AD-A173 424 AUTOMATIC MICROWAVE SEMICONDUCTOR DEVICE TESTING(U) 1/1
HARRIS CORP SYOSSET NY GOVERNMENT SUPPORT SYSTEMS DIV
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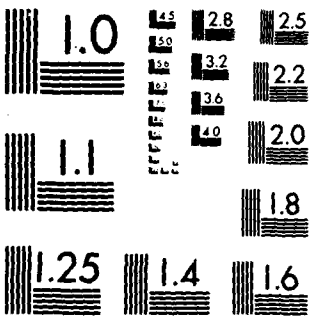

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During the past three months the project team has focused efforts in the following areas:

- Computer System/Software Selection
- Device Fixturization/Analysis
- System Hardware Selection
- Measurement Technique Investigation
- ECP Formalization

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"AUTOMATIC MICROWAVE SEMICONDUCTOR
DEVICE TESTING"

SECOND QUARTERLY PROGRESS REPORT
(October 16, 1985 to January 15, 1986)

This project has been accomplished as part of the US Army Manufacturing Methods and Technology (MM&T) Program, which has as its objective the timely establishment of manufacturing processes, techniques or equipment to insure the efficient production of current or future defense programs.

SECOND QUARTERLY REPORT

(October 16, 1985 - January 15, 1986)

During the past three months the Automatic Microwave Semiconductor Device Tester (AMSDT) project team has focused on work in the following areas:

- Computer System/Software Selection
- Device Fixturization/Analysis
- System Hardware Selection
- Measurement Techniques Investigation
- ECP Formalization

1. COMPUTER SYSTEM/SOFTWARE SELECTION

A trade-off analysis for computer selection was prepared between the following candidate computer systems for the AMSDT:

HP9836, HP310, HP320, IBM AT, IBM XT

This hardware selection was influenced by the availability of software for the HP8510A Network Analyzer, since the existence of software permits the HP8510A to conduct many of the required component tests.

The IBM computer series (in particular, IBM AT) is completely compatible with the EESOF Corporation "Touchstone" integrated software, used with the HP8510A Network Analyzer. The HP computer series (in particular, HP320) is available with limited software for the HP8510A. Harris would then have to develop additional software necessary for use with the HP8510A. Conversations with EESOF indicated that their integrated software (version 1.4) is currently under development for the HP320 computer, with completion date scheduled for Spring of 1986.

In Jan. 1986 Harris selected and initiated purchase orders for the HP320 computer series. Delivery is expected during the Summer of 1986. This date is in keeping with the expected release of the EESOF integrated software.

2. DEVICE FIXTURIZATION/ANALYSIS

An analysis was performed which related the device under test (DUT), the required tested parameters, the recommended test fixture, and the suggested device manufacturer and part number. This analysis will help formalize the device test requirements and test fixture needs. Where possible the device manufacturer was contacted to provide typical samples of the DUT. The prime microwave device test fixture company, Maury Microwave Corporation, indicated that their test fixture calibration software is not currently compatible with the HP320 computer series (presently their fixturization calibration software is designed for the older HP9836 computer series) and the HP8510A analyzer.

Maury Microwave is investigating the changes in fixturization calibration software necessary for use with the HP320 computer.

3. SYSTEM HARDWARE SELECTION

Some major hardware instruments for the AMSDT were selected and purchase orders forwarded to HP. This system hardware included:

3. SYSTEM HARDWARE SELECTION - (continued)

HP8510A	Network Analyzer
HP8514A	S-Parameter Test Set
HP8341A	Synthesized Sweeper
HP5050A	7 mm Calibration Kit
HP5051A	7 mm Verification Kit
HP8513B	7 mm Test Port Return Cable Set

Delivery of the hardware is expected in the Summer of 1986

4. MEASUREMENT TECHNIQUES INVESTIGATION

The project team has put together several tutorial papers concerning S-parameter measurements. This analysis will aid in the measurement techniques and the interpretation of data from the HP8510A System.

A separate paper concerning software design for the test executive was finished. This paper defined the operation of the test executive and will be used as a framework for the development of the AMSDT computer software architecture.

5. ECP FORMALIZATION

Two ECP's have been prepared for the following improvements to the AMSDT system.

- Touch-Screen Capability. This ECP detailed the integration of a touch-screen to the CRT monitor of the AMSDT. The touch-screen is attached to the existing 12 inch CRT color monitor. Once installed, the touch screen, in conjunction with the AMSDT, offers the operator many advantages including fast response and operation, single and direct use of "menu selection" on the CRT, and the improvement of the operator/computer interface.

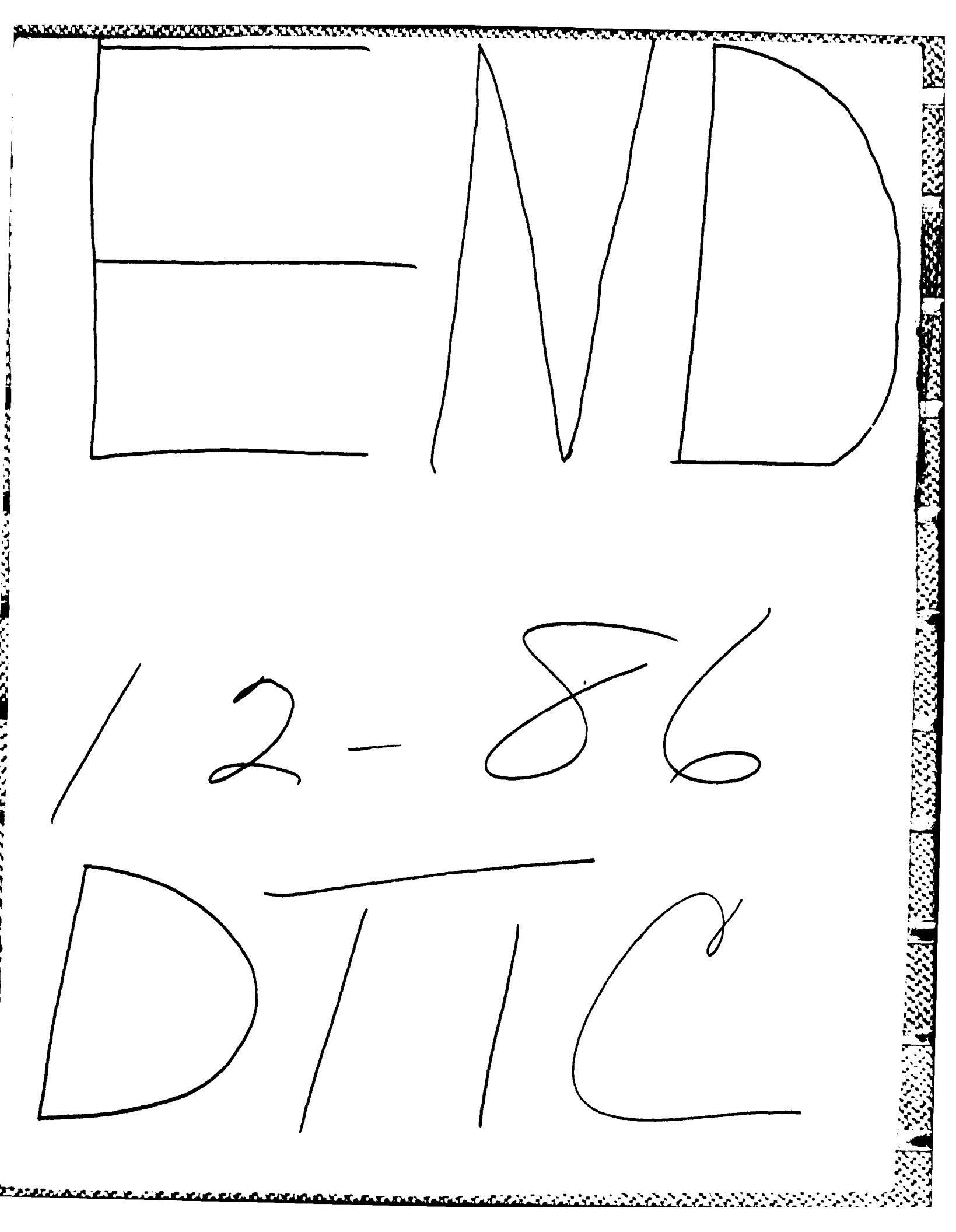
- Programmable Temperature Control - This ECP addressed the incorporation of a digitally controllable unit which is integrated around the selected DUT/test fixture, and cycles the temperature of the DUT during the test program. In this manner the device characteristics are determined at a pre-determined high and low temperatures.

5. ECP FORMALIZATION (continued)

The technical contents of these proposals have been determined and forwarded to the Harris Program Office for finalization.

Two other ECP's are being investigated to address the following subjects:

- Multi-user networking (shared resource management)
- Additional component testing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