
TM 11-6615-204-35	W/C1,2	AN/ASW-12
TM 11-6615-204-35P	W/C1	AN/ASW-12
TM 11-6615-241-20P		AN/ASW-29
TM 11-6615-241-34P		AN/ASW-29
TM 11-6615-241-35	W/C1,2	AN/ASW-29
TM 11-6615-245-20	W/C1,2	AN/ASN-76
TM 11-6615-245-34P	W/C1	AN/ASN-76
TM 11-6615-245-35	W/C1,2	AN/ASN-76
TM 11-6615-254-12	W/C1,2	AN/ASM-299
TM 11-6615-254-24P		AN/ASM-299
TM 11-6615-254-35		AN/ASM-299
TM 11-6615-254-45	W/C1,2	AN/ASM-299
TM 11-6625-1636-14		AN/ARM-109
TM 11-6625-1636-20P		AN/ARM-109
TM 11-6625-1636-34P		AN/ARM-109
TM 11-6625-1636-35	W/C1	AN/ARM-109
TM 11-6625-1733-12	W/C1,2	AN/AM-36
TM 11-6625-1733-40P		AN/AM-36
TM 11-6625-1733-45	W/C1,2	AN/AM-36
TM 11-6625-213-12	W/C1	TS-538C/U
TM 11-6625-213-20P		TS-538C/U
TM 11-6625-213-35		TS-538C/U
TM 11-6625-213-35P		TS-538C/U
TM 11-6625-2709-12		AN/ARM-928
TM 11-6625-270920P		AN/ARM-928
TM 11-6625-270935		AN/ARM-928
TM 11-6625-270940		AN/ARM-928
TM 11-6625-270940P		AN/ARM-928
TM 11-6625-297-20P		AN/LPM-33A
TM 11-6625-297-35	W/C1	AN/LPM-33A
TM 11-6625-297-40P		AN/LPM-33A

TM 11-6625-372-20P		AN/FCM-58
TM 11-6625-372-35/2		AN/FCM-58
TM 11-6625-372-35P		AN/FCM-58
TM 11-6625-409-12		AN/ARM-45A
TM 11-6625-409-20P		AN/ARM-45A
TM 11-6625-409-34P		AN/ARM-45A
TM 11-6625-409-35	W/C1,2	AN/ARM-45A
TM 11-6625-443-12P		AN/ASW-12
TM 11-6625-443-35P		AN/ASW-12
TM 11-6625-479-12	W/C1,2,3,4	AN/ASM-113
TM 11-6625-479-20P		AN/ASM-113
TM 11-6625-479-40P		AN/ASM-113
TM 11-6625-479-45	W/C1,2	AN/ASM-113
TM 11-6625-514-12	W/C1,3,4	AN/GRM-55C
TM 11-6625-514-20P		AN/GRM-55C
TM 11-6625-514-35/1		AN/GRM-55C
TM 11-6625-514-45	W/C1,3,4	AN/GRM-55C
TM 11-6625-514-45P		AN/GRM-55C
TM 11-6625-518-12	W/C1,2,3	AN/ASM-80A
TM 11-6625-518-20P		AN/ASM-80A
TM 11-6625-518-40P		AN/ASM-80A
TM 11-6625-518-45	W/C1,2,3,4	AN/ASM-80A
TM 11-6625-561-12	W/C1,2,3	AN/GPM-46A
TM 11-6625-561-24P		AN/GPM-46A
TM 11-6625-561-45		AN/GPM-46A
TM 11-6625-622-34P		AN/LRM-157A
TM 11-6625-622-40	W/C1	AN/LRM-157A
TM 11-6625-667-12	W/C1,2,3	AN/APM-123(V)3
TM 11-6625-667-24P		AN/APM-123(V)3
TM 11-6625-667-35	W/C1,2	AN/APM-123(V)3
TM 11-6625-667-45	W/C1,2,3	AN/APM-123(V)3
TM 11-6625-821-12	W/C1,2,3	AN/ARM-93
TM 11-6625-821-35-1		AN/ARM-93
TM 11-6625-821-40P		AN/ARM-93
TM 11-6625-821-45	W/C1,2,3	AN/ARM-93
TM 11-6625-828-12	W/C1	AN/ARM-5A
TM 11-6625-828-20P		AN/ARM-5A
TM 11-6625-828-45	W/C1	AN/ARM-5A
TM 11-6625-834-12	W/C1,2	AN/ARM-94
TM 11-6625-834-20P		AN/ARM-94
TM 11-6625-834-35		AN/ARM-94
TM 11-6625-834-40P		AN/ARM-94
TM 11-6625-834-45		AN/ARM-94
DA PAM 700-21-1	OTC SEP 78	
DA PAM 700-21/20	OTC APR 79	
MIL-STD-1390B	OTC MAY 75	
SB 700-20	OTC JAN 79	
TM 11-5800-213-L	OTC MAY 79	
TM 11-6625-1733-12	W/C1,2	AN/AAM-36
TM 11-6625-1733-45	W/C1,2	AN/AAM-36

TM 11-6625-1733-40P		AN/AAM-36
TM 11-5850-241-12	W/C1,2,3	AN/AAS-24
TM 11-5850-241-34/1	W/C1	AN/AAS-24
TM 11-5850-241-34/2		AN/AAS-24
TM 11-5850-241-34P		AN/AAS-24
TM 11-5850-241-50/2		AN/AAS-24
TM 11-5850-241-50/1-1	W/C1	AN/AAS-24
TM 11-5850-241-50/1-2	W/C1	AN/AAS-24
TM 11-5850-241-50/1-3	W/C1	AN/AAS-24
TM 11-6625-667-12	W/C1,2,3	AN/APM-123(V)3
TM 11-6625-667-24P		AN/APM-123(V)3
TM 11-6625-667-45	W/C1,2,3	AN/APM-123(V)3
TM 11-6625-667-35	W/C1,2	AN/APM-123(V)3
TM 11-5895-284-12	W/C1	AN/APS-948+C
TM 11-5895-284-35/1		AN/APS-948+C
TM 11-5895-284-35/2	W/C1	AN/APS-948+C
TM 11-5895-284-35/4		AN/APS-948+C
TM 11-5895-217-12	W/C3,4	AN/APX-44
TM 11-5895-217-35	W/C1,2,3,5,6,7	AN/APX-44
TM 11-5821-248-12	W/C1,2,3,4	AN/ARC-102
TM 11-5821-248-20P		AN/ARC-102
TM 11-5821-248-34P		AN/ARC-102
TM 11-5821-248-35	W/C1,2	AN/ARC-102
TM 11-5821-217-12	W/C2,3,4	AN/ARC-73
TM 11-5821-217-20P		AN/ARC-73
TM 11-5821-217-34		AN/ARC-73
TM 11-5821-217-34P		AN/ARC-73
TM 11-5821-217-50		AN/ARC-73
TM 11-6625-1636-14		AN/ARM-109
TM 11-6625-1636-20P		AN/ARM-109
TM 11-6625-1636-34P		AN/ARM-109
TM 11-6625-1636-35	W/C1	AN/ARM-109
TM 11-6625-409-12		AN/ARM-45A
TM 11-6625-409-20P		AN/ARM-45A
TM 11-6625-409-34P		AN/ARM-45A
TM 11-6625-409-35	W/C1,2	AN/ARM-45A
TM 11-6625-828-12	W/C1	AN/ARM-5A
TM 11-6625-828-45	W/C1	AN/ARM-5A
TM 11-6625-828-20P		AN/ARM-5A
TM 11-6625-834-12	W/C1,2	AN/ARM-94
TM 11-6625-834-45		AN/ARM-94
TM 11-6625-834-20P		AN/ARM-94
TM 11-6625-834-40P		AN/ARM-94
TM 11-6625-834-35		AN/ARM-94
TM 11-6625-2709-12		AN/ARM-92B
TM 11-6625-270920P		AN/ARM-92B
TM 11-6625-270940P		AN/ARM-92B
TM 11-6625-270940		AN/ARM-92B
TM 11-6625-270935		AN/ARM-92B
TM 11-6625-821-12	W/C1,2,3	AN/ARM-93
TM 11-6625-821-45	W/C1,2,3	AN/ARM-93

TM 11-6625-821-40P		AN/ARM-93
TM 11-6625-821-35-1		AN/ARM-93
TM 11-5826-226-20	W/C1,2	AN/ARN-82A
TM 11-5826-226-34	W/C1,2,3	AN/ARN-82A
TM 11-5826-226-34P		AN/ARN-82A
TM 11-5826-226-50-1		AN/ARN-82A
TM 11-5826-226-50-2		AN/ARN-82A
TM 11-5826-225-12	W/C1,2	AN/ARN-83
TM 11-5826-225-35	W/C1,2,3	AN/ARN-83
TM 11-5826-225-20P		AN/ARN-83
TM 11-5826-225-34P		AN/ARN-83
TM 11-5850-218-12	W/C1,2	AN/ART-41A
TM 11-5850-218-35	W/C1,2,3	AN/ART-41A
TM 11-5850-218-20P		AN/ART-41A
TM 11-5850-218-35P		AN/ART-41A
TM 11-6625-479-12	W/C1,2,3,4	AN/ASM-113
TM 11-6625-479-45	W/C1,2	AN/ASM-113
TM 11-6625-479-20P		AN/ASM-113
TM 11-6625-479-40P		AN/ASM-113
TM 11-6625-479-35/1		AN/ASM-113
TM 11-6615-254-12	W/C1,2	AN/ASM-299
TM 11-6615-254-45	W/C1,2	AN/ASM-299
TM 11-6615-254-24P		AN/ASM-299
TM 11-6615-254-35		AN/ASM-299
TM 11-4920-293-12	W/C1	AN/ASM-330
TM 11-4920-293-45	W/C1	AN/ASM-330
TM 11-4920-293-24P		AN/ASM-330
TM 11-4920-293-35		AN/ASM-330
TM 11-6625-518-12	W/C1,2,3	AN/ASM-80A
TM 11-6625-518-45	W/C1,2,3,4	AN/ASM-80A
TM 11-6625-518-20P		AN/ASM-80A
TM 11-6625-518-40P		AN/ASM-80A
TM 11-5826-218-12	W/C1,2	AN/ASN-33
TM 11-5826-218-20P		AN/ASN-33
TM 11-5826-218-34P		AN/ASN-33
TM 11-5826-218-35		AN/ASN-33
TM 11-5826-218-12	W/C1,2	AN/ASN-33
TM 11-5826-218-20P		AN/ASN-33
TM 11-5826-218-34P		AN/ASN-33
TM 11-5826-218-35		AN/ASN-33
TM 11-6615-245-20	W/C1,2	AN/ASN-76
TM 11-6615-245-34P	W/C1	AN/ASN-76
TM 11-6615-245-35	W/C1,2	AN/ASN-76
TM 11-6625-443-12P		AN/ASW-12
TM 11-6625-443-35P		AN/ASW-12
TM 11-6615-204-12		AN/ASW-12
TM 11-6615-204-20P		AN/ASW-12
TM 11-6615-204-35	W/C1,2	AN/ASW-12
TM 11-6615-204-35P	W/C1	AN/ASW-12
TM 11-6615-241-20P		AN/ASW-29
TM 11-6615-241-34P		AN/ASW-29

TM 11-6615-241-35	W/C1,2	AN/ASW-29
TM 11-2030	W/C1,2,3,4	AN/FCM-5B
TM 11-6625-372-20P		AN/FCM-5B
TM 11-6625-372-35P		AN/FCM-5B
TM 11-6625-372-35/2		AN/FCM-5B
TM 11-6625-561-12	W/C1,2,3	AN/GPM-46A
TM 11-6625-561-45		AN/GPM-46A
TM 11-6625-561-24P		AN/GPM-46A
TB 11-6625-812-35/1		AN/GPM-46A
TM 11-5820-523-12	W/C1,2	AN/GRM-33C
TM 11-5820-523-35		AN/GRM-33C
TM 11-5820-523-35/1		AN/GRM-33C
TM 11-6625-514-12	W/C1,3,4	AN/GRM-55C
TM 11-6625-514-45	W/C1,3,4	AN/GRM-55C
TM 11-6625-514-20P		AN/GRM-55C
TM 11-6625-514-45P		AN/GRM-55C
TM 11-6625-514-35/1		AN/GRM-55C
TM 11-1249	W/C1,2,4,5,6,7	AN/LPM-33A
TM 11-6625-297-20P		AN/LPM-33A
TM 11-6625-297-40P		AN/LPM-33A
TM 11-6625-297-35	W/C1	AN/LPM-33A
TM 11-6625-622-34P		AN/LRM-157A
TM 11-6625-622-40	W/C1	AN/LRM-157A
TM 11-5985-326-20		CU-1658/U
TM 11-5985-326-34P	W/C1	CU-1658/U
TM 11-5985-326-35	W/C1	CU-1658/U
TM 11-5820-398-12	W/C1,2,3,4	RT-505
TM 11-5820-398-34P		RT-505
TM 11-5820-398-35		RT-505
TM 11-12478	W/C1,2	TS-147D/UP
TB 11-6625-416-35		TS-147D/UP
TM 11-6625-213-12	W/C1	TS-538C/U
TM 11-6625-213-20P		TS-538C/U
TM 11-6625-213-35		TS-538C/U
TM 11-6625-213-35P		TS-538C/U

APPENDIX B

SP TMDE FAMILY CODES

Computer printouts of TMDE family codes, sorted alphabetically and numerically, are reproduced on the following pages. Some are codes that were established in earlier studies, and some are newly created to accommodate the SP TMDE.

Alphabetical Sequence

391 AUDIO OUTPUT TEST SET
544 AUTOPILOT/STABILIZATION ACTUATOR TEST SET
543 AUTOPILOT/STABILIZATION COMPUTER TEST SET
542 AUTOPILOT/STABILIZATION ENSCR TEST SET
541 AUTOPILOT/STABILIZATION SYSTEM TEST SET
545 AUTOPILOT/STABILIZATION WIRING HARNESS TEST SET
007 BATTERY TEST SET
384 CONSEALED PERSONNEL TEST SET
341 CRYSTAL TEST SET
124 ENGINE ANALYZER
120 FLUID FLOW TEST SET
113 GUIDANCE SYSTEM TEST SET
362 INFRARED TEST SET
370 MAINTENANCE KITS TEST SET
028 MASS SPECTROMETER
513 NAVIGATION INERTIAL COMPUTER TEST SET
514 NAVIGATION INERTIAL DISPLAY TEST SET
512 NAVIGATION INERTIAL SENSOR TEST SET
515 NAVIGATION INERTIAL SERVO TEST SET
511 NAVIGATION INERTIAL SYSTEM TEST SET
524 NAVIGATION RADAR DISPLAY TEST SET
525 NAVIGATION RADAR POWER SUPPLY TEST SET
523 NAVIGATION RADAR SIGNAL PROCESSOR
521 NAVIGATION RADAR SYSTEM TEST SET
522 NAVIGATION RADAR TRANSMITTER/RECEIVER TEST SET
360 OPTICAL TEST SET
361 PHOTOGRAPHIC TEST SET
039 POWER METER AC
123 POWER SUPPLY TEST SET
314 RADAR ANTENNA TEST SET
317 RADAR DISPLAY TEST SET
316 RADAR POWER SUPPLY TEST SET
313 RADAR RECEIVER TEST SET
315 RADAR SIGNAL PROCESSOR TEST SET
311 RADAR SYSTEM TEST SET
012 RADAR TEST SET
312 RADAR TRANSMITTER TEST SET
324 RADIO COMMUNICATION ANTENNA TEST SET
325 RADIO COMMUNICATION MODEM/CODEC TEST SET
326 RADIO COMMUNICATION POWER SUPPLY TEST SET
323 RADIO COMMUNICATION RECEIVER TEST SET
321 RADIO COMMUNICATION SYSTEM TEST SET
322 RADIO COMMUNICATION TRANSMITTER TEST SET
334 RADIO NAVIGATION ANTENNA TEST SET
337 RADIO NAVIGATION DISPLAY TEST SET
335 RADIO NAVIGATION MODULATOR TEST SET
336 RADIO NAVIGATION POWER SUPPLY TEST SET
333 RADIO NAVIGATION RECEIVER TEST SET
331 RADIO NAVIGATION SYSTEM TEST SET

332 RADIO NAVIGATION TRANSMITTER TEST SET
 015 RADIO TEST SET
 115 RELAY TEST SET
 044 SCINTILLATION COUNTER
 046 SIGNAL GENERATOR CCMB
 048 SIGNAL GENERATOR TWO-TONE
 058 SIGNAL GENERATOR VARIABLE PHASE
 390 SIGNAL SIMULATORS TEST SET
 200 SPECIAL PURPOSE
 064 STRIP CHART RECORDER
 340 SUBASSEMBLY TEST SET
 560 TELEPHONE TEST SET
 318 TRANSPONDER TEST SET
 382 WEAPONS CONVENTIONAL TEST SET
 381 WEAPONS MISSILE TEST SET
 383 WEAPONS NUCLEAR
 083 WORD GENERATOR

Numerical Sequence

007 BATTERY TEST SET
 012 RADAR TEST SET
 015 RADIO TEST SET
 028 MASS SPECTROMETER
 039 POWER METER AC
 044 SCINTILLATION COUNTER
 046 SIGNAL GENERATOR CCMB
 048 SIGNAL GENERATOR TWO-TONE
 058 SIGNAL GENERATOR VARIABLE PHASE
 064 STRIP CHART RECORDER
 083 WORD GENERATOR
 113 GUIDANCE SYSTEM TEST SET
 115 RELAY TEST SET
 120 FLUID FLOW TEST SET
 123 POWER SUPPLY TEST SET
 124 ENGINE ANALYZER
 200 SPECIAL PURPOSE
 311 RADAR SYSTEM TEST SET
 312 RADAR TRANSMITTER TEST SET
 313 RADAR RECEIVER TEST SET
 314 RADAR ANTENNA TEST SET
 315 RADAR SIGNAL PROCESSOR TEST SET
 316 RADAR POWER SUPPLY TEST SET
 317 RADAR DISPLAY TEST SET
 318 TRANSPONDER TEST SET
 321 RADIO COMMUNICATION SYSTEM TEST SET
 322 RADIO COMMUNICATION TRANSMITTER TEST SET

323 RADIO COMMUNICATION RECEIVER TEST SET
324 RADIO COMMUNICATION ANTENNA TEST SET
325 RADIO COMMUNICATION MODEM/CCDEC TEST SET
326 RADIO COMMUNICATION POWER SUPPLY TEST SET
331 RADIO NAVIGATION SYSTEM TEST SET
332 RADIO NAVIGATION TRANSMITTER TEST SET
333 RADIO NAVIGATION RECEIVER TEST SET
334 RADIO NAVIGATION ANTENNA TEST SET
335 RADIO NAVIGATION MODULATOR TEST SET
336 RADIO NAVIGATION POWER SUPPLY TEST SET
337 RADIO NAVIGATION DISPLAY TEST SET
340 SUBASSEMBLY TEST SET
341 CRYSTAL TEST SET
360 OPTICAL TEST SET
361 PHOTOGRAPHIC TEST SET
362 INFRARED TEST SET
370 MAINTENANCE KITS TEST SET
381 WEAPONS MISSILE TEST SET
382 WEAPONS CONVENTIONAL TEST SET
383 WEAPONS NUCLEAR
384 CONCEALED PERSONNEL TEST SET
390 SIGNAL SIMULATORS TEST SET
391 AUDIO OUTPUT TEST SET
511 NAVIGATION INERTIAL SYSTEM TEST SET
512 NAVIGATION INERTIAL SENSOR TEST SET
513 NAVIGATION INERTIAL COMPUTER TEST SET
514 NAVIGATION INERTIAL DISPLAY TEST SET
515 NAVIGATION INERTIAL SERVO TEST SET
521 NAVIGATION RADAR SYSTEM TEST SET
522 NAVIGATION RADAR TRANSMITTER/RECEIVER TEST SET
523 NAVIGATION RADAR SIGNAL PROCESSOR
524 NAVIGATION RADAR DISPLAY TEST SET
525 NAVIGATION RADAR POWER SUPPLY TEST SET
541 AUTOPILOT/STABILIZATION SYSTEM TEST SET
542 AUTOPILOT/STABILIZATION SENSOR TEST SET
543 AUTOPILOT/STABILIZATION COMPUTER TEST SET
544 AUTOPILOT/STABILIZATION ACTUATOR TEST SET
545 AUTOPILOT/STABILIZATION WIRING HARNESS TEST SET
560 TELEPHONE TEST SET

APPENDIX C

U.S. ARMY SPECIAL PURPOSE TMDE PARAMETERS

Computer printouts of pertinent operating parameters of SP TMDE are reproduced on the following pages. These parameters were extracted from the appropriate publications for the SP TMDE currently in inventory.

(Published Separately as Volume II)

APPENDIX D

DEFINITIZATION OF SPECIAL PURPOSE SPECIFICATIONS

The following pages reproduce computer printouts of performance parameters of special purpose electronic test equipment, sorted by applicable military off-the-shelf specification and by parameter. All SP ETE are listed.

(Published Separately as Volume II)

APPENDIX E

SPECIAL PURPOSE SPECIFICATION PARAMETERS

The following pages reproduce computer printouts of performance requirements as specified for special purpose electronic test equipment in military off-the-shelf specifications that were developed in an earlier study.

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TIME ID NO
AUDIO OUTPUT TEST SET	14	7		391	9273

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	AUDIO OUTPUT TEST SET	
FREQ RANGE	26500	30HZ TO 10KHZ	
OHMS	35300	600PILLI TO 20K OHMS	+/-3 PCT
POWER RANGE	56800	-10 TC 430B	+/-6 PCT

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TIME ID NO
AUTOPILOT/STABILIZATION ACTUATORS	F6	7		544	9242

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	AUTOPILOT/STABILIZATION ACTUATORS	
PW SOURCE(S)/CONSUMPTION	00140	115VAC 400HZ	
CURRENT, DC	14800	0 TC 15PA	+/-2 PCT

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TIME ID NO	ACCURACY (PCT) OR AS STATED
AUTOPILLOT/STABILIZATION COMPUTER TS	E5	7		543	9261	
PARAMETER NAME	PARAMETER CODE	PARAMETER				
EQUIPMENT NAME	00100	AUTOPILLOT/STABILIZATION COMPUTER TEST SET				
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 50-400HZ				
DEGREES	16500	0 TC 15				
VOLTAG, AC READOUT	83900	0.5 VAC IN-PHASE 0.5 VAC OUT-OF-PHASE, 2.0 VAC IN-PHASE				
	83901	2.0 VAC OUT-OF-PHASE, 5.0 VAC IN-PHASE 5.0 VAC OUT-OF-PHASE, -7 TO +7VDC				
	83902	0 TO 500V				
VOLTAGE, AC	84000					

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TIME ID NO	ACCURACY (PCT) OR AS STATED
AUTOPILLOT/STABILIZATION SENSORS TS	E4	7		542	9240	
PARAMETER NAME	PARAMETER CODE	PARAMETER				
EQUIPMENT NAME	00100	AUTOPILLOT/STABILIZATION SENSORS TEST SET				
PWR SOURCE(S)/CONSUMPTION	00140	115/208VAC 50-420HZ				
CURRENT, AC	14400	0 TO 1000A				+/-4 PCT
DEGREES	16500	0 TO 360 DEG IN 8MIN INCREMENTS				+/-5 PCT
RESISTANCE MEASUREMENT	59600	0 TO 5				+/-5PCT FS
VOLTAG, AC READOUT	83900	0 TO 50VAC				+/-0.75PCT
VOLTAG, AC	84000	0 TO 125VAC				+/-2PCT FS
VOLTAG, DC	84400	0 TC 5VDC				+/-5 PCT
VOLTAG OUTPUT	84900	0 TO 27.5VDC				

SP ETE SPECIFICATION PARAMETERS

12/21/79

SP ETE SPECIFICATION NAME

TASK NO

GROUP LTR

FAMILY CODE

TIME ID NO

9239

541

7

E3

ACCURACY (PCT) OR AS STATED

PARAMETER NAME

PARAMETER CODE

PARAMETER

EQUIPMENT NAME

00100

POWER SOURCE(S)/CONSUMPTION

00140

CURRENT, DC

14800

FREQUENCY OUTPUT RANGE

26600

VOLTAGE, AC READOUT

83900

VOLTAGE, DC

84600

VOLTAGE OUTPUT

84900

AUTOPILOT/STABILIZATION SYSTEM TEST SET

0 TO 20MA

0 TO 10PHZ

-115VAC TC +115VAC

-20 TC +20V

-500 TO +500VDC, 0 TO 1.2VAC, ALL OUT ARE VARIABLE

SP ETE SPECIFICATION PARAMETERS

12/21/79

SP ETE SPECIFICATION NAME

TASK NO

GROUP LTR

FAMILY CODE

TIME ID NO

9245

007

7

G0

ACCURACY (PCT) OR AS STATED

PARAMETER NAME

PARAMETER CODE

PARAMETER

EQUIPMENT NAME

00100

POWER SOURCE(S)/CONSUMPTION

00140

CURRENT, DC

14800

TEMPERATURE RANGE

35300

VOLTAGE, DC

75210

84400

BATTERY TEST SET

0 TO 600A

0 TO 100MEGA

0 TO 125

0 TO 600V

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TIME TO NO	ACCURACY (PCT) OR AS STATED
CONSEALED PERSONNEL TEST SET	H6	7		384	9275	
PARAMETER NAME	PARAMETER CODE	PARAMETER				
EQUIPMENT NAME	00100	CONSEALED PERSONNEL TEST SET				
CURRENT.DC	14800	0 TO 100MILLIAMPS				+/-20 PCT
OHMS	35300	0 TO 1K				
VOLTAGE.AC	84500	100PICT TO 1KV				
VOLTAGE.DC	84400	10MV TO 750V				

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TIME TO NO	ACCURACY (PCT) OR AS STATED
CRYSTAL TEST SET	H5	7		341	9274	
PARAMETER NAME	PARAMETER CODE	PARAMETER				
EQUIPMENT NAME	00100	CRYSTAL TEST SET				
PWR SOURCE(S)/CONSUMPTION	00140	115/230VAC 50-1000HZ				
CAPACITANCE RANGE	08400	120UF TO 1100UF				
FREQ RANGE	26500	10KHZ TO 140KHZ				
OHMS	35300	0 TO 500K				
VOLTAGE.DC	84400	0 TO 25V				+/-0.50UF

SP EYE SPECIFICATION NAME ENGINE ANALYZER SPEC NC TASK NO GROUP LTR FAMILY CODE TIDE ID NO 12/21/79 9261

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	ENGINE ANALYZER	
PWP SOURCE(S)/CONSUMPTION	00140	115/230VAC 50-60HZ	
CURRENT, AC	14400	0 TO 15A	+/-2 PCT
CURRENT, DC	14800	0 TO 20A	+/-2 PCT
DEGREES	16500	0 TO 360	+/-1 PCT
OHMS	35300	0 TO 50MEGA	
POWER RANGE	56800	0 TO 100KW	
REVOLUTIONS PER MINUTE IR	61600	0 TO 10K RPM	
VOLTAGE, AC	84000	0 TO 1KV	
VOLTAGE, DC	84400	0 TO 10KV	

SP EYE SPECIFICATION NAME INFRARED TEST SET SPEC H3 TASK NO 7 GROUP LTR FAMILY CODE TIDE ID NO 12/21/79 9272

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	INFRARED TEST SET	
PWP SOURCE(S)/CONSUMPTION	00140	115/220VAC 50-620HZ	
FREQ RANGE	26500	116PHZ TO 149.9MHZ	
POWER RANGE	56800	5 TC TO MILLIWATT-SECONDS	
VOLTAGE, DC	84400	0 TO 70V	+/-0.1 PCT

SP EYE SPECIFICATION PARAMETERS 12/21/79

SP LTR SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	MODE ID NO
NAVIGATION INERTIAL COMPUTER TS	05	7		513	9232

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	NAVIGATION INERTIAL COMPUTER TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 50-420HZ	
CURRENT, DC	14800	0 TO 3A	
SIGNAL WAVEFORMS	50000	100-0-1000V DC	77-2 PCT
WATTAGE, AC	57400	0 TO 9999	
SIGNAL LEVEL, INPUT	65200	STEERING POINTER 0-10 VDC (16 OR -) STEERING FLAG 0-4VDC	
TIME INTERVAL MEASUREMENT	78000	0-01 TO 60MIN	17-2 PCT
VOLTAGE, AC	84000	1-0HV TO 300V	77-2 PCT
VOLTAGE, DC	84400	0 TO 500V	

SP EYE SPECIFICATION PARAMETERS 12/21/79

SP LTR SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	MODE ID NO
NAVIGATION INERTIAL DISPLAY TS	06	7		514	9233

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	NAVIGATION INERTIAL DISPLAY TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115/208VAC 50 TO 420HZ	
DEGREES	16500	0 TO 360	77-0.5 PCT

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TIME TO NO	ACCURACY (PCT) OR AS STATED
NAVIGATION INERTIAL SENSORS TS	D4	7		512	9231	
PARAMETER NAME	PARAMETER CODE	PARAMETER				
EQUIPMENT NAME	00100	NAVIGATION INERTIAL SENSORS TEST SET				
PWR SOURCE(S)/CONSUMPTION	00140	115/208VAC 50-420HZ				+/-2 PCT
CURRENT, AC	14400	0 TC 500MA				+/-3 PCT
DEGREES	16500	0 TC 360				
EVENT COUNTERS	23200	0-00001 TO 1.0 PER SEC				+/-0.25PCT
FREQ RANGE	26500	300 TC 420HZ				
SIGNAL WAVEFORMS	50000	CONSIST OF A STREAM OF 2600HZ BURST, 40-60MILLI SEC WIDE				+/-2 PCT
VOLTAGE, DC	84400	0 TO 30VDC				

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TIME TO NO	ACCURACY (PCT) OR AS STATED
NAVIGATION INERTIAL SERVO TEST SET	H7	7		515	9276	
PARAMETER NAME	PARAMETER CODE	PARAMETER				
EQUIPMENT NAME	00100	NAVIGATION INERTIAL SERVO TEST SET				
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 50-420HZ				+/-1 PCT
CURRENT, AC	14400	0 TC 150MA				155 OF ARC
CURRENT, DC	14800	0 TO 500				
DEGREES	16500	0 TO 360				
RATIO, AC	57400	0 TO 99.99				
SENSITIVITY	63600	-75PA TO +75MA				
TIME INTERVAL MEASUREMENT	78000	0 TC 60SEC				+/-2 PCT
VOLTAGE, AC	84000	1PV TC 1KV				+/-1 PCT
VOLTAGE, DC	84400	-20V TO 750V				

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TIME ID NO
NAVIGATION INERTIAL SYSTEM TEST SET	03	7		511	9230

ACCURACY (PCT) OR AS STATED

PARAMETER NAME	PARAMETER CODE	PARAMETER
EQUIPMENT NAME	00100	NAVIGATION INERTIAL SYSTEM TEST SET
PWR SOURCE(S)/CONSUMPTION	00140	115/208VDC 400HZ
CURRNT/DC	14800	0 TC 5PA
VOL TAGE OUTPUT	84900	-10 TC 110MV; -20 TO 120V; -550 TO 1550VDC CONTINUOUSLY VARIABLE
	84901	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TIME ID NO
NAVIGATION RADAR SIGNAL PROCESSOR	09	7		523	9236

ACCURACY (PCT) OR AS STATED

PARAMETER NAME	PARAMETER CODE	PARAMETER
EQUIPMENT NAME	00100	NAVIGATION RADAR SIGNAL PROCESSOR
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 400HZ
DEGREES	16500	0 TC 360
SIGNAL LEVEL INPUT	65200	50 TO 342 KNOTS AIRSPEED, 0 TO 360 DEG HEADING, 0 TO 360 DEG TRACKING, 0 TO 30 DEG DRIFT, 0 TO 292 GROUND SPEED IN KNOTS, AND AIRSPEED 10 TO 50 KNOTS AND -0 TO 50 KNOTS
	65201	
	65202	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TIME TO NO
NAVIGATION RADAR SYSTEM TEST SET	07	7		521	9234

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	NAVIGATION RADAR SYSTEM TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115/208VAC 400HZ	
DEGREES	16500	0 TO 360	
SIGNAL WAVEFORMS	50000	0 TO 90DEG DRIFTY ANGLE 0-999.9 KNOTS GROUND SPEED	
VOLTAGE AC READOUT	83900	0 TO 150V	+/-2 PCT
VOLTAGE OUTPUT	84900	90 TO 140V	+/-1 PCT

SF ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TIME TO NO
NAVIGATION RADAR TRANSMITTER/REC TS	08	7		522	9235

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	NAVIGATION RADAR TRANSMITTER/REC TS	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 400HZ	
VOLTAGE AC	84000	90 TO 140V	

SP ETE SPECIFICATION NAME 12/21/79

SP ETE SPECIFICATION PARAMETERS

SPEC NC TASK NO GROUP LTR FAMILY CODE TIDE ID NO

OPTICAL TEST SET CS 7 360 9223

PARAMETER NAME PARAMETER CODE PARAMETER ACCURACY (PCT) OR AS STATED

EQUIPMENT NAME 00100 OPTICAL TEST SET

PWR SOURCE(S)/CONSUMPTION 00140 115VAC 50-400HZ

AMPERE/DRAW 02100 3K TC 7.8K

CURRENT,DC 14800 0 TC 500MA

FILAMENT-CANDLES 25300 10U TC 150

FOOT-LAMBERTS 25500 0 TO 100MEGA

FPLD RANGE 26500 20HZ TO 100KHZ

POWER RANGE 56800 0 TO 60MICPO

RESISTANCE MEASUREMENT 59600 200 TC 20MEGA

TIME INTERVAL MEASUREMENT 78000 RANGE 1/2-TURN OF AHC 1/2-1SEC ON 5-15RANGE AND 1/2-2

VOLTAGE,DC 84400 SEC ON 15-20MIN RANGE

6/-0.1PCT

SP ETE SPECIFICATION NAME 12/21/79

SP ETE SPECIFICATION PARAMETERS

SPEC NC TASK NO GROUP LTR FAMILY CODE TIDE ID NO

PHOTOGRAPHIC TEST SET H2 7 361 9271

PARAMETER NAME PARAMETER CODE PARAMETER ACCURACY (PCT) OR AS STATED

EQUIPMENT NAME 00100 PHOTOGRAPHIC TEST SET

PWR SOURCE(S)/CONSUMPTION 00140 115VAC 50-400HZ

CURRENT,AC 14400 0 TO 100UA

CURRENT,DC 14800 0 TO 300UA

FLASH CHARACTERISTICS 24400 SCANNER RATES 10 AND 30 TIMES PER SEC

FOOT-LAMBERTS 25500 10U TC 10MEGA

VOLTAGE,AC 84300 0 TO 120V

VOLTAGE,DC 84400 0 TO 30V

6/-5 PCT

6/-5 PCT

6/-10 PCT

6/-10 PCT

SP ETE SPECIFICATION PARAMETERS						12/21/79			
SP ETE SPECIFICATION NAME	PARAMETER NAME	PARAMETER CODE	PARAMETER	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TIME ID NO	ACCURACY (PCT) OR AS STATED
POWER METER AC				F3	7		039	9240	
	EQUIPMENT NAME	00100	PCMR METER AC						
	PWR SOURCE(S)/CONSUMPTION	00140	115VAC 60HZ						
	CURRENT, AC	14400	0 TO 225A						
	FREQ RANGE	26500	1 TO 150HZ						7/-1 PCT
	POWER RANGE	56800	0 TO 160KW						7/-1 PCT
	VOLTAGE, AC	84400	0 TO 600V						7/-1 PCT

SP ETE SPECIFICATION PARAMETERS						12/21/79			
SP ETE SPECIFICATION NAME	PARAMETER NAME	PARAMETER CODE	PARAMETER	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TIME ID NO	ACCURACY (PCT) OR AS STATED
POWER SUPPLY TEST SET				G6	7		123	9260	
	EQUIPMENT NAME	00100	PCMR SUPPLY TEST SET						
	PWR SOURCE(S)/CONSUMPTION	00140	115/230VAC 50-600HZ						
	CURRENT, AC	14400	0 TO 15A						
	CURRENT, DC	14800	0 TO 30A						
	FREQ RANGE	26500	360 TO 440HZ						
	POWER RANGE	56800	0 TO 10KW						
	VOLTAGE, AC	84000	0 TO 150V						
	VOLTAGE, DC	84400	0 TO 17V						

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TIME ID NO
RADAR ANTENNA TEST SET	A4	7		314	9203

ACCURACY (PCT) OR AS STATED

PARAMETER NAME	PARAMETER CODE	PARAMETER
EQUIPMENT NAME	00100	RADAR ANTENNA TEST SET
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 50-400HZ
PERIODIC METHOD(S)	00160	GRAPH-ACCURATE TO 1/408 AND .36DEGREE BANDWIDTH +/- 20HZ
RADIATION PATTERN MEASURE	57600	0 TC 100MICROVOLTS 0 TO 360 DEG

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TIME ID NO
RADAR DISPLAYS TS	A7	7		317	9206

ACCURACY (PCT) OR AS STATED

PARAMETER NAME	PARAMETER CODE	PARAMETER
EQUIPMENT NAME	00100	RADAR DISPLAYS TS
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 50-400HZ
CURRENT, DC	14800	0 TC 10AMPS
FREQ RANGE	26500	300HZ TO 420HZ
PULSE WIDTH	56010	1 USEC ON 167 USEC
VIDEO OUTPUTS	A3600	750HZ
VOLTAGE, DC	84400	0 TO 28.2 VDC OUT, 0 TO 11 VDC OUT

+/- 4 USEC

SP ETE SPECIFICATION PARAMETERS						12/21/79
SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TIME TO NO	
RADAR RECEIVER TEST SET	A3	7		313	9202	
PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED			
EQUIPMENT NAME	00100	RADAR RECEIVER TEST SET				
PWR SOURCE(S)/CONSUMPTION	00140	115/230VAC 50-420HZ				
CURRENT,DC	14800	0 TC 100.0 MICROAMP				
DEGREES	16500	0 TO 360				
FREQ RANGE	26500	2GHZ TO 40GHZ				
POWER RANGE	56800	-110DB TO 160DB				
EQUIPMENT NAME	00100	RADAR SIGNAL PROCESSOR TEST SET				
PWR SOURCE(S)/CONSUMPTION	00140	115/220VAC 45-420HZ				
WARMUP TIME	05200	PROCESSOR WARMUP TIME 10MIN				
CURRENT,AC	14400	100WATT TO 1HP				
CURRENT,DC	14800	100WATT TO 1HP				
DISTANCE OPERATING RANGE	18800	80 TO 2000 YARDS				
DYNAMIC RANGE	22000	30DB				
FREQ RANGE	26500	1.03GHZ TO 1.09GHZ 2 RANGES				
TIME	35300	0 TO 10MSEC				
PHASE ANGLE MEASUREMENT	52800	0 TO 360 DEG				
PULSE WIDTH	56030	1.0 MSEC				
EX. PULSE RISE TIME	56030	0.07 PSEC MAX				
EX. PULSE POLARITY & VOLT	56060	0 TO 1.5V				
POWER RANGE	56800	-100DB TO +40DB				
VIDEO OUTPUTS	83600	30 TO 460DB. ABOVE 30 DB IS PROPER OPERATION				
SP ETE SPECIFICATION PARAMETERS						12/21/79
SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TIME TO NO	
RADAR SYSTEM TEST SET	A1	7		311	9200	
PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED			
EQUIPMENT NAME	00100	RADAR SYSTEM TEST SET				
PWR SOURCE(S)/CONSUMPTION	00140	115/230VAC 50 TO 400HZ				
CURRENT,DC	14800	12 MHZ AT 40 PHZ				
FREQ RANGE	26500	0 TC 1000MHZ				
POWER RANGE	56800	925MHZ TO 17GHZ				
OUTPUT AUDIO	27000	1.09GHZ				
PHASE SHIFT	49200	1.07 TC 1.11GHZ				
SIGNAL WAVEFORMS	50000	10 VOLTS AT 500 TO 1500 HZ				
EX. PULSE REPTITION RATE	56020	PULSE-50 WAVE-SAWTOOTH,VAR RISE/FALL TIME,AMPLITUDE				
EX. PULSE POLARITY & VOLT	56060	10 MHZ TO 10 KHZ				
POWER RANGE	56800	25-50 VOLTS VIDEO INPUT, 3200 VOLTS PEAR MODULATOR INPUT				
SENSITIVITY	63600	-90DBP TO 125DBM				
SWEEP RATE	73200	RECEIVER 20-12000 BELOW 1VOLT				
VOLTAGE,AC	84000	0.75 TO 16MHZ/SEC				
VOLTAGE,DC	84900	-40 TC 200VOLTS				
RF VOLTAGE OUTPUT	85600	0 TO 100VOLTS				
		300.0 TO -275.0 VOLTS				
		-80 VOLTS PEAR PULSE OUTPUT TO +60 VOLTS				

SE ETE SPECIFICATION PARAMETERS						
SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	12/21/79	TPDE TO NC
RADAR TRANSMITTER TEST SET	A2	7		312		9201
PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED			
EQUIPMENT NAME	00100	RADAR TRANSMITTER TEST SET				
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 50-420HZ				
ATTENUATION	02800	0.5 TO 60 DB				
CURRENT, MA	14800	0 TO 100.0 MA				
DEGREES	16500	-15.0 TO +15.0 DEG				
VOLTAGE OUTPUT	84900	0 TO 20.0 VOLTS				

SP ETE SPECIFICATION PARAMETERS						
SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	12/21/79	TPDE TO NC
RADIO COMMUNICATION ANTENNA TS	B2	7		324		9210
PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED			
EQUIPMENT NAME	00100	RADIO COMMUNICATION ANTENNA TEST SET				
PWR SOURCE(S)/CONSUMPTION	00140	115/230VAC 50-400HZ				
CONDUCTANCE, SIEMENS (S)	13600	0.01 TO 4000 MHOHMS				
DYNAMIC RANGE	22000	60000 MEASUREMENT RANGE				
FREQ RANGE	26500	15MHZ TO 18GHZ				
QMS	35300	0 TO 300 MEGA OHMS				
POWER RANGE	56800	0 TO 500 MILLIVOLTS				
SENSITIVITY	63600	-50DB				
STANDING WAVE RATIO SWR	69600	VSWR 1.2 CAN BE MEASURED				
SUSCEPTANCE	69800	-4000 TO 14000 MHOHMS				

SP ETE SPECIFICATION PARAMETERS

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	12/21/79	TIME 10 MG
RADIO COMMUNICATION MCODEM/CODEC TS	83	7		325		9211

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	RADIO COMMUNICATION MODLM/CODEC TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC, 50-400HZ	
DEGREES	16500	0 TO 360	
FREQ MODULATION	26000	70KHZ	

SP ETE SPECIFICATION PARAMETERS

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	12/21/79	TIME 10 MG
RADIO COMMUNICATION RECEIVER TS	81	7		323		9209

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	RADIO COMMUNICATION RECEIVER TS	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 60HZ	
FREQ MODULATION	26000	66MHZ TC 74MHZ	
FREQ RANGE	26500	0 TC 140KHZ	
POWER RANGE	56800	-20 TC 10208	
PWR OUTPUT	57000	100UV TO 200MV	
VOLTAGE, AC	84000	3 TC 300MV	
VOLTAGE INPUT LEVEL	84130	100 TC 300UV	

SP ETE SPECIFICATION PARAMETERS

12/21/79

SP ETE SPECIFICATION NAME

RADIO COMMUNICATION SYSTEM TEST SET

SPEC NO AB 7

TASK NO

GROUP LTR

FAMILY CODE 321

TIME ID NO 9207

ACCURACY (PCT) OR AS STATED

PARAMETER NAME

PARAMETER CODE

PARAMETER

EQUIPMENT NAME 00100

PWR SOURCE(S)/CONSUMPTION 00140

CURRENT, AC 14400

CURRENT, DC 14800

DELAY PERIOD 16800

DB LEVEL MEAS 16900

FM DEVIATION 26020

FREQ RANGE 26500

SIGNAL WAVEFORMS 50000

PULSE WIDTH 56010

PWR RANGE 56800

PWR OUTPUT 57000

SIGNAL TO NOISE RATIO 66100

VOLTAGE, AC 84000

VOLTAGE OUTPUT 84900

WAVEFORM(S) 86800

WAVEFORM DESCRIPTIONS 86810

P30TC COMMUNICATION SYSTEM TEST SET

115/230VAC 50-420HZ

0 TC 30AMPS

-100UA TO 10A

INS AT 20MHZ DEVIATION

-20 TC 4200B

20MHZ-LINEARITY IS +/-0.25 PCT

455KHZ TO 8.5GKHZ

80KHZ SWEEP, 30KHZ MEASURING SIG, COMBINED OUTPUTS

0.5 TC 25US

-85DB TC +15DB

1LV TC 300MV

60DB

0 TC 1KV

-5VDC AND 0 TO 500VDC, 3VAC

AP/FM MODULATION, SQ WAVE, PULSE

1000HZ +/-10 PCT, 300KHZ TO 10KHZ

SP ETE SPECIFICATION PARAMETERS

12/21/79

SP ETE SPECIFICATION NAME

RADIO COMMUNICATION TRANSMITTER TS

SPEC NO A9 7

TASK NO

GROUP LTR

FAMILY CODE 322

TIME ID NO 9208

ACCURACY (PCT) OR AS STATED

PARAMETER NAME

PARAMETER CODE

PARAMETER

EQUIPMENT NAME 00100

PWR SOURCE(S)/CONSUMPTION 00140

CURRENT, DC 14800

DB LEVEL MEAS 16900

FREQ MEASUREMENTS 25600

FREQ RANGE 26500

PWR RANGE 56800

PWR OUTPUT 57000

RESISTANCE MEASUREMENT 59600

STANDING WAVE RATIO SWR 66600

VOLTAGE, DC 84400

RADIO COMMUNICATION TRANSMITTER TS

115VAC 50-400HZ

0 TC 50AMPS

0 TC -20DB

2 TO 29.99MHZ

1.5KHZ TO 1.73GKHZ

-170DB TO 100DB

0 TO 10WATTS

0 TO 50 OHMS

1.05 TO 3.0

0 TC 50VDC

+/-0.005

+/-5PCT

+/-5PCT

+/-5PCT

SP EYE SPECIFICATION PARAMETERS						12/21/79																																																																																																												
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RADIO NAVIGATION ANTENNA TEST SET	88	7		334	9216																																																																																																													
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SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMOE ID NO	ACCURACY (PCT) OR AS STATED
RADIO NAVIGATION SYSTEM TEST SET	85	7		331	9213	

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	RADIO NAVIGATION SYSTEM TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 50-420HZ	
CURRENT, DC	14800	0 TC 3MILLIAMPS	+/-2 PCT
DC REFS	16500	0 TC 360	
FREQ RANGE	26500	90KHZ TO 1.225GHZ	+/-2 PCT
OUTPUT, AUDIO	49200	250MW	
POWER RANGE	56800	10 TC 100WATTS	
PWR OUTPUT	57000	1WATT FOR ANTENNA TEST	
VOLTAGE, AC	84000	0 TO 125VOLTS	
VOLTAGE, DC	84400	225VDC AT 15RA AND 27.5VDC AT 50MA	

SP ETE SPECIFICATION PARAMETERS 12/21/79

SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TMOE ID NO	ACCURACY (PCT) OR AS STATED
RADIO NAVIGATION TRANSMITTER TS	86	7		332	9214	

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	RADIO NAVIGATION TRANSMITTER TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115VAC 60 TO 400HZ	
FREQ RANGE	26500	265 TC 535KHZ	
PWR OUTPUT	57000	10 TC 100WATTS	

SF ETE SPECIFICATION PARAMETERS

12/21/79

SPEC NO TASK NO GROUP LTR FAMILY CODE TMR TO NL

RELAY TEST SET 63 7 115 9257

PARAMETER NAME PARAMETER CODE PARAMETER ACCURACY (PCT) OR AS STATED

EQUIPMENT NAME 00100 RELAY TEST SET

PWR SOURCE(S)/CONSUMPTION 00140 115/230VAC 50-400HZ

CURRENT,DC 14800 0 TO 750MA

FREQ RANGE 26500 20HZ TO 125HZ

SIGNAL WAVEFORMS 50000 10VAC AT 400HZ, 0.5AMP AND 10 TO 28VDC, CONT VAR, 1AMP

PULSE RATE 58200 RANGE OF READOUT 6 TO 25PPS

TEST PATTERNS 76000 5 SPEEDS 23,37,75,100 AND 125 DOT HZ

VOLTAGE,DC 84400 0 TO 150VDC

+/-2 PCT

+/-1 PCT

SF ETE SPECIFICATION PARAMETERS

12/21/79

SPEC NO TASK NO GROUP LTR FAMILY CODE TMR TO NL

SIGNAL GENERATOR COMB F5 7 046 9250

PARAMETER NAME PARAMETER CODE PARAMETER ACCURACY (PCT) OR AS STATED

EQUIPMENT NAME 00100 SIGNAL GENERATOR COMB

PWR SOURCE(S)/CONSUMPTION 00140 115/208VAC 50-400HZ

MARKERS 41600 AT 1.10,1.00MHZ INCREMENTS TO 5GHZ

SP EYE SPECIFICATION PARAMETERS 12/21/79

SP EYE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TIME ID NO
SIGNAL GENERATOR TWO-TONE	F6	7		048	9251

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	SIGNAL GENERATOR TMC-TONE	
PWP SOURCE(S)/CONSUMPTION	00140	115/208VAC 50-400HZ	
FREQ MODULATION	26000	0 TC 10KZ	
FREQ RANGE	26500	10KZ TO 38KHZ	
PWP OUTPUT	57000	10V TC IV	

SP EYE SPECIFICATION PARAMETERS 12/21/79

SP EYE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TIME ID NO
SIGNAL GENERATOR VARIABLE PHASE	F7	7		058	9252

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	SIGNAL GENERATOR VARIABLE PHASE	
PWP SOURCE(S)/CONSUMPTION	00140	115/230VAC 50-1000HZ	
FREQ RANGE	26500	0-005KZ TC 60KHZ	
PHASE DIFFERENCE- (DEGREES	53200	0 TO 360	
PWP OUTPUT	57000	0 TC 30V	
DIMENSIONS IN MM/INS	00110	44CP163/41MMX16CM(163MM)X40CM(151IN)	

SP ETE SPECIFICATION PARAMETERS						12/21/79
SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TIME TO NO	
SIGNAL GENERATOR, PULSE	04	7		315		9204
PARAMETER NAME	PARAMETER CODE					ACCURACY (PCT) OR AS STATED
ENCLOSURE (STYLE)	00130	MIL-T-28800 STYLE W/RACK MOUNT CAPABILITY				

SP ETE SPECIFICATION PARAMETERS						12/21/79
SP ETE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	TIME TO NO	
SIGNAL GENERATOR, UHF A	15	7		333		9215
PARAMETER NAME	PARAMETER CODE					ACCURACY (PCT) OR AS STATED
RF VOLTAGE OUTPUT VIBRATION LIMIT (MAXIMUM)	85600 00240	RF NLT .5V RMS ACROSS 50 OHM LOAD 2G				

SP EYE SPECIFICATION PARAMETERS 12/21/79

SP EYE SPECIFICATION NAME TASK NO GR JUP LTR FAMILY CODE TMODE ID NO

SIGNAL SIMULATORS TEST SET D1 7 390 9228

PARAMETER NAME PARAMETER CODE SIGNAL SIMULATORS TEST SET

EQUIPMENT NAME 00100

ACCURACY (PCT) OR AS STATED

SP EYE SPECIFICATION PARAMETERS 12/21/79

SP EYE SPECIFICATION NAME TASK NO GR JUP LTR FAMILY CODE TMODE ID NO

STIP CHART RECORDER F8 7 064 9253

PARAMETER NAME PARAMETER CODE EQUIPMENT NAME

STIP CHART RECORDER 00100

PARAMETER NAME 00140

STIP CHART RECORDER 115/230VAC 48-62HZ

PARAMETER NAME 10100

STIP CHART RECORDER 30FT ROLL

PARAMETER NAME 10400

STIP CHART RECORDER 20 FPM 0.1 TO 100CM/MIN

PARAMETER NAME 11600

STIP CHART RECORDER 0 TO 750A

PARAMETER NAME 14400

STIP CHART RECORDER 0 TO 10MA

PARAMETER NAME 14800

STIP CHART RECORDER 45HZ TO 425HZ

PARAMETER NAME 26440

STIP CHART RECORDER 1HZ TO 4MHZ

PARAMETER NAME 26500

STIP CHART RECORDER 0 TO 750V

PARAMETER NAME 84700

STIP CHART RECORDER 0 TO 300V

PARAMETER NAME 84400

STIP CHART RECORDER +/-1PCT

PARAMETER NAME 84400

STIP CHART RECORDER +/-1PCT

ACCURACY (PCT) OR AS STATED

SP EYE SPECIFICATION PARAMETERS

12/21/79

SP EYE SPECIFICATION NAME

SPEC NO

TASK NO

GROUP LTR

FAMILY CODE

TIME ID NO

SUMASSEMBLY TEST SET

C3

7

340

9220

ACCURACY (PCT) OR AS STATED

PARAMETER CODE

PARAMETER

EQUIPMENT NAME

00100

SUBASSEMBLY TEST SET

PW SOURCE(S)/CONSUMPTION

00140

115/230VAC 50-1000HZ

FREQ RANGE

26500

150 TC 168MHZ

VOLTAGE AC

84000

100UV TO 120HV

VOLTAGE OUTPUT

84900

-6,-80,112,125,128VDC

+/0.5PCT

+/2PCT

SP EYE SPECIFICATION PARAMETERS

12/21/79

SP EYE SPECIFICATION NAME

SPEC NO

TASK NO

GROUP LTR

FAMILY CODE

TIME ID NO

TELEPHONE TEST SET

E6

7

560

9244

ACCURACY (PCT) OR AS STATED

PARAMETER CODE

PARAMETER

EQUIPMENT NAME

00100

TELEPHONE TEST SET

PW SOURCE(S)/CONSUMPTION

00140

115VAC 60HZ

CAPACITANCE RANGE

08400

50UF TO 4MF

CURRENT AC

14800

-150MA TO 3.8AMPS

FREQ MEASUREMENTS

25600

17 TC 22HZ

FREQ RANGE

28500

0 TO 2.6KHZ

IMP S

35300

0 TO 1.01MEGA

PONF RANGE

56800

-70 TC 126DB

VOLTAGE DC

84400

0 TO 1KV

40 TO 60MSEC DURATION

SP ETE SPECIFICATION NAME 12/21/79
 SP ETE SPECIFICATION NAME
 SPEC NO TASK NO GROUP LTR FAMILY CODE TMR ID NO

TRANSPONDER TEST SET HI 7 310 9270

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	TRANSPONDER TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115/230VAC 50-420HZ	
CURRENT,DC	05200	6.5AMP	
DB LEVEL MEAS	14800	0 TO 10AMPS	+/-5 PCT
FREQ RANGE	16900	10 TC 33DB	+/-3.3 PCT
OUTPUT POWER	26500	5MHZ TO 1000MHZ	
SIGNAL WAVEFORMS	35100	XPR -90DB	
	50000	RANGE SIMULATION PULSE 5V MIN, 100NS RISE TIME 750NS	
	50001	WIDTH, FIXED RATE OF CHANGE 0 TO 2000FPS, VARIABLE RATE	
	50002	OF CHANGE 0-100 OR 0-1000FPS, VIDEO PULSE 0 TO 47-5V	
EX, PULSE RISE TIME	56030	15NS	
EX, PULSE POLARITY & VOLT	56060	0 TO 5 VOLTS MIN	
EX, PULSE DELAY	56090	0 TO 550 NS	
PULSE RATE	56200	0 TO 10KPPS	
VOLTAGE,AC	84000	0 TO 200VAC	
VOLTAGE,DC	84400	0 TO 400VDC	

SP ETE SPECIFICATION NAME 12/21/79
 SP ETE SPECIFICATION NAME
 SPEC NO TASK NO GROUP LTR FAMILY CODE TMR ID NO

WEAPON MISSILE TEST SET CT 7 301 9225

PARAMETER NAME	PARAMETER CODE	PARAMETER	ACCURACY (PCT) OR AS STATED
EQUIPMENT NAME	00100	WEAPON MISSILE TEST SET	
PWR SOURCE(S)/CONSUMPTION	00140	115/230VAC 50-420HZ	
CURRENT,DC	14800	0 TO 15AMPS	
DB LEVEL MEAS	16900	0 TO 60	+/-0.1 PCT
FREQ RANGE	26500	100VILLHZ TO 1GHZ	
SIGNAL WAVEFORMS	50000	ALFA-NUMERIC,SPECIAL CHARACTER FORMAT	
RESISTANCE MEASUREMENT	59600	1K TC 10MEGA	
TIME INTERVAL MEASUREMENT	78000	0.01MS TO 10SEC	
VOLTAGE,AC	84000	0 TO 300VAC	
VOLTAGE,DC	84400	0 TO 10KV	

EXP 55

ACCURACY (PCT)
UR AS STATED

PARAMETER NAME	PARAMETER CODE
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EQUIP
PWR S
CUMWT
PEGPC
CPEQ
QESIS
TIME
VOLTA
VOLTA

as

ACCURACY IMPROVED AS STATED

PARAMETER NAME	PARAMETER CODE
1. NAME OF THE PROJECT	1
2. NAME OF THE ORGANIZATION	2
3. NAME OF THE INDIVIDUAL	3
4. NAME OF THE INSTITUTION	4
5. NAME OF THE CITY	5
6. NAME OF THE STATE	6
7. NAME OF THE COUNTRY	7
8. NAME OF THE CONTINENT	8
9. NAME OF THE OCEAN	9
10. NAME OF THE ISLAND	10
11. NAME OF THE MOUNTAIN	11
12. NAME OF THE RIVER	12
13. NAME OF THE LAKE	13
14. NAME OF THE DESERT	14
15. NAME OF THE TROPIC	15
16. NAME OF THE EQUATOR	16
17. NAME OF THE ARCTIC CIRCLE	17
18. NAME OF THE TROPIC OF CANCER	18
19. NAME OF THE TROPIC OF CAPRICORN	19
20. NAME OF THE EQUINOX	20
21. NAME OF THE SOLAR TERM	21
22. NAME OF THE LUNAR TERM	22
23. NAME OF THE STARS	23
24. NAME OF THE PLANETS	24
25. NAME OF THE METEORS	25
26. NAME OF THE COMETS	26
27. NAME OF THE GALAXIES	27
28. NAME OF THE UNIVERSE	28
29. NAME OF THE COSMOS	29
30. NAME OF THE HEAVENS	30
31. NAME OF THE EARTH	31
32. NAME OF THE MOON	32
33. NAME OF THE SUN	33
34. NAME OF THE STARS	34
35. NAME OF THE PLANETS	35
36. NAME OF THE METEORS	36
37. NAME OF THE COMETS	37
38. NAME OF THE GALAXIES	38
39. NAME OF THE UNIVERSE	39
40. NAME OF THE COSMOS	40
41. NAME OF THE HEAVENS	41
42. NAME OF THE EARTH	42
43. NAME OF THE MOON	43
44. NAME OF THE SUN	44
45. NAME OF THE STARS	45
46. NAME OF THE PLANETS	46
47. NAME OF THE METEORS	47
48. NAME OF THE COMETS	48
49. NAME OF THE GALAXIES	49
50. NAME OF THE UNIVERSE	50
51. NAME OF THE COSMOS	51
52. NAME OF THE HEAVENS	52
53. NAME OF THE EARTH	53
54. NAME OF THE MOON	54
55. NAME OF THE SUN	55
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58. NAME OF THE METEORS	58
59. NAME OF THE COMETS	59
60. NAME OF THE GALAXIES	60
61. NAME OF THE UNIVERSE	61
62. NAME OF THE COSMOS	62
63. NAME OF THE HEAVENS	63
64. NAME OF THE EARTH	64
65. NAME OF THE MOON	65
66. NAME OF THE SUN	66
67. NAME OF THE STARS	67
68. NAME OF THE PLANETS	68
69. NAME OF THE METEORS	69
70. NAME OF THE COMETS	70
71. NAME OF THE GALAXIES	71
72. NAME OF THE UNIVERSE	72
73. NAME OF THE COSMOS	73
74. NAME OF THE HEAVENS	74
75. NAME OF THE EARTH	75
76. NAME OF THE MOON	76
77. NAME OF THE SUN	77
78. NAME OF THE STARS	78
79. NAME OF THE PLANETS	79
80. NAME OF THE METEORS	80
81. NAME OF THE COMETS	81
82. NAME OF THE GALAXIES	82
83. NAME OF THE UNIVERSE	83
84. NAME OF THE COSMOS	84
85. NAME OF THE HEAVENS	85
86. NAME OF THE EARTH	86
87. NAME OF THE MOON	87
88. NAME OF THE SUN	88
89. NAME OF THE STARS	89
90. NAME OF THE PLANETS	90
91. NAME OF THE METEORS	91
92. NAME OF THE COMETS	92
93. NAME OF THE GALAXIES	93
94. NAME OF THE UNIVERSE	94
95. NAME OF THE COSMOS	95
96. NAME OF THE HEAVENS	96
97. NAME OF THE EARTH	97
98. NAME OF THE MOON	98
99. NAME OF THE SUN	99
100. NAME OF THE STARS	100

SP EYE SPECIFICATION PARAMETERS					
SP EYE SPECIFICATION NAME	SPEC NO	TASK NO	GROUP LTR	FAMILY CODE	12/21/79 TIME ID NO
WIND GENERATOR	G1	7		083	9255
PARAMETER					
PARAMETER NAME	PARAMETER CODE	ACCURACY (PCT) OR AS STATED			
EQUIPMENT NAME	00100	WIND GENERATOR			
PWR SOURCE(S)/CONSUMPTION	00140	115/230VAC 40-440HZ			
HAUD RATE	05600	45.5 TO 9600			
DATA SIGNAL	15200	16-BIT WORD VARIABLE PATTERNS			
FREQ RANGE	26500	10HZ TO 10MHZ			
SIGNAL WAVEFORMS	50000	-15 TC 115V			
PULSE WIDTH	56010	50 TO 500 SEC			
PWR OUTPUT	57000	9.5V			

APPENDIX F

SELECTED SPECIAL PURPOSE TMDE

Computer printouts of the 20 special purpose TMDE selected for detailed study are reproduced on the following pages.

SP TMDE Type Designator Sequence

<u>Type</u> <u>Designator</u>	<u>Nomenclature</u>	<u>LIN</u>	<u>Family</u> <u>Code</u>	<u>End Item</u> <u>Supported</u>
ANAAM36	T S OPTICAL ALIGNMENT	V82238	360	ANAAS24
ANAPM123V3	T S TRANSPONDER	V99347	318	ANAPX44
ANARM109	T S ANTENNA COUPLER	V63589	324	CU1658A
ANARM45A	T S RADIO	V86784	321	ANARC73
ANARM5A	T S RADIO	V86383	333	VHF NAV RECR
ANARM92B	T S RADIO	V90287	332	ANARN82A
ANARM93	T S DIRECTION FINDER SET	V73847	331	ANARN83
ANARM94	T S TRANSMITTER	V99295	322	ANART41A
ANASM113	SIMULATCR NAVIGATCNAL SIGNAL	T56676	513	ANASN33
ANASM299	T S ATTITUDE HEADING REF SET	V81485	521	ANASN76
ANASM329	CONTROL SET TEST BENCH SET FLIGHT	V69841	541	ANASW29
ANASM80A	ANALYZER FLIGHT LINE	A55704	541	ANASW12
ANFCM5B	T S TELEPHONE	V94192	560	TELEPHONE SYSTEMS
ANGPM46A	T S RADAR	V83917	311	ANAPS9486C
ANGRM33C	T S RADIO	V87547	321	SSB RADIO
ANGRM55A	T S ELEC CKT P I UNIT	V76519	340	RT505
ANUPM33A	T S RADAR	V84328	311	RADAR SYSTEMS
ANURM157A	TEST HARDNESS RADIO SET	V62066	321	ANARC102
TS147CUP	T S RADAR	V85150	311	RADAR SYSTEMS
TS583CU	GENERATOR SIGNAL	V88438	322	RADIOSCNDE XMTR

SP TMDE Family Code Sequence

<u>Type</u> <u>Designator</u>	<u>Nomenclature</u>	<u>LIN</u>	<u>Family</u> <u>Code</u>	<u>End Item</u> <u>Supported</u>
ANGPM46A	T S RADAR	V83917	311	ANAPS9486C
ANUPM33A	T S RADAR	V84328	311	RADAR SYSTEMS
TS147CUP	T S RADAR	V85150	311	RADAR SYSTEMS
ANAPM123V3	T S TRANSPONDER	V99347	318	ANAPX44
ANARM45A	T S RADIO	V86784	321	ANARC73
ANURM157A	TEST HARDNESS RADIO SET	V62066	321	ANARC102
ANGRM33C	T S RADIO	V87547	321	SSB RADIO
TS583CU	GENERATOR SIGNAL	V88438	322	RADIOSCNDE XMTR
ANARM94	T S TRANSMITTER	V99295	322	ANART41A
ANARM109	T S ANTENNA COUPLER	V63589	324	CU1658A
ANARM93	T S DIRECTION FINDER SET	V73847	331	ANARN83
ANARM92B	T S RADIO	V90287	332	ANARN82A
ANARM5A	T S RADIO	V86383	333	VHF NAV RECR
ANGRM55A	T S ELEC CKT P I UNIT	V76519	340	RT505
ANAAM36	T S OPTICAL ALIGNMENT	V82238	360	ANAAS24
ANASM113	SIMULATCR NAVIGATCNAL SIGNAL	T56676	513	ANASN33
ANASM299	T S ATTITUDE HEADING REF SET	V81485	521	ANASN76
ANASM329	CONTROL SET TEST BENCH SET FLIGHT	V69841	541	ANASW29
ANASM80A	ANALYZER FLIGHT LINE	A55704	541	ANASW12
ANFCM5B	T S TELEPHONE	V94192	560	TELEPHONE SYSTEMS

LIN Sequence

Type Designator	Nomenclature	LIN	Family Code	End Item Supported
ANASM80A	ANALYZER FLIGHT LINE	A55704	541	ANASW12
ANASH113	SIMULATOR NAVIGATIONAL SIGNAL	T56676	513	ANASN33
ANURM157A	TEST HARDNESS RADIC SET	V62066	321	ANARC102
ANARM109	T S ANTENNA COUPLER	V63589	324	CU1658A
ANASM329	CONTROL SET TEST BENCH SET FLIGHT	V69841	541	ANASW29
ANARM93	T S DIRECTION FINDER SET	V73847	331	ANARN83
ANGRM55A	T S ELEC CKT P I UNIT	V76519	340	RT505
ANASM299	T S ATTITUDE HEADING REF SET	V81485	521	ANASN76
ANAAM36	T S OPTICAL ALIGNMENT	V82238	360	ANAAS24
ANGPM46A	T S RADAR	V83917	311	ANAPS9486C
ANUPM33A	T S RADAR	V84328	311	RADAR SYSTEMS
TS147DUP	T S RADAR	V85150	311	RADAR SYSTEMS
ANARM5A	T S RADIO	V86383	333	VHF NAV RECR
ANARM45A	T S RADIO	V86784	321	ANARC73
ANGRM33C	T S RADIO	V87547	321	SSB RADIO
TS583CU	GENERATOR SIGNAL	V88438	322	RADIOSONDE XMTR
ANARM92B	T S RADIO	V90287	332	ANARN82A
ANFCM5B	T S TELEPHONE	V94192	560	TELEPHONE SYSTEMS
ANARM94	T S TRANSMITTER	V99295	322	ANART41A
ANAPM123V3	T S TRANSPONDER	V99347	318	ANAPX44

End Item Supported Sequence

Type Designator	Nomenclature	LIN	Family Code	End Item Supported
ANAAM36	T S OPTICAL ALIGNMENT	V82238	360	ANAAS24
ANGPM46A	T S RADAR	V83917	311	ANAPS9486C
ANAPM123V3	T S TRANSPONDER	V99347	318	ANAPX44
ANURM157A	TEST HARDNESS RADIC SET	V62066	321	ANARC102
ANARM45A	T S RADIO	V86784	321	ANARC73
ANARM93	T S DIRECTION FINDER SET	V73847	331	ANARN83
ANARM94	T S TRANSMITTER	V99295	322	ANART41A
ANASH113	SIMULATOR NAVIGATIONAL SIGNAL	T56676	513	ANASN33
ANASM299	T S ATTITUDE HEADING REF SET	V81485	521	ANASN76
ANARM92B	T S RADIO	V90287	332	ANARN82A
ANASM80A	ANALYZER FLIGHT LINE	A55704	541	ANASW12
ANASM329	CONTROL SET TEST BENCH SET FLIGHT	V69841	541	ANASW29
ANARM109	T S ANTENNA COUPLER	V63589	324	CU1658A
ANUPM33A	T S RADAR	V84328	311	RADAR SYSTEMS
TS147DUP	T S RADAR	V85150	311	RADAR SYSTEMS
TS583CU	GENERATOR SIGNAL	V88438	322	RADIOSONDE XMTR
ANGRM55A	T S ELEC CKT P I UNIT	V76519	340	RT505
ANGRM33C	T S RADIO	V87547	321	SSB RADIO
ANFCM5B	T S TELEPHONE	V94192	560	TELEPHONE SYSTEMS
ANARM5A	T S RADIO	V86383	333	VHF NAV RECR