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THOMAS ELECTRONICS INC WAYNE NJ  
MANUFACTURING METHODS AND TECHNOLOGY (MM&T) SPECIFICATIONS FOR --ETC(U)  
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30 October 1981

Thomas Electronics, Inc.  
100 Riverview Drive  
Wayne, NJ 07470

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**FOURTH QUARTERLY REPORT**

for period

1 July 1981 - 30 September 1981

Approved for public release; distribution unlimited

**Manufacturing Methods and Technology (MM&T) Specifications for  
Miniature Cathode Ray Tube**

prepared by

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prepared for

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USA MERADCOM  
Fort Belvoir, VA 22000

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#### **ACKNOWLEDGEMENT**

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.

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20. ABSTRACT (contd.)

in accordance with the MM&T requirements. This equipment will establish a correlation point for recorded data on the direct measurements of CRT image quality.

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Manufacturing Methods and Technology (MM&T) Specifications for  
Miniature Cathode Ray Tube

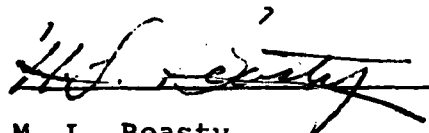
FOURTH QUARTERLY REPORT  
for period

1 July 1981 - 30 September 1981

The object of this study is to develop design, performance, and test specifications for the Miniature Cathode Ray Tube (CRT) assembly suitable for use in the Integrated Helmet and Display Sight System (IHADSS) of the Army Advanced Attack Helicopter (AAH).

Contract Number: DAAK70-80-C-0168

Approved by:

  
M. L. Beasty  
Vice President - Engineering

Approved by:

  
F. M. Bruno  
Program Manager

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## ABSTRACT/SUMMARY

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Design problems that caused delays in the 2nd Submission of two (2) Phase I - Engineering Samples were resolved. Contract due dates required rescheduling and a revised PERT Chart will be sent to the COR.

The acquisition of a specialized video amplifier from the EM will provide for the performance of all operational tests in accordance with the MM&T requirements. This equipment will establish a correlation point for recorded data on the direct measurements of CRT image quality.

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## 1.0 PURPOSE

The purpose of this Manufacturing Methods and Technology (MM&T) contract is to establish production methods and facilities required to produce the Miniature Cathode Ray Tube Assembly required for the Integrated Helmet and Display Sight System (IHADSS) of the Army Advanced Attack Helicopter (AAH).

The primary objectives are to develop vendor sources for the required individual components and establish viable production techniques to meet the necessary monthly production rate.

The product produced will be required to meet the mechanical, electrical, performance, and environmental parameters of MM&T H799838.

## 2.0 GLOSSARY

AAH.....	Advanced Attack Helicopter
COR.....	Contracting Officer's Representative
CRT.....	Cathode Ray Tube
EM.....	Equipment Manufacturer
IHADSS.....	Integrated Helmet and Display Sight System
MERADCOM.....	Mobility Equipment Research and Development Command
MM&T.....	Manufacturing Methods and Technology
NV&EOL.....	Night Vision & Electro-Optics Laboratory
PERT.....	Program Evaluation and Review Techniques
TEI.....	Thomas Electronics, Inc.
TIR.....	Total Indicated Range

### 3.0 NARRATIVE AND DATA

#### 3.1 Problem Areas and Solutions.

An annual two-week plant shutdown occurred from late July to early August.

In connection with the 2nd Submission of two Phase I - Engineering Samples, a CRT assembly which featured TEI's prototype yoke was shipped to the EM for review and evaluation. Based upon TEI's and the EM's findings, corrective actions were taken to resolve problems of resolution, contrast ratio and focus voltage. To determine whether TEI could improve deflection linearity, the yoke design was modified and fiber optic faceplates with an increased radius of curvature were ordered. TEI successfully increased the focus voltage with a new gun design to meet the requirements of specification MM&T H799838. CRTs currently being fabricated by TEI feature the new fiber optic faceplate and new gun design.

Substantial delays were caused by the unique requirements of the EM's video amplifier. After several attempts to satisfy the MM&T test requirements using existing and/or special equipment, it was determined that the only acceptable means would be to duplicate the EM equipment. TEI requested the EM to quote cost and delivery of their specialized design. Following receipt of the EM's quotation, TEI placed a purchase order for the EM's video amplifier so that CRTs and yokes can be tested at TEI under the exact same conditions as they are tested by the EM.

During a meeting at TEI with the Contracting Officer's Representative (COR), discussions covering the environmental test requirements were held with TEI's Quality Assurance Department. NV&EOL will send TEI written confirmation on matters of interest, to the TEI Quality Assurance Department, that are still to be resolved by NV&EOL.

### 3.2 Necessary Rescheduling of Phases I, II and III.

TEI plans to ship two CRTs to Fort Belvoir the week of 23 November 1981 as the 2nd Submission of Phase I - Engineering Samples.

TEI plans to submit the first of the two samples for the 3rd Submission of Phase I - Engineering Samples by 28 January 1982 and the second of the two samples by 28 February 1982.

A revised "TEI PERT-CONTRACT ITEMS/DUE DATES" Chart that reflects TEI's rescheduled submission dates will be sent to the COR.

#### 4.0 CONCLUSIONS

Design problems were resolved and TEI is proceeding with fabrication and test of CRTs for the 2nd Submission of Phase I - Engineering Samples.

Necessary rescheduling of contract due dates will be incorporated in a revised PERT Chart that will be sent to the COR early in the next quarter.

Test equipment has been ordered from the EM and other sources so that TEI testing can be conducted under identical conditions to those used by the EM.

## 5.0 PROGRAM FOR NEXT INTERVAL

The program for the next quarter is as follows:

1. Prepare and submit monthly status reports and also the draft and final quarterly report.
2. Complete fabrication and test of the 2nd Submission of two Phase I - Engineering Samples. Ship sample CRTs with accompanying technical data items to the COR.
3. Commence fabrication and test of the 3rd Submission of two Phase I - Engineering Samples.
4. Maintain detailed test records for compiling into technical data items required by the contract.

## 6.0 IDENTIFICATION OF KEY PERSONNEL

Vice President of Engineering	Michael L. Beasty
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Project Engineer	Michael Ardis, Jr.
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A. Process Engineer	Ronald Berdan
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