MONTHLY PROGRESS REPORT

COUNTERMEASURES TRANSMITTING SET AN/ALT-22(V)

AND

BARRAGE JAMMER QRC-139A-(T)

MODIFICATIONS TO AN/ALT-6B

Contract AF33(604)38334

LMED Requisition 32634

PERIOD ENDING: 31 JULY 1962

Prepared for

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TABLE OF CONTENTS

SECTION I

INTRODUCTION

This report describes the progress made during July 1962 on the development of an L-band oscillator group for the QRC-139A-(T) and AN/ALT-22(V) jamming system. This work includes the development of two essential microwave components, an L-band barrage magnetron and an L-band ferrite load isolator.

The construction and bench testing of QRC-139A-(T) systems and the construction and qualification testing of three L-band AN/ALT-22(V) systems are also part of the program authorized by letter contract AF33(604)38334.

SECTION II

AN/ALT-22(V) AND QRC-139A-(T) MODIFICATION TO AN/ALT-6B (L-BAND)

A. EQUIPMENT DESCRIPTION.

The equipment being procured under contract AF33(604)38334 consists of sixty government furnished AN/ALT-6B equipments modified to the QRC-139A-(T) and AN/ALT-22(V) configurations. Fifty-seven QRC-139A-(T) equipments complete with L-band QRC-139A-1-(T) oscillator groups are to be supplied with deliveries starting in August 1962. Three first article AN/ALT-22(V) equipments complete with L-band oscillator groups are scheduled to be submitted to first article tests during August and September 1962 and the first article systems delivered to the Air Force by 30 September 1962.

The QRC-139A-(T) equipment supplied on this contract will be identical to the QRC-139A-(T) equipment delivered on contract AF33(604)36722 with the exception that the control dials on the control-indicator and magnetron frequency control units will be designed for L-band and the r-f oscillator will have an L-band barrage magnetron and load isolator.

B. PROGRAM STATUS.

The status of the equipment modification is summarized in the following table.

QRC-139A Unit	At Assembly	At Test	Remarks
Power Supply	9	37	
Transmitter	11	49*	*See video board below
Oscillator	0*	2	*Barratron tube limiting
Control, Magnetron Frequency	45*	0	*Complete less center frequency dials
Control Indicator	33	27	
Video Board, Part of Transmitter	0	14	14 noise tubes received

Delivery of the center frequency dials for the magnetron frequency control unit will be completed early in the next report period.

Fourteen BX-1202 noise tubes have been received to a relaxed specification. Minimum noise output for these tubes is still 96 db above 1 microvolt per megacycle per second but the flatness of their output over the video range of interest has been relaxed from 2 db to 4 db. Burroughs Corporation and the General Electric Company are still negotiating the BX-1202 specification requirements. Due to the Burroughs Corporation vacation (16 July-30July), these negotiations were not concluded during this report period. The negotiations will resume on 13 August after the General Electric personnel have returned from their vacation. Knowledge gained from the performance of the first fourteen tubes will be used in the negotiations.

Six L-3519 barrage magnetrons have been shipped by Litton Industries to date. Two of those tubes have been received and installed in oscillators. Litton believes that their engineering problems on the L-3519 tube have been solved. Cathode problems (slumping) are still cropping up occasionally but Litton is not worried about this random occurrence. Litton is now forecasting

the delivery of 5 to 8 tubes per week starting the week of 29 July. The yield on the L-3519 tube is still very low (20 to 30 percent). A yield of 60 to 70 percent is anticipated after the tube has been in production for six months.

Sperry Microwave has solved their load isolator problems after three months of intense work and are now shipping at least two isolators per day. Eighteen isolators have been received and are being subjected to high power tests at Utica prior to being installed in QRC-139A-1-(T) oscillators. The barrage magnetron is the only item limiting the assembly of the QRC-139A-1-(T) oscillators.

No additional instructions have been received from the customer regarding the vibration testing for this contract. A vibration survey program was proposed to the Air Force early in the period. Submission of the first article test schedule has been delayed so that the proposed vibration tests can be integrated into this schedule upon receipt of approval of the General Electric plan by the Air Force.

The dials and decals specified in item 6 of the contract were shipped during the period. These replacement dials and center frequency dial calibration decals are intended to be used to modify C-1970/ALT-6B Magnetron Frequency Control units so that they can be used with C-2163/ALT-6B Control Indicators to control single QRC-139A-(T) systems.

C. PROBLEM AREA.

1. Barrage Magnetron.

Although the design problems with the L-3519 tube have been solved, the problem of improving the manufacturing yield has not yet been solved. Litton is confident that this problem will be solved after the tube has been in production for a few months.

D. PROGRAM FOR NEXT INTERVAL.

The program for the next interval will consist of getting the production of L-band QRC-139A-(T) systems started and completing plans for the first article tests.

Further negotiations with Burroughs personnel will be held in an attempt to firm up the specification for the BX-1202 noise tube. The production of the L-3519 tube will be closely followed at Litton Industries.

E. FINANCIAL STATUS.

The following is an estimate of the monies that have been expended and committed on Contract AF33(604)38334 as of 1 August 1962:

Expenditures for Engineering Material, Design Effort, Direct Labor, and Direct Materials	$158,386
Gross Commitments	$339,600
Estimated Commitment Liability	$310,000
Total Expenditures and Commitments	$497,986

F. OTHER PROJECT ACTIVITIES.

Engineering and Marketing personnel visited Warner Robbins to brief the WRAMA Procurement, Engineering, and Maintenance personnel on the AN/ALT-22 equipment.

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