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TO: [REDACTED]

THRU: [REDACTED]

From: [REDACTED]

SUBJECT: MISSION 1036-1 and 1036-2 FINAL REPORT

Enclosed is the Final Performance Evaluation Report for
Mission 1036-1 and 1036-2.

[REDACTED]
Manager
Advanced Projects

Declassified and Released by the N R O

In Accordance with E. O. 12958

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CORONA J

PERFORMANCE EVALUATION REPORT

MISSION 1036-1 and 1036-2

FTV 1631, J-32

30 JUNE 1967

Approved: [REDACTED]
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Advanced Projects

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Program

FOREWORD

This report details the performance of the payload system during the operational phase of the Program Flight Test Vehicle 1631.

Lockheed Missiles and Space Company has the responsibility for evaluating payload performance under the Level of Effort and "J" System contracts.

This document is the final payload test and performance evaluation report for Missions 1036-1 and 1036-2 which was launched on 9 August 1966.

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INTRODUCTION

This report presents the final performance evaluation of Missions 1036-1 and 1036-2 of the Corona Program. The purpose of this report is to define the performance characteristics of the J-32 payload system and to identify the source of in-flight anomalies.

The performance evaluation was jointly conducted by representatives of Lockheed Missiles and Space Company (LMSC) and ITEK at the facilities of NPIC and AFSPPF. The off-line evaluation using Corona engineering photography acquired over the United States was performed at the individual contractors plants.

The quantitative data used for this report is obtained from government organizations. The diffuse density data, and MTF/AIM resolution are produced by AFSPPF. The vehicle attitude error values, frame correlation times are made at NPIC who also supply the Processing Summary reports published by [REDACTED]

Computer programs developed by A/P are utilized to calculate and plot the frequency distribution of the various contributors to image smear to permit analysis and correlation of the conditions of photography to the information content and quality of the acquired pictures. Computer analysis of the exposure, processing and illumination data provides the necessary data to analyze the exposure criteria selected for the mission.

SECTION 1

SYSTEM PERFORMANCE

A. MISSION OBJECTIVES

The payload section of Mission 1036, placed into orbit by Flight Test Vehicle #1631 and THORAD Booster #506, consisted of two panoramic cameras, two Stellar-Index cameras, two Mark 5A recovery capsules and a space structure to enclose the cameras and provide mounting surfaces for all equipment. Figure 1-1 presents an inboard profile of the J-32 payload system. This Corona "J" system is designed to acquire search and reconnaissance photography of selected areas of the earth from orbital altitudes. A six day -1 mission and a seven day -2 mission was planned.

B. MISSION DESCRIPTION

The payload was launched from Vandenberg Air Force Base (VAFB) at 2046:03 Z (1346:03 PDT) on 9 August 1966. Ascent and injection were normal and the achieved orbit was within nominal tolerances. Tracking and command support was effected by the Air Force Satellite Control Facility consisting of tracking and command stations at [REDACTED]

[REDACTED] under central control of the Satellite Test Center at Sunnyvale, California. Mission 1036-1 consisted of a 7 day operation and was completed by air recovery on 16 August 1966. Mission 1036-2 was completed with an air recovery on 22 August 1966 following a 6 day photographic operation.

The comparison of the planned and actual orbit parameters is tabulated as follows:

ORBITAL PARAMETERS

<u>Parameter</u>	<u>Predicted</u>	<u>Orbit 56 Actuals</u>
Period (Min.)	89.48	89.323
Perigee (N.M.)	105.1	102.399
Apogee (N.M.)	164.9	159.830
Inclination (Deg.)	100.2	100.114
Perigee Latitude (Deg. N.)	14.025	22.919
Eccentricity	0.008362	0.00804

C. PANORAMIC CAMERAS

The Master instrument produced good image quality. The image quality was better on the -2 mission due to less atmospheric haze.

The Slave instrument operated satisfactorily and produced slightly better imagery than the Master.

D. STELLAR-INDEX CAMERAS

The "A" S/I operated satisfactorily and most Stellar images appear as points rather than the usual odd shaped stars.

The "B" S/I operated normally.

The base plus fog density of the -1 and -2 Stellar film was unusually high at 0.54 density units.

E. OTHER SUB-SYSTEMS

The clock, instrumentation, pressure make-up, command and thermal control subsystems performed satisfactorily.

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SCHEMATIC THROUGH PROFILE - CORONA J-32 SYSTEM

MISSION 1036

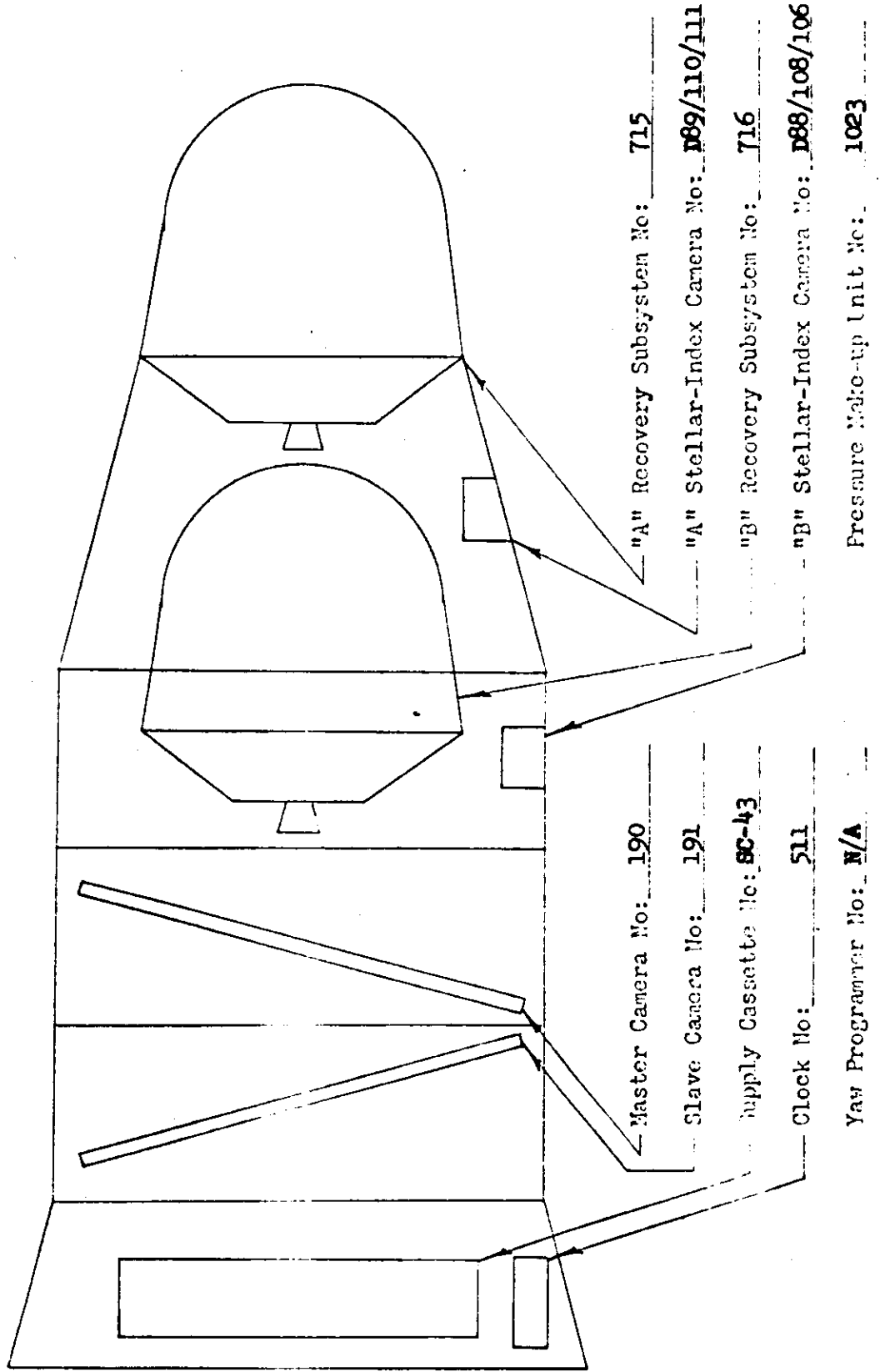


FIGURE 1-1

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SECTION 2

PRE-FLIGHT SYSTEMS TESTS

A. ENVIRONMENTAL TESTING

1. Test Objective

As a standard procedure, the J payload systems are subjected to thermal/altitude environmental testing which simulates orbital environment. One of the purposes of this test is to demonstrate the system susceptability to corona discharge. Such discharge fogs the film thus degrading the operational photography.

2. Test Summary

The J-32 payload system was subjected to an environmental TASC Chamber test from January 7 through January 14, 1966.

Performance of the payload system was generally satisfactory except for excessive corona marking on the payload of the Master and Slave instruments. The input and output metering rollers were replaced and the system was returned to the test chamber on 9 February. Five orbits of dynamic instrument operations were conducted in the "A" mode only. There were 1200 cycles of payload exposed during the test. The corona markings met specifications.

The panoramic instruments operated satisfactorily. Instrument cycle periods varied from 2.8% fast to 2.5% slow. Cycle period data are tabulated in Table 2-1. The new DYMEC cycle period equipment was utilized for the first time and it compared closely ($\pm 0.5\%$) with the Sanborn records. This equipment produces a continuous record of cycle period and V/h voltage. Analysis of the DYMEC data revealed that the panoramic cameras increased their rate by approximately 1% between the tenth and fortieth cycle.

The shutter in Stellar camera #106 failed to open during the first TASC run. The shutter was replaced and the S/I cameras operated satisfactorily during TASC test 2.

The clock accuracy was satisfactory. The clock/IRIG time correlation is shown in Table 2-2.

The pressure make-up system operated normally. Average gas consumption was 4.9 lbs/min.

The command system functioned properly for both bucket tests with no evidence of any malfunctions.

Cut/wrap and switchover to the "B" recovery sequence was normal.

B. RESOLUTION TEST

Resolution and theodolite tests were performed on 24 January 1966. Results of the thru-focus resolution tests of pan instruments 190 and 191 show the following characteristics:

Master Pan Instrument No. 190

Maximum high contrast resolution 168 lines/mm at +.001 focal position.

Maximum low contrast resolution 106 lines/mm at -.001 focal position.

Slave Instrument No. 191

Maximum high contrast resolution 172 lines/mm at 0.000 focal position.

Maximum low contrast resolution 112 lines/mm at 0.000 focal position.

The test data for both instruments is shown in Figures 2-1 and 2-2. Both instruments met the system requirements specification.

C. LIGHT LEAK TEST

The J-32 system was tested for light leaks on 2 March and 4 March 1966. The reason for the second test was a light leak in a H.O. boot of both instruments. The second light leak test proved that the system was L/L acceptable.

D. FLIGHT LOADING AND CERTIFICATION

J-32 system was shipped by trailer truck from A/P to VAFB, 1 August 1966, as the first Interim Phase III Factory to PAD delivery.

On 2 August, the system was available in the shipping trailer for inspection at the L Building. All access and camera doors were removed and the Master and Slave camera film paths examined. It was noted that the Master camera film was normally taut from supply to take-up cassette with the film riding over each roller in an acceptable manner. The Slave camera film was noticeably loose between the supply cassette and the input metering roller, but normally taut between the input metering roller and the take-up cassette. It appears that approximately 1 to 2 inches of film were pulled from the Slave supply spool during shipment to VAFB. The loose film in the Slave camera necessitated a rigorous examination, through access doors, of the entire film path to assure acceptable film thread-up before and during camera operation. Both the Master and Slave film tracked properly throughout the film path during camera operation. No special corrective action was necessary.

The shutters of the four horizon cameras and the two Stellar/Index cameras appeared to open and close normally.

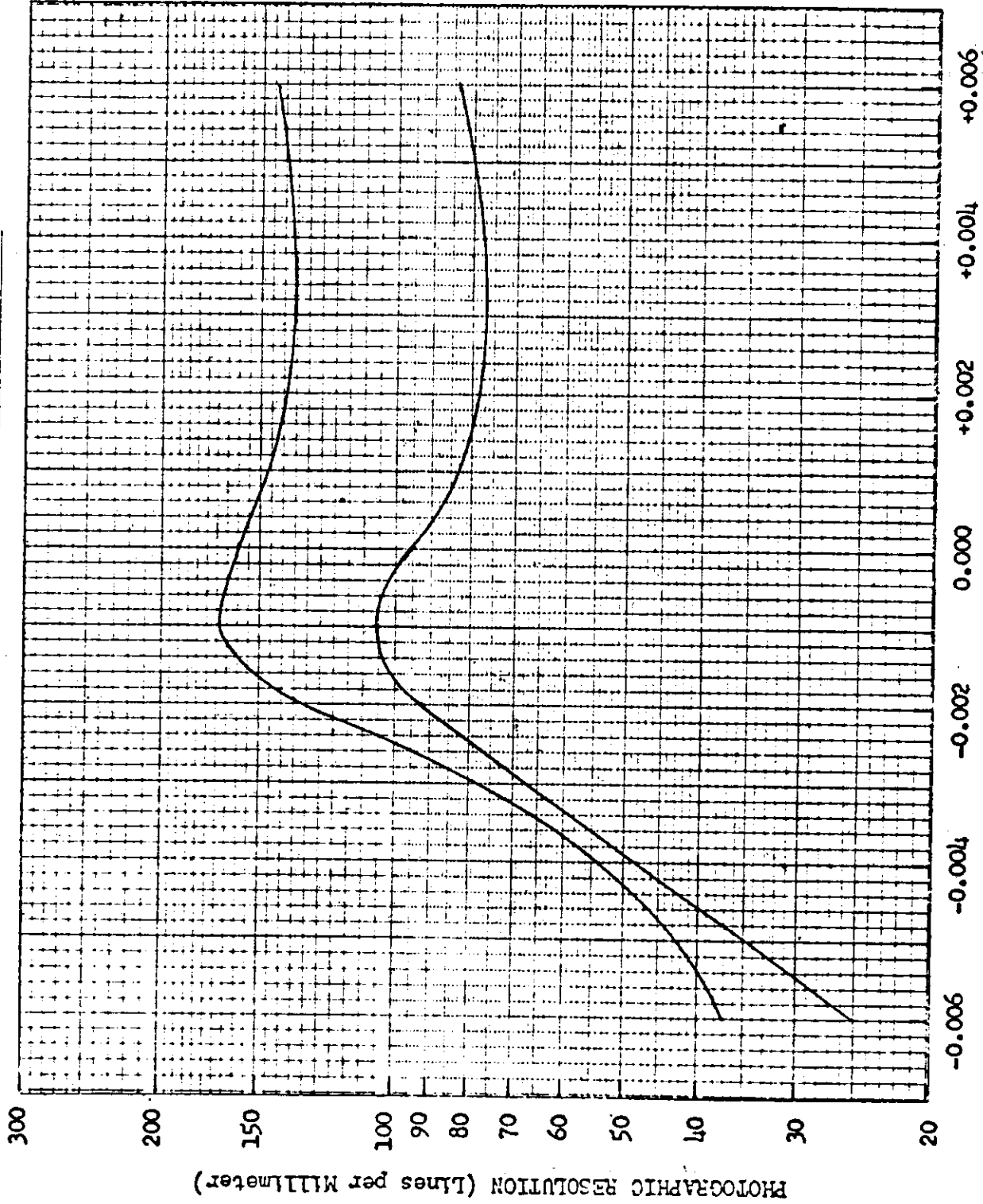
The four horizon camera boots, stellar baffles, and stellar boots were all painted dull black at A/P and rated acceptable for flight when examined for the last time at VAFB.

Interrogation of J-32 telemetry points demonstrated that no significant change occurred in system performance during camera operation at VAFB compared to camera operation at A/P.

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PRE-FLIGHT DYNAMIC RESOLUTION



Camera No: 190
Payload No: J-32
Resolution (1/mm) 168
High Contrast: 168
Low Contrast: 106
Film Type: 3404
Test Date: 1/27/66

THROUGH FOCUS INCREMENTS (Inches)

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FIGURE 2-1

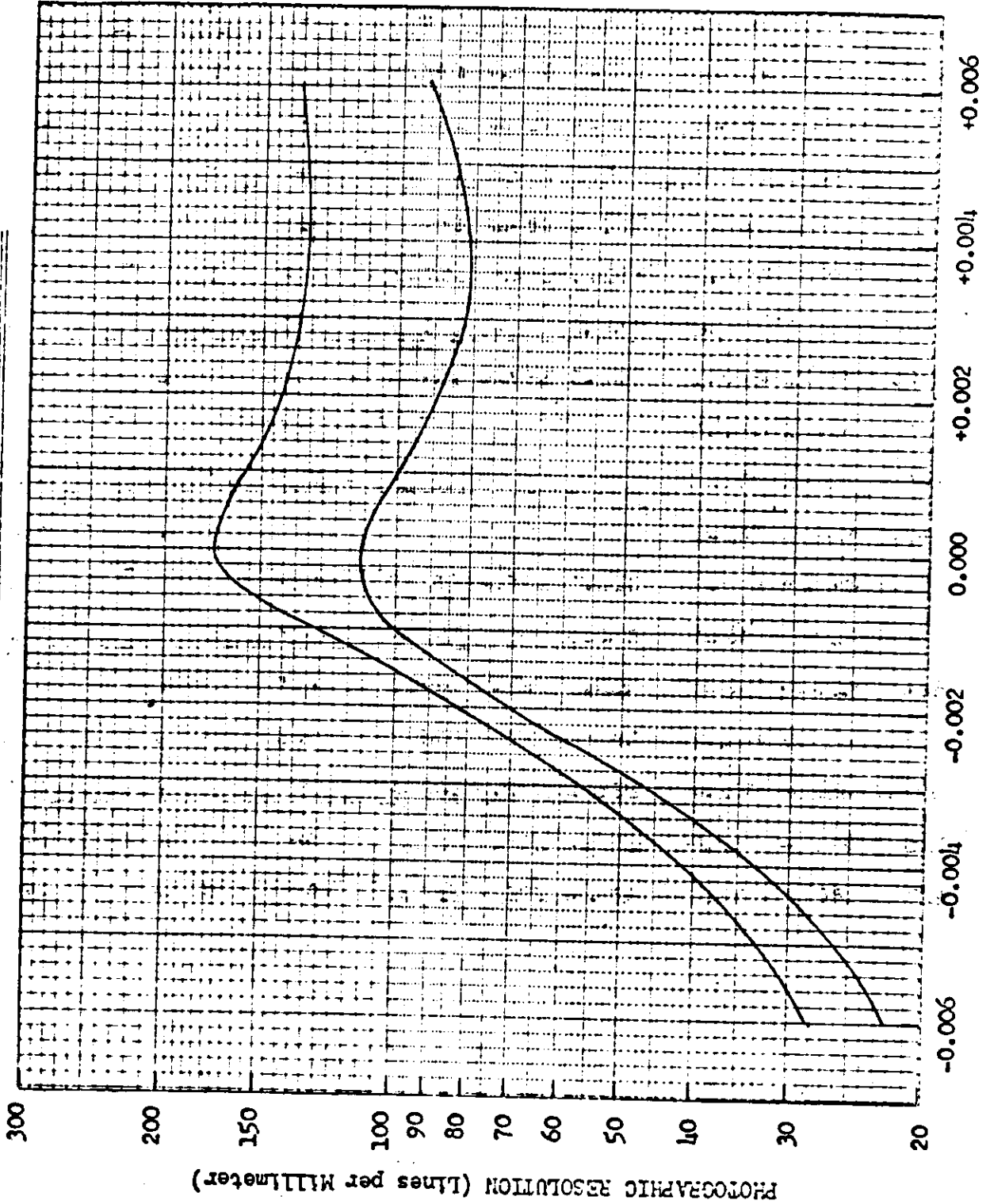
				INST 190			INST 191			190/19
REV/MODE	RAMP	T.U.R.		ACT.	CAL.	DEV.	ACT.	CAL.	DEV.	DIFF.
1A 1	C7	7		3513	3551				80296	
11A 1	7	7	-0	3.514	3.550	1.00F	3.549	3.576	0.75F	1.00
11A 1	7	7	-0	3.512	3.550	1.03F	3.550	3.576	0.72F	1.05
11A 2	7	7	-0	3.547	3.550	0.07F	3.571	3.576	0.14F	0.68
11A 2	7	7	-0	3.551	3.550	0.52F	3.552	3.576	0.67F	0.59
11A 2	7	7	-0	3.526	3.550	0.95F	3.550	3.576	0.72F	0.97
11A 3	8	2	915	3.452	3.456	0.10F	3.481	3.481	0.01S	0.84
11A 3	8	2	976	3.301	3.313	0.37F	3.327	3.337	0.29F	0.79
11A 3	8	2	1068	3.095	3.116	0.66F	3.113	3.136	0.74F	0.58
11A 3	8	2	1150	2.915	2.932	0.58F	2.935	2.950	0.50F	0.69
12A 1	8	2	1761				2.189	2.206	0.77F	
12A 1	8	2	1818				2.175	2.203	1.29F	
12A 1	8	2	1890				2.170	2.202	1.44F	
12A 2	8	2	457	4.680	4.710	0.63F	4.719	4.744	0.52F	0.83
12A 2	8	2	574	4.340	4.380	0.91F	4.370	4.413	0.97F	0.69
12A 2	8	2	714	3.940	3.981	1.03F	3.977	4.012	0.86F	0.94
12A 2	8	2	860	3.561	3.551	0.84F	3.594	3.618	0.66F	0.93
13A 1	4	1	-0	4.346	4.323	0.53S	4.377	4.356	0.49S	0.71
13A 1	4	1	-0	4.325	4.323	0.05S	4.367	4.356	0.26S	0.97
13A 1	4	1	-0	4.312	4.323	0.26F	4.356	4.356	0.01S	1.02

TABLE 2-1

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NO.

PRE-FLIGHT DYNAMIC RESOLUTION



Camera No: 191

Payload No: J-32

Resolution (1/mm)

High Contrast: 172

Low Contrast: 112

Film Type: 3404

Test Date: 1/27/66

THROUGH FOCUS INCREMENTS (Inches)

REV/MODE	RAMP	T.U.R.	INST 190			INST 191			DIFF.		
			ACT.	CAL.	DEV.	ACT.	CAL.	DEV.			
13A	2	11	1	1710	2.337	2.317	0.85S	2.353	2.323	1.27S	0.68
13A	2	11	1	1745	2.293	2.256	0.12F	2.314	2.301	0.55S	0.92
13A	2	11	1	1772	2.281	2.282	0.04F	2.294	2.287	0.29S	0.67
13A	3	11	1	1790	2.242	2.274	1.41F				
13A	3	11	1	1817	2.234	2.264	1.34F				
13A	4	11	1	1858	2.241	2.254	0.57F	2.277	2.259	0.82S	1.61
13A	4	11	1	1873	2.247	2.251	0.19F	2.265	2.256	0.40S	0.80
13A	5	11	1	1885				2.246	2.254	0.38F	
13A	5	11	1	1903				2.236	2.253	0.76F	
13A	6	11	1	1936	2.258	2.246	0.43S	2.251	2.253	0.09F	-0.31
13A	6	11	1	1968	2.245	2.252	0.12F	2.258	2.256	0.07S	0.40
13A	6	11	1	1977	2.245	2.253	0.37F	2.256	2.258	0.09F	0.49
14A	1	11	1	2821	3.894	3.863	0.30S	3.912	3.893	0.50S	0.46
14A	1	11	1	2889	4.105	4.122	0.42F	4.135	4.154	0.45F	0.73
14A	1	11	1	2975	4.473	4.453	0.44F	4.512	4.526	0.31F	0.87
14A	1	11	1	3074	4.957	4.982	0.50F	5.007	5.016	0.19F	1.01
PS	1	8	2	C	5.464	5.419	0.84S	5.484	5.452	0.58S	0.37
PS	2	8	2	C	5.418	5.419	0.01F	5.457	5.452	0.09S	0.72
PS	1	8	2	C	5.406	5.419	0.23F	5.445	5.452	0.13F	0.72
PS	2	8	2	C	5.394	5.419	0.46F	5.437	5.452	0.28F	0.80

DEV. AND DIFF. ARE IN PERCENT

THE (-) SIGN INDICATES THAT INST 1 IS SLOWER THAN INST 2

F=FAST AND S=SLW

TABLE 2-1

J-32 CLOCK CORR. TASC TEST NO. 1

REV	IRIG				IRIG	CLOCK	DELTA	DELTA	
	DAY	HR	MIN	SEC	SECONDS	SECONDS	IRIG	CLOCK	ERROR
C1	8	8	48	12.390	722892.390	80744.249	---	---	---
C2	8	11	25	48.080	732348.080	90199.944	9455.690	9455.695	0.005
C4	8	13	28	53.680	739738.680	97590.530	7390.600	7390.536	-0.014
C5	8	15	37	48.175	747468.175	105320.034	7729.495	7729.504	0.009
C7	9	10	3	56.550	813836.550	171688.378	66368.375	66368.344	-0.031
C9	9	12	49	9.235	823749.235	181601.052	9912.685	9912.674	-0.011
11	10	5	25	37.860	894337.860	252189.735	70583.625	70588.682	0.058
13	10	11	14	13.031	904453.031	282304.895	10115.171	10115.160	-0.011
15	11	9	1	43.790	982903.790	340755.619	78450.758	78450.723	-0.035
16	11	11	57	8.300	993428.300	351280.142	10524.510	10524.523	0.013
C1	11	14	33	55.925	1002835.925	360687.749	9407.625	9407.607	-0.018
C2	12	8	53	6.290	1068786.290	426638.168	65950.364	65950.419	0.055
C3	12	10	26	26.398	1074386.398	432238.277	5600.108	5600.109	0.001
C4	12	11	57	16.537	1079836.537	437688.408	5450.139	5450.131	-0.008
C7	13	8	57	59.138	1155479.138	513331.016	75642.600	75642.607	0.007
C9	13	11	43	14.230	1165394.230	523246.107	9915.092	9915.091	-0.001
12	13	15	23	21.520	1178601.520	536453.388	13207.290	13207.281	-0.009
5	6	35	9.130-DELTA TIME				TOTAL ACCUM. ERROR 0.009		

TABLE 2-2

SECTION 3

FLIGHT OPERATIONS

A. SUMMARY

All launch, ascent, and injection events occurred as programmed which resulted in achieving the desired orbit. The Agena tape recorder was used to record ascent thermal environment but failed 127 seconds into the ascent phase.

Both panoramic cameras operated satisfactorily throughout the flight. Average cycle rates on both instruments deviated from pre-flight calibrations by less than 2 per cent.

The pressure make-up system operated satisfactorily throughout the flight ending with 340 PSIA supply remaining.

The -1 and -2 Stellar/Index cameras, the clock, and the command system operated properly throughout the flight.

The instrumentation system operated properly throughout the flight except an intermittent accelerometer on ascent and the effects of the Agena tape recorder on commutated channels 11 and 13.

The internal environment was within tolerance throughout the flight. An ascent fairing temperature profile was obtained.

Both recovery systems operated properly. However 7 to 8 amps of current was present on the regulated return for 0.8 seconds from "A" bucket transfer to electrical disconnect.

B. PANORAMIC CAMERA PERFORMANCE

The camera system dynamics were normal on all engineering operations observed throughout the mission. The film transport system was smooth and had 99/101 clutch ratios of 6/6 for both instruments. Cycle rate data (Table 3-1) was less than 2 per cent from the pre-flight calibrations. The individual instrument rates matched to less than 0.5%. This close match of the individual rates was reflected in the overall consumption depleting the supply only 10 frames apart. The film supply was depleted on orbit 211, the last operate prior to the second recovery.

Panoramic Film Consumption

	<u>Actual</u>	
	<u>Master</u>	<u>Slave</u>
Sample - Off Spooling	19	19
Pre-Launch	147	142
-1 Mission	2905	2904
-2 Mission	2996	3001
Total	6067	6066

FMC Match

The V/H ramp to orbit match was acceptable throughout the flight. The following settings of RTC 6, 8 and 10 were used to attain the best match during the mission:

<u>RTC</u>	<u>6</u>	<u>8</u>	<u>10</u>	<u>Remarks</u>
	6	7	6	Launch settings for nominal orbit.
	6	6	6	Changed at Rev. 4, [REDACTED] to compensate for orbit dispersions at launch.
	5	7	6	Changed at Rev. 14, [REDACTED] This change was based on more optimum orbital elements than was available for the previous change.
	5	6	7	Changed at Rev. 30, [REDACTED] Required to compensate for orbit decay. This setting was satisfactory for rest of flight.

C. STELLAR/INDEX CAMERA PERFORMANCE

The -1 Stellar/Index camera operation was normal throughout the mission with telemetry indicating proper shutter, meter, programmer, and slew functions.

The -2 Stellar/Index operation was normal throughout the mission. Telemetry indicated proper shutter, meter, programmer and slewing functions. A post flight report indicated that the recovered length of the slewed index material was short

D. INSTRUMENTATION AND COMMAND SYSTEM PERFORMANCE

The instrumentation system operated properly throughout the flight except for one ascent accelerometer and the Agena tape recorder. The Agena tape recorder failed and lost power 126 seconds after lift-off. This caused severe loading to data connected to the input. Channel 11, temperature data, was affected on launch and several orbits for short periods of time. Channel 13, payload status was affected from orbit 115 thru orbit 118 and required command selector position verification from the Link II backup channel. This condition for channel 13 occurred again on orbit 212 and remained until orbit 215.

The radial accelerometer mounted on the transfer box cover became intermittent on ascent and produced unreliable data.

The command system operated properly throughout the mission. The mono-overlap delay operated properly at 12.0 seconds.

E. CLOCK SYSTEM PERFORMANCE

The payload clock system performed satisfactorily throughout the mission. The clock/system time correlation data obtained from the [REDACTED] acquisitions are included in Table 3-2.

F. PRESSURE MAKE-UP SYSTEM PERFORMANCE

The pressure make-up system performed satisfactorily throughout the mission. The mission consumed 2210 PSIA supply pressure for a duration of 239 minutes of operate. This resulted in an average consumption of 9.25 PSIA/minute.

G. THERMAL ENVIRONMENT

Temperature data obtained from the [REDACTED] acquisitions are contained in Table 3-3. Average master instrument temperatures started at 77°F and ended at 65°F through the flight. The average slave instrument temperature range was from 73° to 61°.

Specific temperature plots vs Beta angle are included in Figures 3-1, 3-2, and 3-3.

Thermal environment of the fairing and aft barrel were recorded from Link II during ascent. These temperatures are summarized in Figures 3-4 and 3-5.

J-32 190/191 FLIGHT CYCLE PERIOD DATA 8/17/66 THRU 8/22/66

REV. MODE	OP	RAMP R	TUR A	SYSTEM SECS CALIB.	INST. 190			INST. 191			DIFF.	
					ACTUAL	UNIT DEV.	SYSTEM DEV.	ACTUAL	UNIT DEV.	SYSTEM DEV.		
008	A	6	6	40	3.590	3.630	1.49S	1.12S	3.645	1.16S	1.54S	0.41
016	A	5	7	1605	2.309	2.342	1.55S	1.42S	2.365	2.29S	2.42S	0.98
032	A	5	6	1540	2.274	2.300	1.27S	1.16S	2.300	1.04S	1.16S	-0.00
048	A	5	6	1600	2.243	2.247	0.30S	0.20S	2.247	0.10S	0.20S	-0.00
064	A	5	6	1655	2.219	2.257	1.58S	1.69S	2.260	1.77S	1.83S	0.13
081	A	5	6	1700	2.217	2.250	1.37S	1.49S	2.260	2.06S	1.94S	0.44
105	A	5	6	190	3.387	3.415	1.17S	0.91S	3.428	0.84S	1.20S	0.38
113	A	5	6	1730	2.216	2.225	0.30S	0.42S	2.225	0.54S	0.42S	-0.00
121	B	5	6	230	3.372	3.410	1.48S	1.12S	3.413	0.85S	1.21S	0.09
129	B	5	6	1770	2.214	2.250	1.49S	1.61S	2.255	1.96S	1.84S	0.22
145	B	5	6	2033	2.213	2.235	0.85S	0.78S	2.230	0.88S	0.75S	-0.22
161	B	5	6	1895	2.212	2.232	0.77S	0.91S	2.228	0.86S	0.72S	-0.18
178	B	5	6	1850	2.212	2.250	1.57S	1.70S	2.245	1.60S	1.47S	-0.22

DEV. AND DIFF. ARE IN PERCENT
 THE (-) SIGN INDICATES THAT INST 1 IS SLOWER THAN INST 2
 F=FAST AND S=SLOW

TABLE 3-1

CLOCK SUMMARY

SYS TIME I/P		ORDER FIT 1 CL TIME I/P		COMP SYS TM	DELTA ST	REV	
0.245248450	05	0.1322436290	06	0.2452485490	05	-0.0022	7
0.743750210	05	0.1820937880	06	0.7437501780	05	0.0032	16
0.291158600	05	0.2232346370	06	0.2911587000	05	-0.0100	24
0.737762980	05	0.2678950580	06	0.7377629450	05	0.0033	32
0.285089080	05	0.3090276740	06	0.2850891370	05	-0.0057	40
0.731664040	05	0.3536851600	06	0.7316640320	05	0.0008	48
0.278849080	05	0.3948036660	06	0.2788491240	05	-0.0044	56
0.726884910	05	0.4396072380	06	0.7268848790	05	0.0031	64
0.273676980	05	0.4806864530	06	0.2736770610	05	-0.0081	72
0.771492720	05	0.5304680080	06	0.7714926500	05	0.0070	81
0.269161730	05	0.2976399500	05	0.2691616680	05	0.0062	89
0.318437930	05	0.3467161600	05	0.3184378820	05	0.0048	89
0.766806330	05	0.7952844900	05	0.7668062470	05	0.0083	97
0.261469430	05	0.1153947620	06	0.2614694050	05	0.0025	104
0.757236780	05	0.1647714930	06	0.7572367540	05	0.0026	111
0.305388960	05	0.2061867070	06	0.3053889260	05	0.0034	121
0.749812550	05	0.2506290620	06	0.7498125110	05	0.0039	129
0.297657530	05	0.2918135570	06	0.2976574930	05	0.0037	137
0.741907500	05	0.3362385500	06	0.7419074580	05	0.0042	145
0.288316400	05	0.3772794380	06	0.2883163700	05	0.0030	153
0.733812680	05	0.4218270650	06	0.7338126750	05	0.0005	161
0.334349240	05	0.4662827180	06	0.3343492410	05	-0.0001	169
0.778188460	05	0.5126666380	06	0.7781884760	05	-0.0016	178
0.272714060	05	0.1164828100	05	0.2727140540	05	0.0006	185
0.769175060	05	0.6129438400	05	0.7691751220	05	-0.0062	194
0.263704790	05	0.9714735300	05	0.2637048400	05	-0.0050	201
0.762020880	05	0.1467789630	06	0.7620209790	05	-0.0099	210
A0=-0.10771878440 06 A1= 0.100000078110 01							
SIGMA=0.00526 NO. POINTS= 27							
RATIO OF CLOCK TIME TO SYS TIME= 0.999999218900 00							

SYS TIME I/P		ORDER FIT 2 CL TIME I/P		COMP SYS TM	DELTA ST	REV	
0.245248450	05	0.1322436290	06	0.2452484700	05	-0.0020	7
0.743750210	05	0.1820937880	06	0.7437501200	05	0.0090	16
0.291158600	05	0.2232346370	06	0.2911586580	05	-0.0058	24
0.737762980	05	0.2678950580	06	0.7377629180	05	0.0062	32
0.285089080	05	0.3090276740	06	0.2850891230	05	-0.0043	40
0.731664040	05	0.3536851600	06	0.7316640310	05	0.0009	48
0.278849080	05	0.3948036660	06	0.2788491330	05	-0.0053	56
0.726884910	05	0.4396072380	06	0.7268848970	05	0.0013	64
0.273676980	05	0.4806864530	06	0.2736770860	05	-0.0106	72
0.771492720	05	0.5304680080	06	0.7714926820	05	0.0034	81
0.269161730	05	0.2976399500	05	0.2691617040	05	0.0026	88
0.318437930	05	0.3469161600	05	0.3184379190	05	0.0011	89
0.766806330	05	0.7952844900	05	0.7668062870	05	0.0043	97
0.261469430	05	0.1153947620	06	0.2614694460	05	-0.0016	104
0.757236780	05	0.1647714930	06	0.7572367950	05	-0.0015	113
0.305388960	05	0.2061867070	06	0.3053889660	05	-0.0004	121
0.749812550	05	0.2506290620	06	0.7498125470	05	0.0003	129
0.297657530	05	0.2918135570	06	0.2976575250	05	0.0005	137
0.741907500	05	0.3362385500	06	0.7419074840	05	0.0016	145

C/ [REDACTED] NO. [REDACTED]

0.288316400 05	0.3772774100 06	0.2883163890 05	0.0011	153
0.733812680 05	0.4218290550 06	0.7338126840 05	-0.0004	161
0.334349240 05	0.4682827180 06	0.3343472390 05	0.0001	167
0.778188460 05	0.5126666380 06	0.7781884620 05	-0.0002	178
0.272714060 05	0.1164823100 05	0.2727140280 05	0.0032	185
0.769175060 05	0.6127438400 05	0.7691750800 05	-0.0020	194
0.263704790 05	0.7714735300 05	0.2637047840 05	-0.0006	201
0.762020880 05	0.1469789630 06	0.7620209030 05	-0.0023	210

A0=-0.10771879880 06 A1= 0.1000000132540 01
A2=-0.40070097605640-13
SIGMA=0.00373 NO. POINTS= 27

SIBSYS

TABLE 3-2

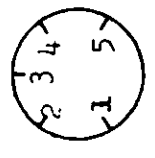
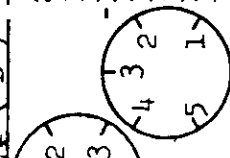
TABLE 3-3

J-32 TEMPERATURE SUMMARY

SENSOR	ORBITS ACQUIRED																										
	I	16	24	32	40	48	56	64	72	81	88	97	104	113	121	129	137	145	153	161	169	178	185	194	201	210	
Master Camera	71	65	70	62	68	65	70	64	70	65	69	67	70	64	68	58	64	57	64	60	65	57	64	58	64	60	67
3	76	69	73	67	72	69	74	68	73	69	73	70	73	69	71	63	69	62	69	65	70	61	69	62	69	65	60
4	81	75	79	73	78	75	80	75	80	75	79	77	80	75	77	70	75	68	75	71	76	68	75	70	76	71	65
5	77	72	75	71	75	73	76	73	76	74	75	75	76	73	73	68	71	67	71	70	72	67	71	68	73	69	68
6	76	72	74	70	73	72	75	72	75	73	74	75	74	72	72	67	69	66	69	68	70	66	69	67	70	68	67
7	79	71	77	69	75	71	77	71	77	71	76	73	76	71	75	67	72	65	72	67	73	66	72	67	73	67	67
8	81	73	78	72	77	74	79	74	80	74	78	75	79	74	77	70	75	68	75	71	76	68	75	70	76	71	71
9	75	70	72	69	71	70	73	70	74	70	73	72	74	70	70	66	68	64	68	66	70	65	69	65	70	67	67
11	80	70	76	69	74	70	76	70	76	70	75	72	76	69	73	66	71	64	64	66	72	64	70	64	71	66	66
12	73	68	71	67	70	69	72	68	72	69	71	72	71	70	68	63	65	61	65	63	66	61	65	63	66	64	64
13	77	70	75	69	73	71	75	71	75	71	74	72	75	71	72	66	70	64	70	67	71	64	70	65	63	66	64
AVG	77	70	75	69	73	71	75	71	75	71	74	72	75	71	72	66	70	64	70	67	71	64	70	65	63	66	64
Slave Camera	66	61	65	61	64	63	66	63	66	64	66	65	66	63	63	59	62	57	62	60	64	57	63	59	65	61	61
3	71	63	69	62	68	65	70	66	71	68	70	68	71	65	68	62	67	61	67	62	68	61	67	62	68	63	63
4	77	70	74	69	74	71	75	70	75	71	75	73	75	71	72	66	70	65	70	67	71	65	70	66	71	67	67
5	72	68	70	67	70	68	72	68	72	68	70	70	70	68	67	63	64	61	64	63	65	61	65	63	65	63	63
6	75	70	72	70	72	71	74	71	74	71	73	73	73	72	69	66	67	65	67	67	69	64	69	66	69	66	66
7	77	69	74	68	73	69	74	69	75	69	75	71	75	69	72	66	70	64	70	66	71	63	71	66	71	66	66
8	77	69	74	68	73	69	75	69	76	69	74	71	74	69	72	65	69	63	69	65	70	64	70	64	70	65	65
9	70	65	68	67	67	66	69	65	69	65	68	67	70	65	65	60	62	57	62	61	63	56	63	59	63	66	66
11	71	64	69	63	69	65	70	66	71	70	70	68	71	66	69	62	69	60	69	63	69	59	62	62	69	65	65
12	71	66	68	66	64	67	70	67	70	67	69	70	70	68	66	62	63	61	63	65	61	61	64	62	66	64	64
13	71	66	68	66	64	67	70	67	70	67	69	70	70	68	66	62	63	61	63	65	61	61	64	62	66	64	64
AVG	73	66	71	66	69	68	71	67	71	68	70	70	71	68	68	63	66	61	66	64	67	61	67	63	67	67	65
Supply Spool	66	61	64	61	63	64	66	63	67	64	66	65	67	63	65	61	62	58	62	61	63	58	62	60	63	61	61
1	65	60	64	60	64	63	65	62	66	64	66	64	66	62	62	59	62	55	62	59	64	56	64	59	64	61	61
2	65	60	64	60	64	63	65	62	66	64	66	64	66	62	62	59	62	55	62	59	64	56	64	59	64	61	61

TABLE 3-3
J-32 TEMPERATURE SUMMARY

<u>SENSOR</u>		<u>ORBITS ACQUIRED</u>																										
<u>Fair ("A")</u>		<u>07</u>	<u>16</u>	<u>24</u>	<u>32</u>	<u>40</u>	<u>48</u>	<u>56</u>	<u>64</u>	<u>72</u>	<u>81</u>	<u>88</u>	<u>97</u>	<u>104</u>	<u>113</u>	<u>121</u>	<u>129</u>	<u>137</u>	<u>145</u>	<u>153</u>	<u>161</u>	<u>169</u>	<u>178</u>	<u>185</u>	<u>194</u>	<u>201</u>	<u>210</u>	
1	6	29	72	29	65	22	58	22	58	29	51	22	58	22	58	20	33	20	36	20	43	20	33	16	33	20	33	
2	1	17	25	10	10	10	17	10	17	10	10	3	17	10	10	59	68	62	72	62	68	65	68	59	68	62	65	
3	5	-10	25	4	18	4	4	4	4	4	ORL	-10	18	-2	11	62	124	67	133	69	124	70	124	63	130	67	130	
4	3	37	51	37	37	44	44	37	44	37	37	30	30	37	44	25	61	28	70	28	64	32	67	28	70	32	70	
5	4	38	52	38	38	38	45	38	38	23	38	30	45	38	45	28	38	28	42	28	45	32	38	28	45	32	45	
6	1	38	52	31	45	31	52	31	45	31	45	31	52	31	59	--	--	--	--	--	--	--	--	--	--	--	--	
<u>Barrel #2</u>																												
1	1	27	33	27	33	20	36	23	33	33	27	40	27	40	20	30	20	30	20	30	20	33	23	27	20	33	20	33
2	3	28	61	25	57	18	57	21	61	28	61	25	64	28	67	28	57	28	67	30	64	31	64	28	70	31	70	
3	2	72	131	65	128	59	125	62	128	65	122	65	128	65	122	69	113	69	122	69	116	69	111	66	119	69	119	
4	4	69	81	66	81	56	78	66	78	66	78	63	78	63	78	63	66	60	69	60	66	60	60	56	66	60	63	
5	5	59	66	55	66	52	69	59	62	59	69	59	69	59	69	42	49	38	52	38	59	42	49	38	52	38	49	
<u>Conic Adapter</u>																												
1	1	33	30	33	27	27	33	33	33	37	33	33	37	37	33	27	24	27	30	27	27	27	24	27	24	30	30	
<u>Clock</u>																												
1	1	68	66	68	62	64	66	66	66	70	68	68	68	70	66	62	58	60	58	60	60	62	56	62	58	62	58	
2	2	68	66	68	64	66	66	66	66	70	68	68	68	70	70	62	58	60	60	60	60	62	58	62	60	62	58	
<u>Thrust Cone "A" to "B" SRV</u>																												
1	(Skin)	36	28	30	25	28	26	30	28	31	29	31	30	31	30	58	53	56	54	56	55	57	54	57	53	57	55	
2	(Retro)	54	43	45	41	42	41	45	42	46	43	45	44	46	43	64	59	61	57	61	60	63	58	63	58	63	61	
<u>Stellar/Index "A" to "B"</u>																												
1	1	45	42	42	39	36	42	42	42	45	42	42	45	42	42	47	44	44	44	44	43	44	44	47	44	44	44	
2	2	45	35	41	31	35	38	41	35	41	38	41	41	41	41	50	44	44	41	44	44	44	41	47	44	44	44	
<u>Recovery Battery "B" SRV</u>																												
1	1	64	56	56	54	54	56	57	57	57	58	57	59	58	58	84	83	77	81	78	82	82	75	82	81	78	83	
<u>Master Cassette "A" SRV</u>																												
2	2	68	61	62	60	62	64	67	64	66	65	65	66	64	64	--	--	--	--	--	--	--	--	--	--	--	--	



J-32 FLIGHT
8/9/66 - 8/22/66

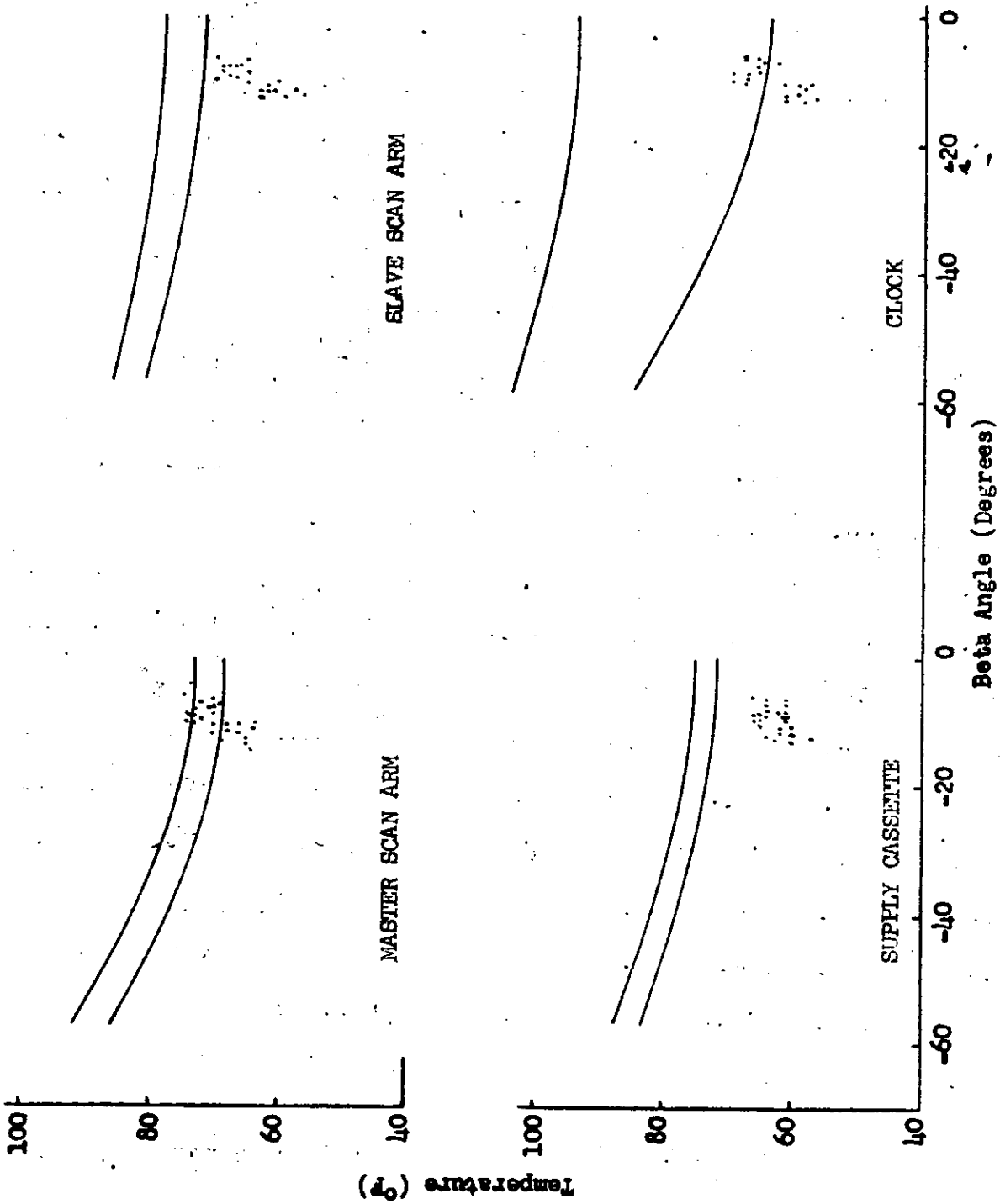
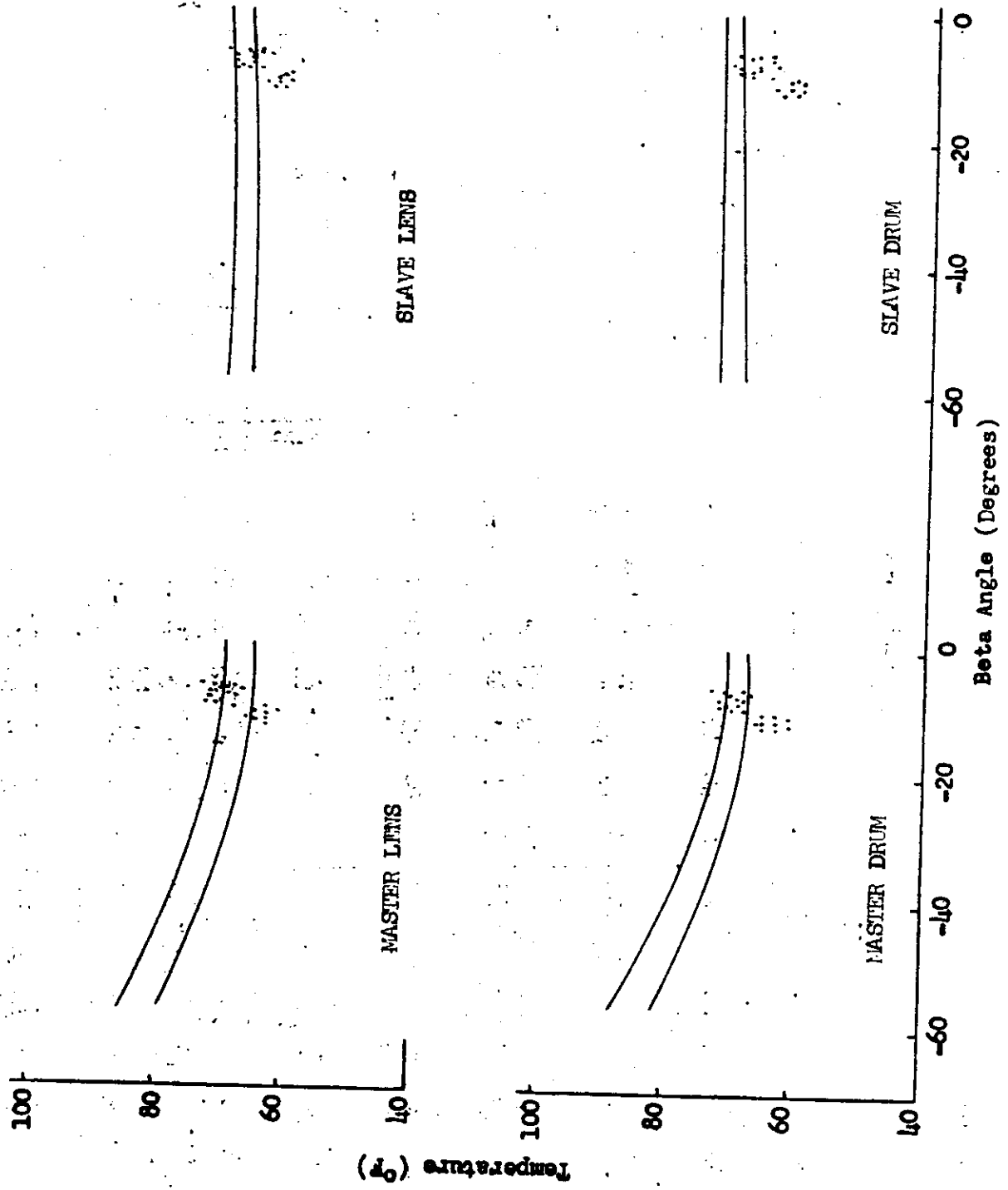


FIGURE 3-1

J-32 FLIGHT
8/9/66 - 8/22/66



J-32 FLIGHT
8/9/66 - 8/22/66

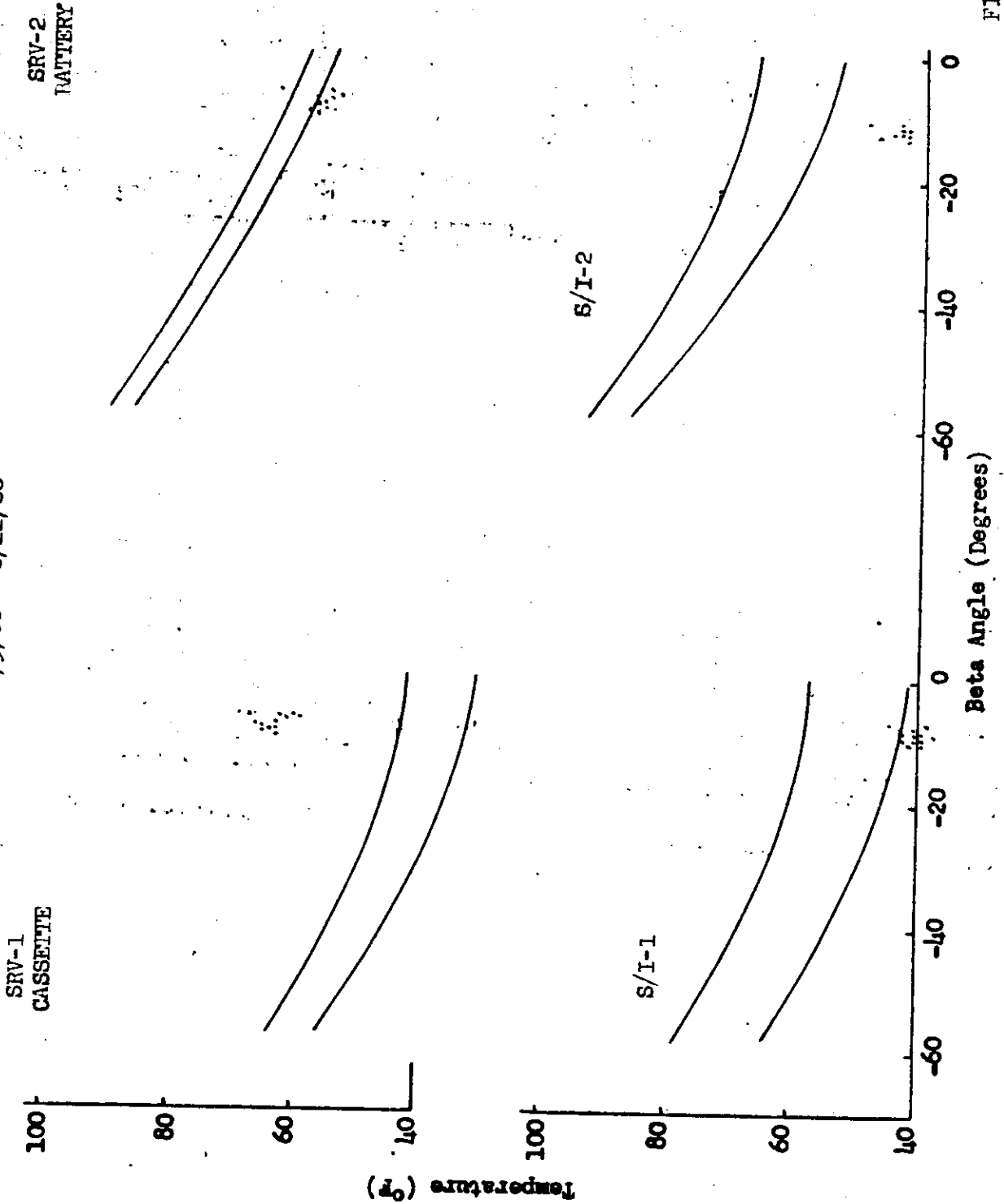


FIGURE 3-3

TOP SECRET

NO.

ASCENT HEATING

THORAD ROOSTER
AGENA 1631
PAYLOAD J-32



TIME FROM LIFT-OFF
FEET

FIGURE 3-4

TOP SECRET C/

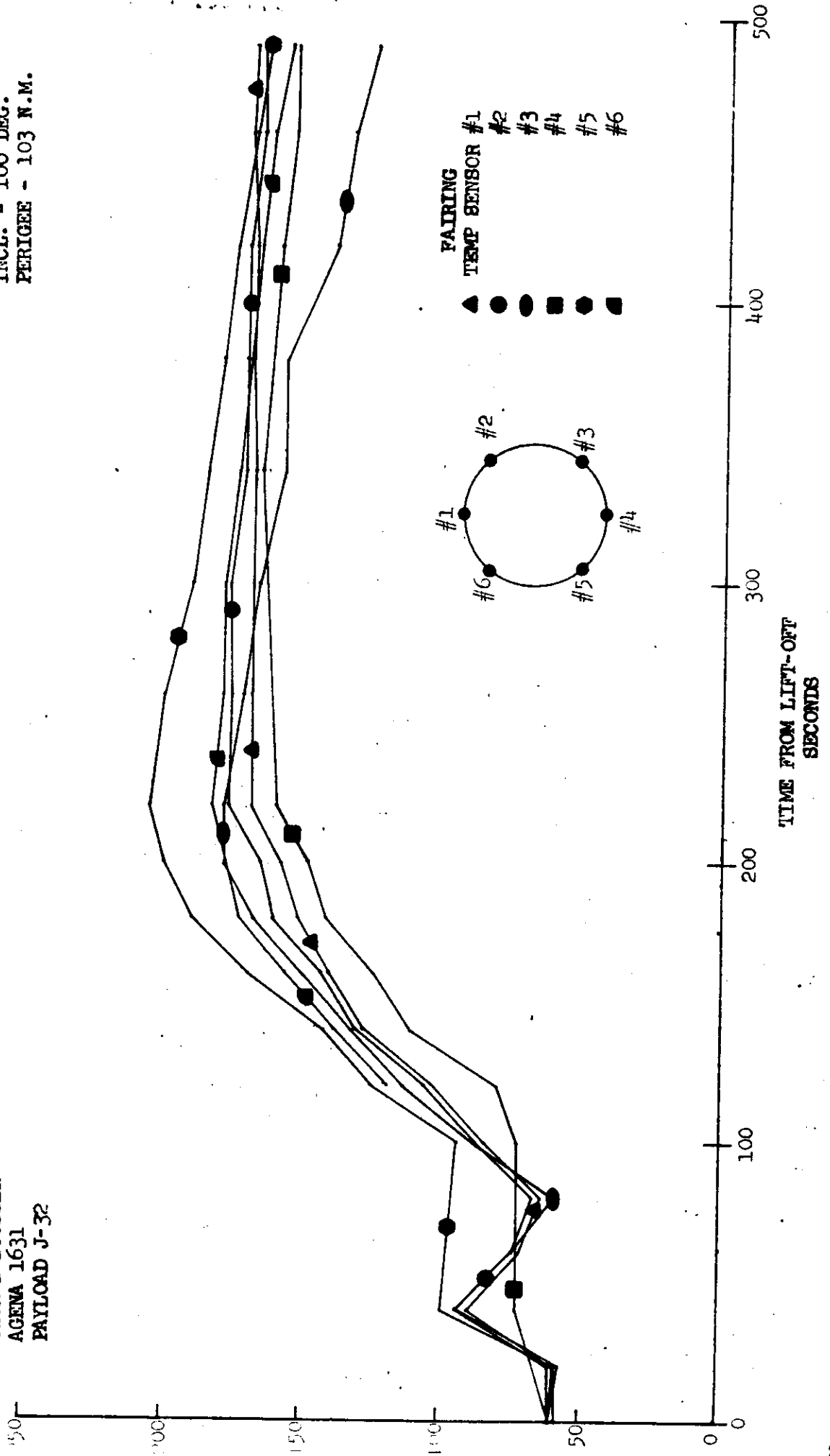
TOP SECRET

C/ [REDACTED] NO. [REDACTED]

ASCENT HEATING

THORAD BOOSTER
AGEWA 1631
PAYLOAD J-32

INCL. - 100 DEG.
PERIGEE - 103 N.M.



TOP SECRET C/ [REDACTED]

FIGURE 3-5

SECTION 4

MISSION 1036-1 RECOVERY SYSTEM

SRV #715 was received at A/P on 27 September 1965. The receiving weight was 149.69 pounds. After modifications and incorporation of outstanding E.O.'s, the SRV was delivered to Systems Test for incorporation into the J-32 system.

The capsule was shipped to VAFB on 1 August 1966.

The -1 mission was successfully terminated by air-catch on orbit 115 on 16 August 1966. The predicted and actual impact points were as follows:

	<u>Latitude</u>	<u>Longitude</u>
Predicted	23° 4.4' N	168° 6.2' W
Actual	22° 46' N	168° 2' W

Telemetry data indicated that 7 to 8 amps of current was present on the +28V regulated return between transfer and electrical disconnect. The time duration was 0.80 seconds. The current was supplied by the pyro battery. Recovery event times are included in Table 4-1.

The condition of the recovered capsule was satisfactory with no damage other than normal paint blistering due to the re-entry environment.

MISSION 1036-1

RECOVERY SEQUENCE OF EVENTS

<u>Event</u>	<u>Delta Time (Seconds)</u>	
	<u>Actual</u>	<u>Nominal</u>
*Arm	76.91	77.0 ± 1.0
*Transfer	2.0	2.0 ± 0.25
Electrical Disconnect	0.82	0.900 ± 0.430
Separation	---	---
**Spin	3.34	3.4 ± 0.30
Retro	7.58	7.55 ± 0.45
Despin	10.68	10.75 ± 0.59
T/C Separation	1.50	1.5 ± 0.15
***"G" Switch Open	507.55	506.8
Parachute Cover Off	33.50	34.0 ± 1.5
Drogue Chute Deployed	0.68	0.63 ± 0.08
Main Chute Bag Separate	12.10	10.0 + 3.0 - 2.2
Main Chute Deployed	0.55	0.52 ± 0.13
Main Chute Disreef	4.77	4.5 ± 0.80

* From Separation
** From Electrical Disconnect
*** From Retro

TABLE 4-1

TOP SECRET
C [REDACTED] -NO. [REDACTED]

SECTION 5

MISSION 1036-2 RECOVERY SYSTEM

SRV #716 was received at A/P on 27 September 1965. The receiving weight was 147.23 pounds. After modifications and incorporation of outstanding E.O.'s the unit was delivered to Systems Test for mating to the J-32 system.

The capsule was shipped to VAFB on 1 August 1966.

The -2 mission was successfully terminated by air-catch from orbit 212 on 22 August 1966. The impact point was as follows:

	<u>Latitude</u>	<u>Longitude</u>
Predicted	22° 31.7' N	165° 55.8' W
Actual	22° 31.0' N	165° 58' W

Event times are shown in Table 5-1.

The condition of the recovered capsule indicated no abnormal re-entry effects.

MISSION 1036-2

RECOVERY SEQUENCE OF EVENTS

<u>Event</u>	<u>Delta Time (Seconds)</u>	
	<u>Actual</u>	<u>Nominal</u>
*Arm	76.92	77.0 ± 1.0
*Transfer	2.0	2.0 ± 0.25
Electrical Disconnect	0.71	0.900 + 0.430
Separation	- - -	- - -
**Spin	3.33	3.4 ± 0.30
Retro	7.56	7.55 ± 0.45
Despin	10.72	10.75 ± 0.59
T/C Separation	1.54	1.5 ± 0.15
***"G" Switch Open	504.81	506.6
Parachute Cover Off	34.18	34.0 ± 1.5
Drogue Chute Deployed	0.66	0.63 ± 0.08
Main Chute Bag Separate	12.06	10.0 + 3.0 - 2.2
Main Chute Deployed	0.55	0.52 ± 0.13
Main Chute Disreef	4.33	4.45 ± 0.80

* From Separation

** From Electrical Disconnect

*** From Retro

TABLE 5-1

SECTION 6

MASTER PANORAMIC CAMERA

A. COMPONENT ASSIGNMENT

<u>Component</u>	<u>Serial Number</u>
Main Camera	190
Main Camera Lens	1842435
Supply Horizon Camera	287-06
Supply Horizon Camera Lens	E12893
Take-up Horizon Camera	287-05
Take-up Horizon Camera Lens	E12891
Supply Cassette	SC-43

B. CAMERA DATA AND FLIGHT SETTINGS

Main Camera:

Lens	24" f/3.5
Slit Width	0.200"
Filter Type	Wratten 23A
Film Type	Eastman Type 3404

Supply (Port) Horizon Camera:

Lens	55 mm f/6.3
Aperture Setting	f/6.3
Exposure Time	1/100 second
Filter Type	Wratten 25

Take-up (Starboard) Horizon Camera:

Lens	55 mm f/6.3
Aperture Setting	f/8.0
Exposure Time	1/100 second
Filter Type	Wratten 25

C. POST FLIGHT PERFORMANCE EVALUATION (Master Camera)

The Master camera produced 2852 frames (7933 feet) of photography during Mission 1036-1 and 3009 frames (7948 feet) during Mission 1036-2. The image quality was consistently good and rated better than Mission 1034 and comparable to Mission 1033.

Image quality produced by the Master camera was rated lower in sharpness than that produced by the Slave camera for Missions 1036-1 and 1036-2. The comparison was made by a visual evaluation at 20 to 50 x magnification of original negative and Duplicate Positive films. Master camera imagery is considered of lower quality primarily because of the added effect of haze light in the forward looking Master camera. The Master camera also used a wider exposure slit. The overall image quality of Mission 1036-2 was judged to be better than Mission 1036-1. This is attributed to the lower haze level in Mission 1036-2 as evidenced by viewing the Index camera photography.

One fixed target of unknown contrast and condition was recorded at Pahump, Nevada. The average resolution from this target was judged to be somewhat greater than 12.5 feet. The MIP frames were rated 85.

Auxillary data recording such as H.O. fiducials, timing track, binary word, serial number, index marks, S/I slur pulse, and blanked pulse were operational throughout Mission 1036-1 and 1036-2. The start of pass mark failed after pass D-39 apparently due to lamp failure. Dendritic static discharge marks were present at random intervals along the film edge in Mission 1036-1 only. Edge static caused no degradation of terrain imagery.

The scan head rollers caused the usual minor scratch marks just within the format area under the binary word and at the take-up end of the mission on every frame of Mission 1036-1 and 1036-2. Normal heavy rail scratches are present throughout the mission. The format edge on the binary word side gradually became ragged as a result of emulsion dust accumulated from the rail scratches. No other degrading effect was observed.

Although extensive effort had been directed to elimination of light leaks, minor fog marks were present on the first, fifth and last frame of most passes. Degradation from light leaks was minor.

SECTION 7

SLAVE PANORAMIC CAMERA

A. COMPONENT ASSIGNMENT

<u>Component</u>	<u>Serial Number</u>
Main Camera	191
Main Camera Lens	2022435
Supply Horizon Camera	285-06
Supply Horizon Camera Lens	E12904
Take-up Horizon Camera	281-G5
Take-up Horizon Camera Lens	E12905
Supply Cassette	SC-43

B. CAMERA DATA AND FLIGHT SETTINGS

Main Camera:

Lens	24" f/3.5
Slit Width	0.150"
Filter Type	Wratten 21
Film Type	Eastman Type 3404

Supply (Starboard) Horizon Camera:

Lens	55 mm f/6.3
Aperture Setting	f/8.0
Exposure Time	1/100 second
Filter Type	Wratten 25

Take-up (Port) Horizon Camera:

Lens	55 mm f/6.3
Aperture Setting	f/6.3
Exposure Time	1/100 second
Filter Type	Wratten 25

C. POST FLIGHT PERFORMANCE EVALUATION (Slave Camera)

This camera produced 2853 frames (7955 feet) of photography during Mission 1036-1 and 3009 frames of photography (7958 feet) during Mission 1036-2. Visual comparison of the MIP frames for Mission 1036-1 and 1036-2 indicate that AFT camera photography is sharper than forward camera photography. Aft camera imagery is considered better primarily because of the reduced effect of haze light present in aft camera photography. It is also noted that the AFT camera used a narrower slit. The overall image quality of Mission 1036-2 was judged to be slightly better than Mission 1036-1. This is attributed to the lower haze level in Mission 1036-2 as evidenced by viewing the Index camera photography.

One fixed target of unknown contrast and condition was recorded at Pahump, Nevada. The average resolution from this target was judged to be 8.5 feet on the aft-looking camera. The MIP frames were rated 85.

A minor region of soft imagery encompassing an area of approximately one square inch located at the camera number edge at the supply end of the format was first observed on pass D-203 and continued until the mission ended. The exact cause is unknown but may be caused by irregular tracking tension. Because of the minor significance of this anomaly at the end of the format no action will be taken.

Auxillary data recording such as H.O. fiducials, timing track, binary word, serial number, index marks, blanked pulse, and start of pass mark were operational throughout Missions 1036-1 and 1036-2.

A few minor dendritic static discharge marks were noted along the film edge at random intervals. Dendritic static marks did not degrade terrain imagery.

Rail scratches were heavy and present throughout Mission 1036-1 and 1036-2. Minor scan head roller scratches were observed in each frame of the -1 and -2 missions. Scan head roller scratches were located inside the format under the binary word and at the take-up end of each frame. Degradation to terrain imagery was very minor. An intermittent emulsion scratch was found 1.22 inches into the format area measured from the camera number edge. Although this scratch occurred intermittently throughout the mission no known cause of the scratch was determined. The scratch was very fine and had no significant degrading effect upon terrain imagery.

Light leak fog was evidenced on the third from the last frame of some passes. Degradation to terrain imagery was minor.

[REDACTED] 10. [REDACTED]

SECTION 8

PANORAMIC CAMERA EXPOSURE

The Master camera contained a 0.200 inch slit and a Wratten 23A filter. The Slave camera had a 0.150 inch slit and a Wratten 21 filter. These conditions placed the nominal exposure between the full and the intermediate processing curve.

The frequency distributions of the solar elevations and solar azimuths encountered during the photographic operations are shown in Figures 8-1 to 8-4.

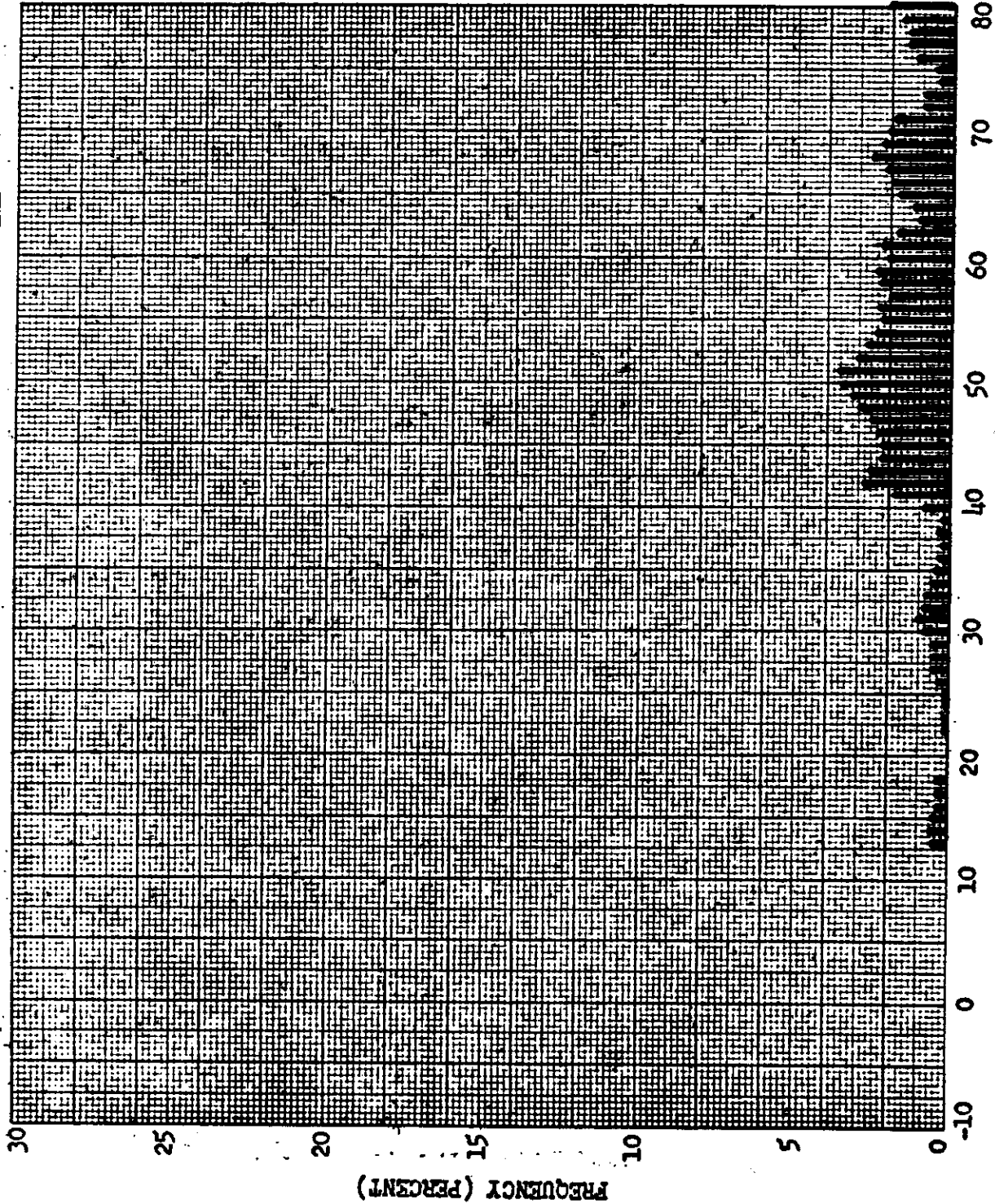
The nominal exposure times of the Master and Slave cameras are shown as a function of latitude for passes D-8, D-72, D-137 and D-201 in Figures 8-5 to 8-12. The predicted level of processing for the original negative is based on the in-flight performance estimate and is tabulated below with the processing levels reported by [REDACTED]

<u>Mission</u>	<u>Camera</u>		<u>% Primary</u>	<u>% Intermediate</u>	<u>% Full</u>
1036-1	FWD	Predicted	0	66.4	33.6
		Reported	8	14	78
1036-1	AFT	Predicted	0	4.7	95.3
		Reported	3	9	88
1036-2	FWD	Predicted	0	15.1	84.9
		Reported	1	19	80
1036-2	AFT	Predicted	0	3.5	96.5
		Reported	3	20	77

TOP SECRET

NO.

SOLAR ELEVATION FREQUENCY DISTRIBUTION



Mission No: 1036-1

Payload No: J-32

Camera No: 190

Launch Date: 8/9/66

Launch Time: 2046 Z

Inclination: 100°

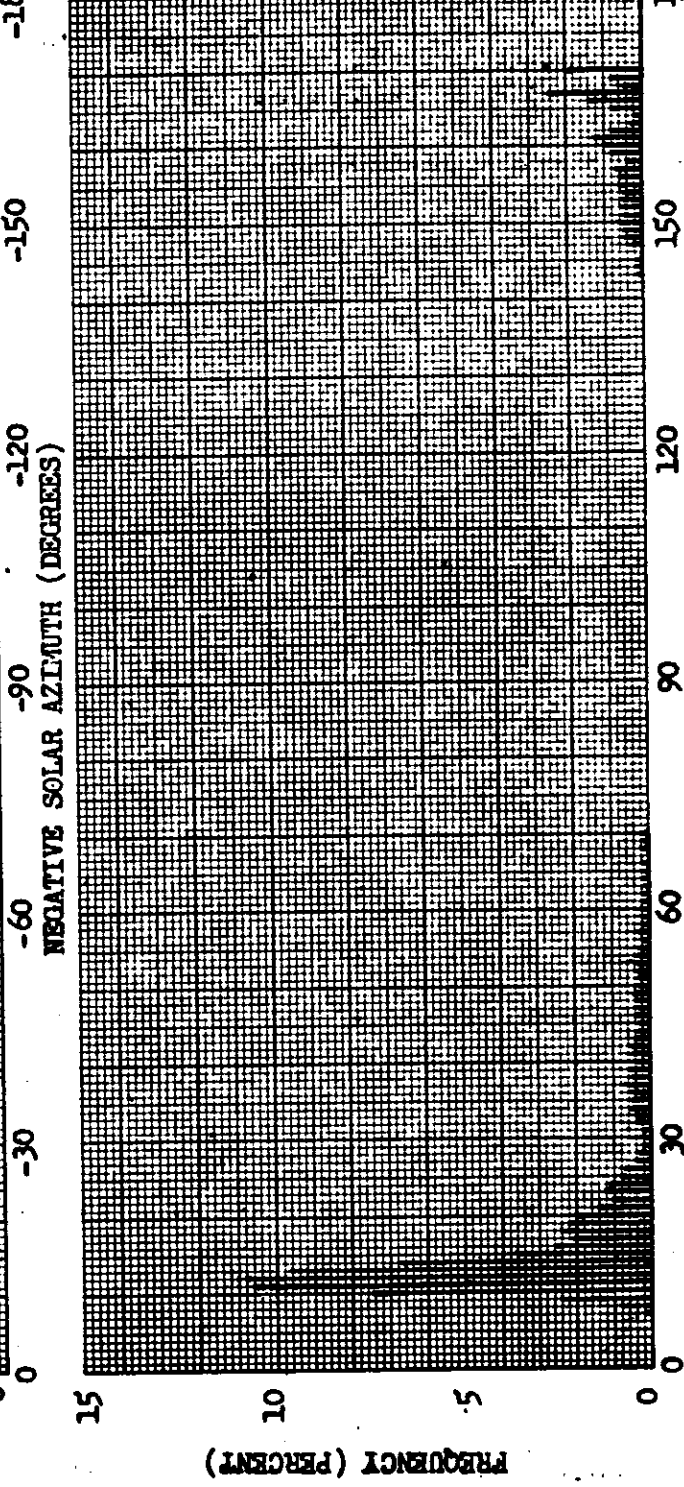
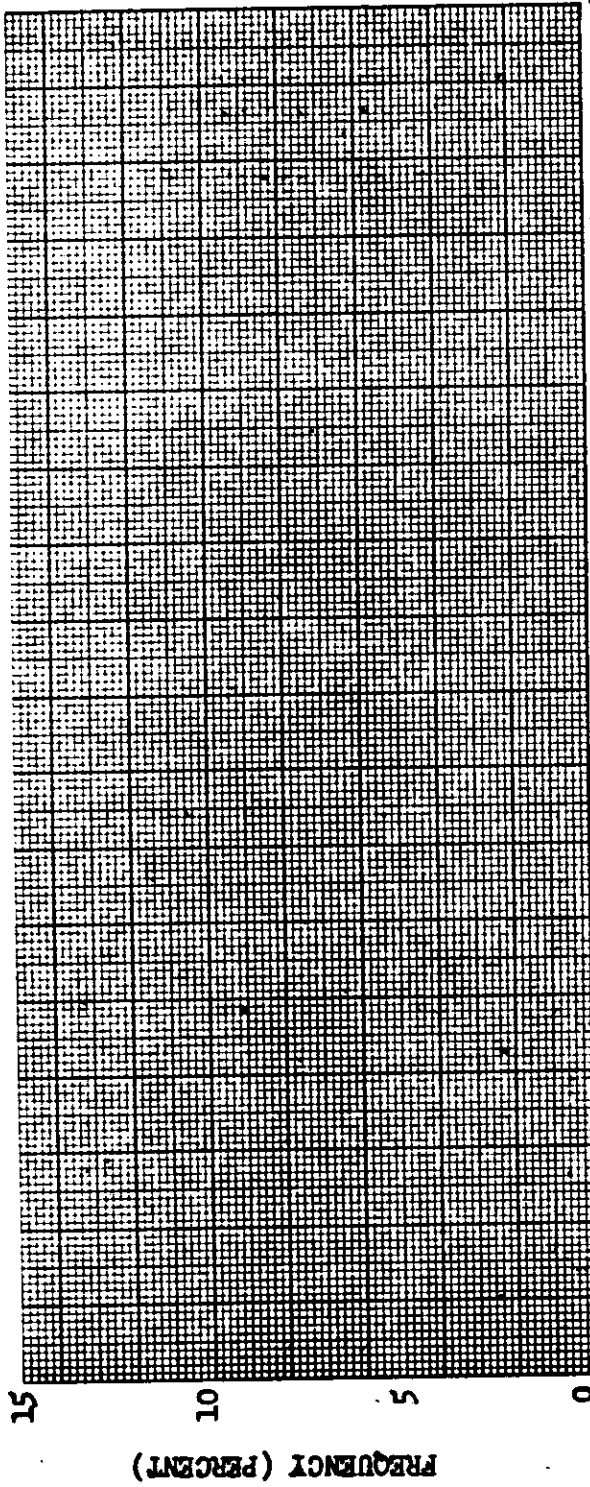
SOLAR ELEVATION (DEGREES)

FIGURE 8-1

TOP SECRET

NO.

SOLAR AZIMUTH FREQUENCY DISTRIBUTION



Mission No: 1036-1
 Payload No: J-32
 Camera No: 190
 Launch Date: 8/9/66
 Launch Time: 2046 Z
 Inclination: 100°

SIGN NOTATION

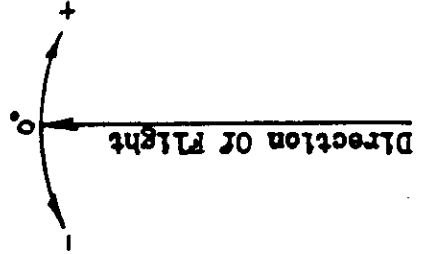
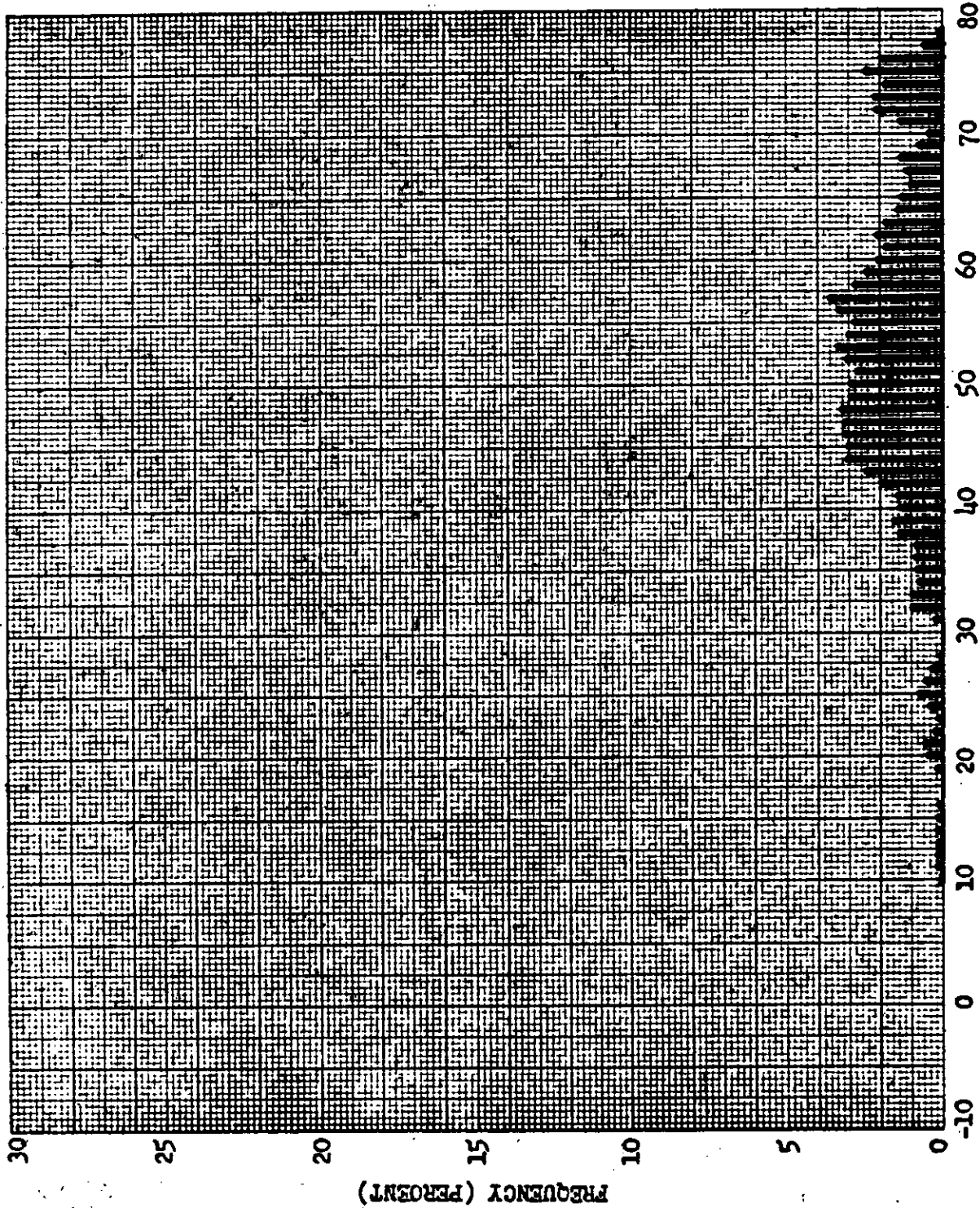


FIGURE 8-2

TOP SECRET

NO.

SOLAR ELEVATION FREQUENCY DISTRIBUTION



Mission No: 1036-2

Payload No: J-32

Camera No: 190

Launch Date: 8/9/66

Launch Time: 2046 Z

Inclination: 100°

SOLAR ELEVATION (DEGREES)

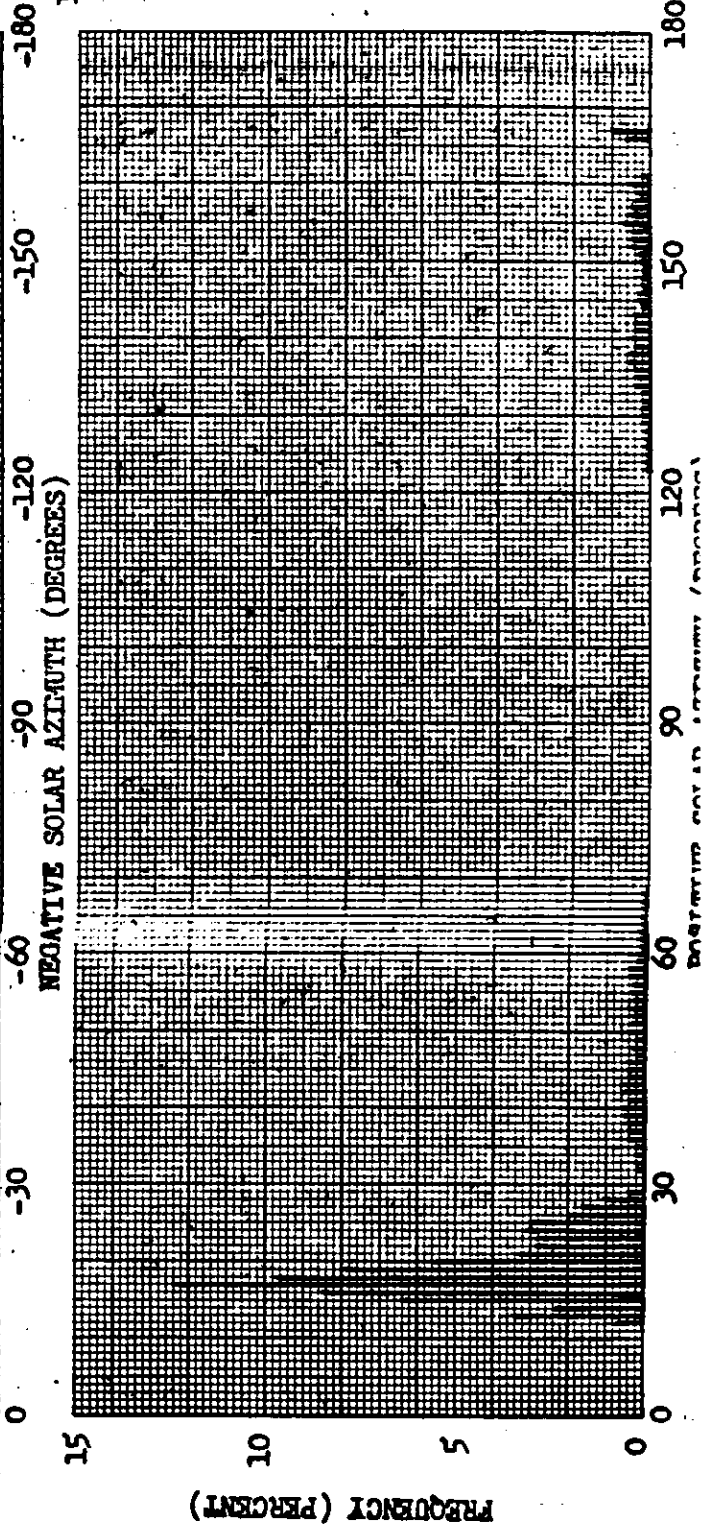
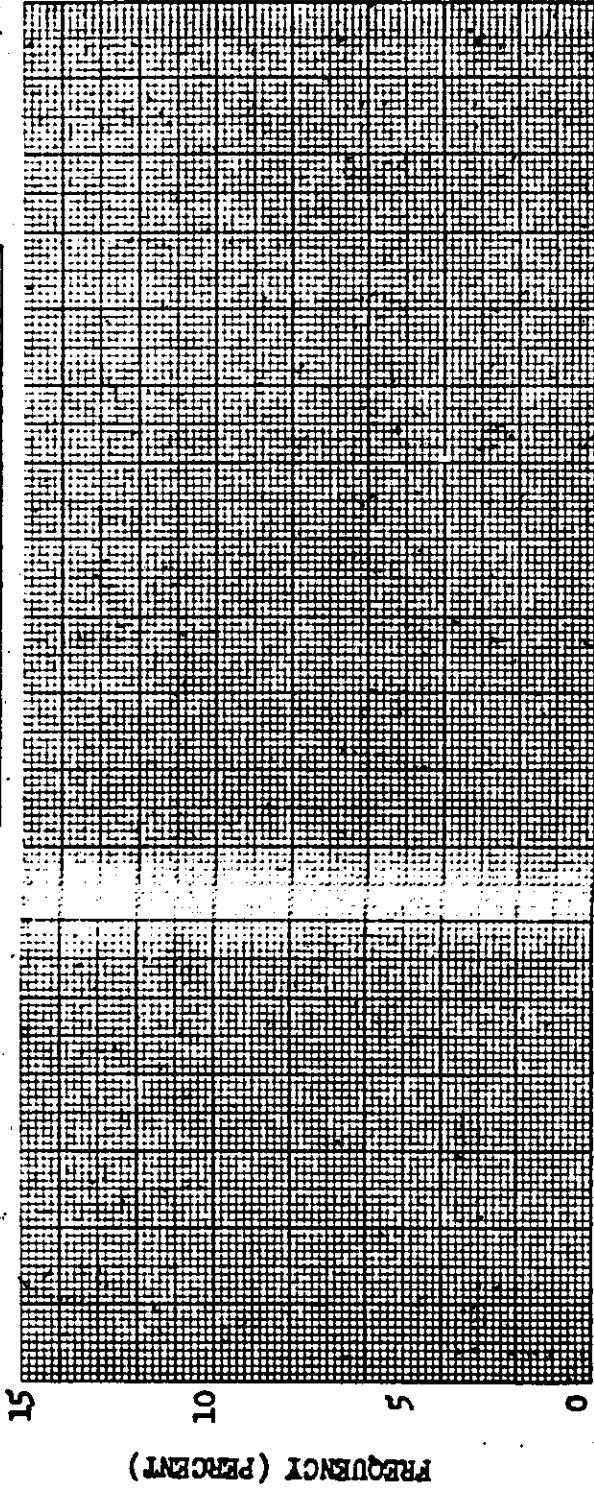
FIGURE 8-3

TOP SECRET C/

TOP SECRET

NO.

SOLAR AZIMUTH FREQUENCY DISTRIBUTION



Mission No: 1036-2

Payload No: J-32

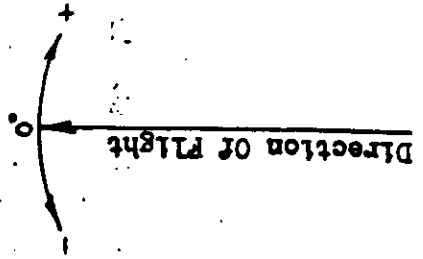
Camera No: 190

Launch Date: 8/9/66

Launch Time: 2046 Z

Inclination: 100°

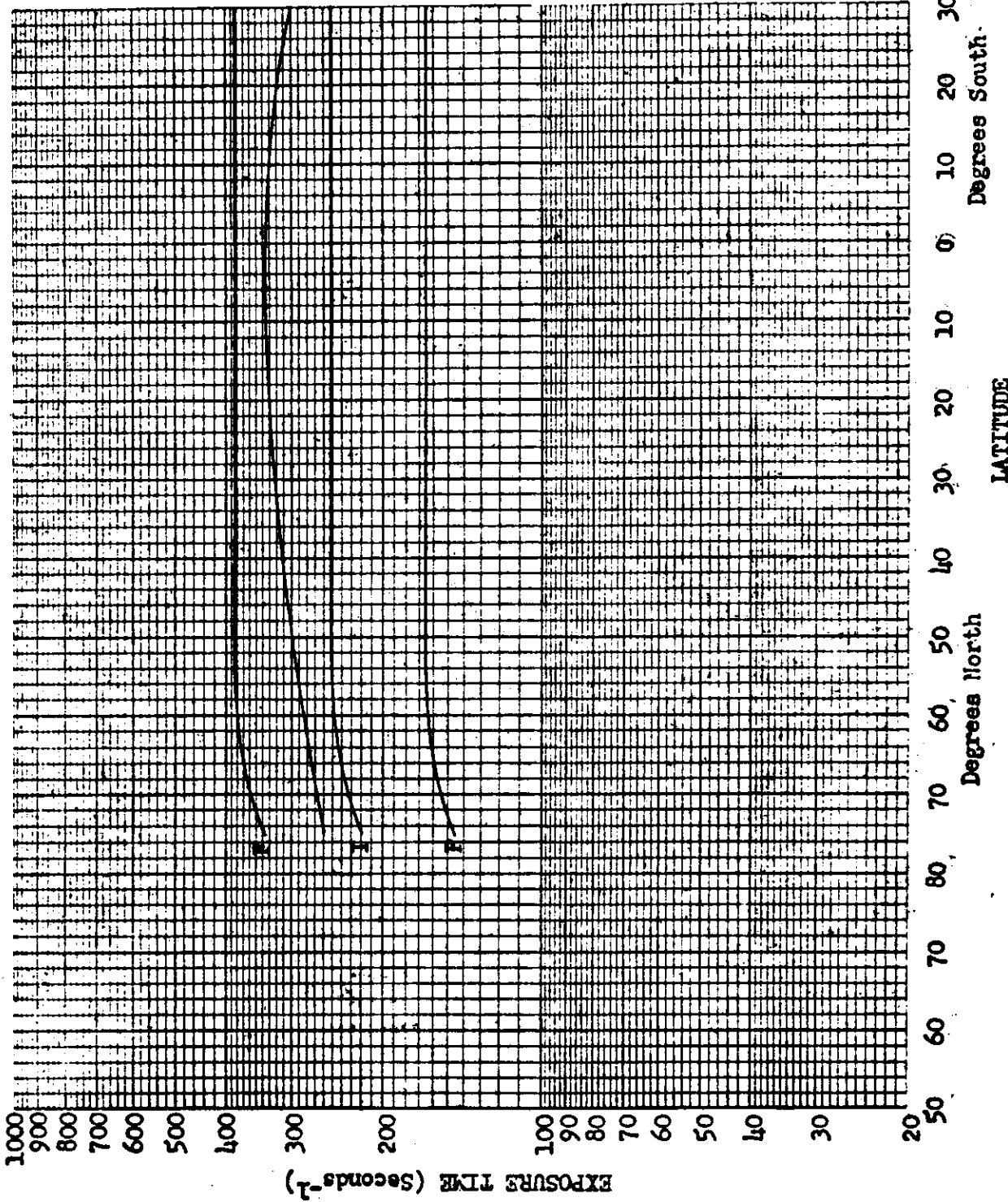
SIGN NOTATION



~~TOP SECRET~~

No.

EXPOSURE POINTS



Mission No: 1036
Payload No: J-32
Camera No: 190
Pass No: 8
Launch Date: 8/9/66
Launch Time: 2046 Z
Slit Width: .200
Filter Type: Wratten 23A
Film Type: 3404

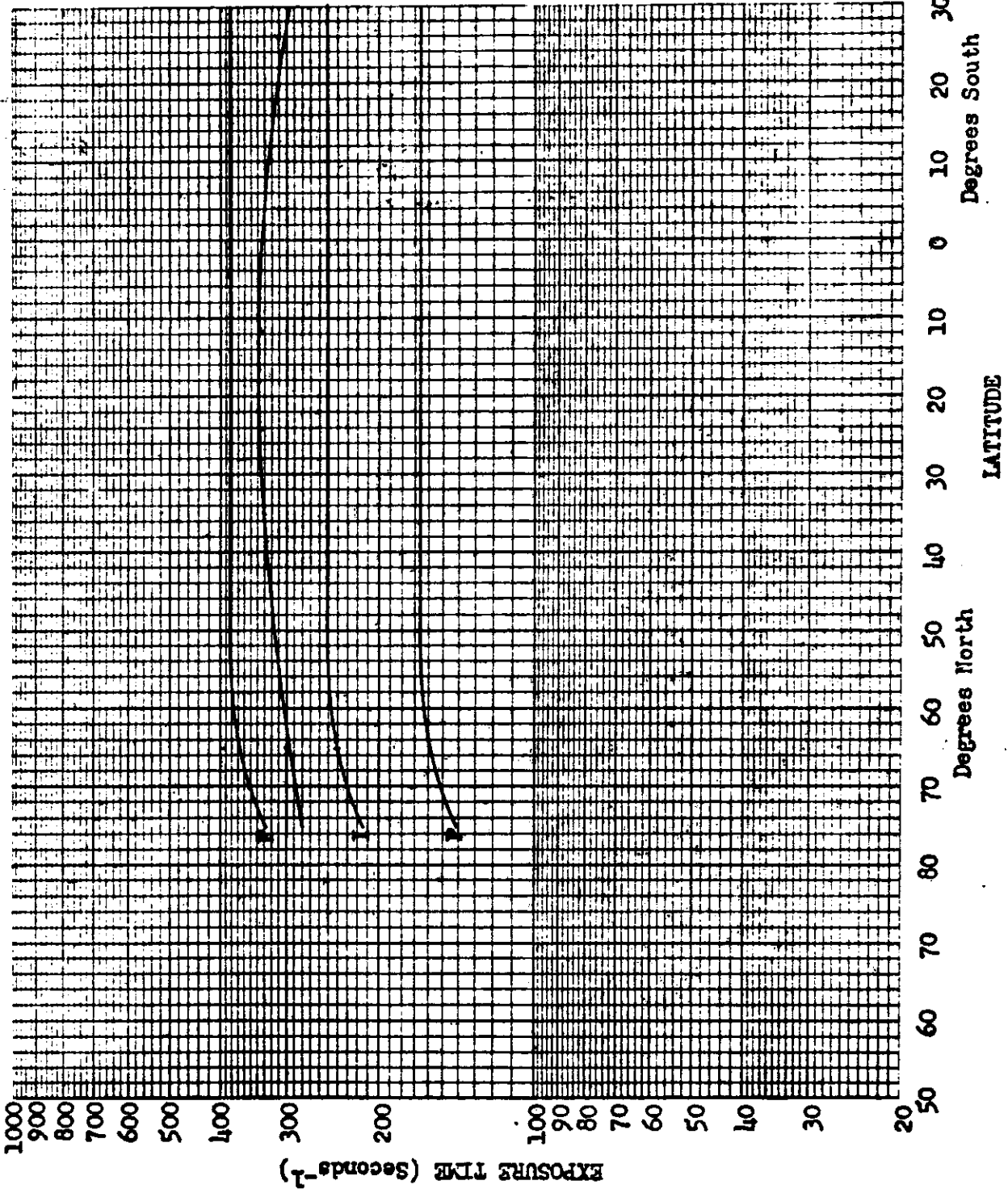
FIGURE 8-5

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TOP SECRET

NO.

EXPOSURE POINTS



Mission No: 1036

Payload No: J-32

Camera No: 190

Pass No: 72

Launch Date: 8/9/66

Launch Time: 2046 Z

Slit Width: .200

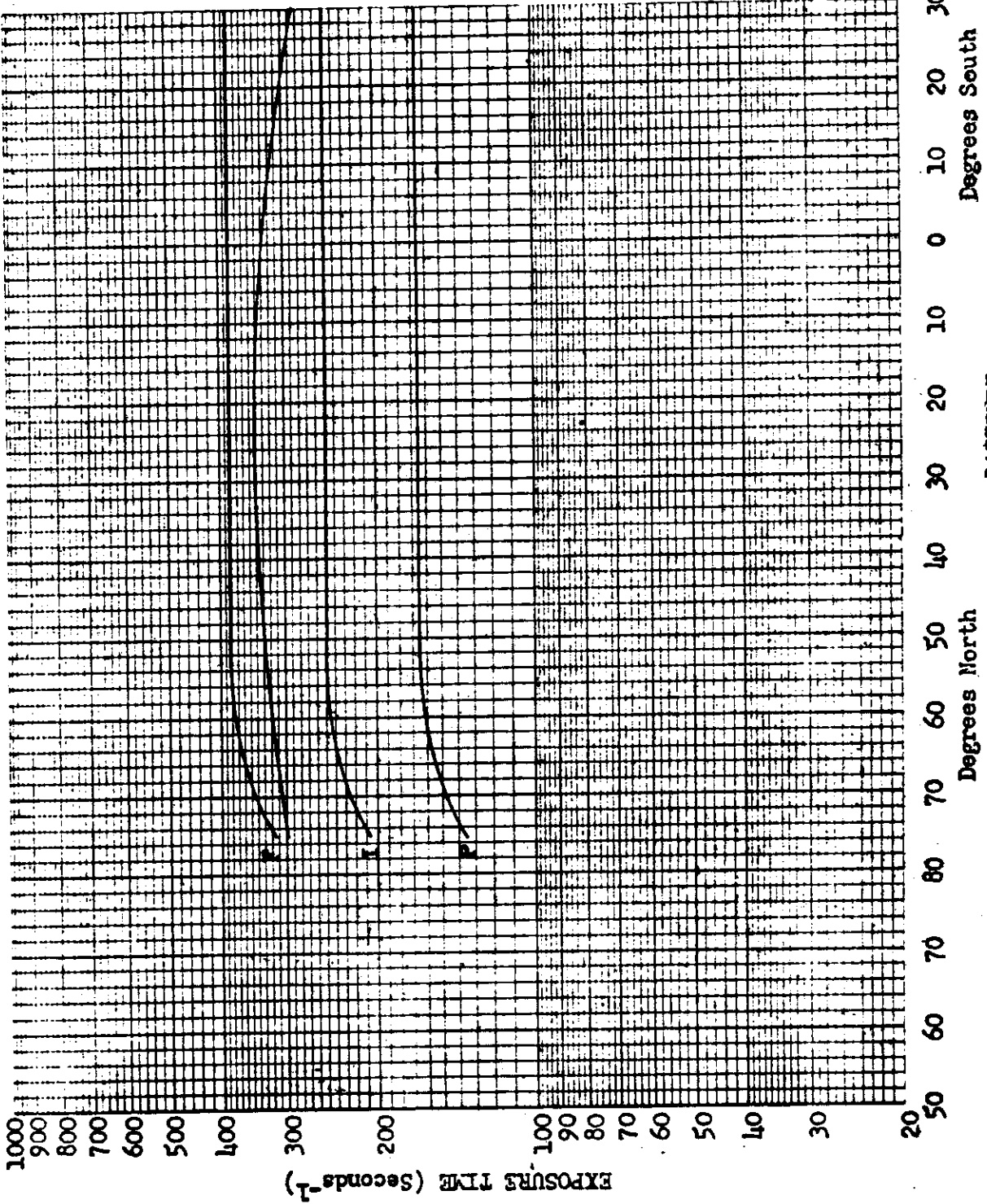
Filter Type: Wratten 23A

Film Type: 3404

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NO.

EXPOSURE POINTS



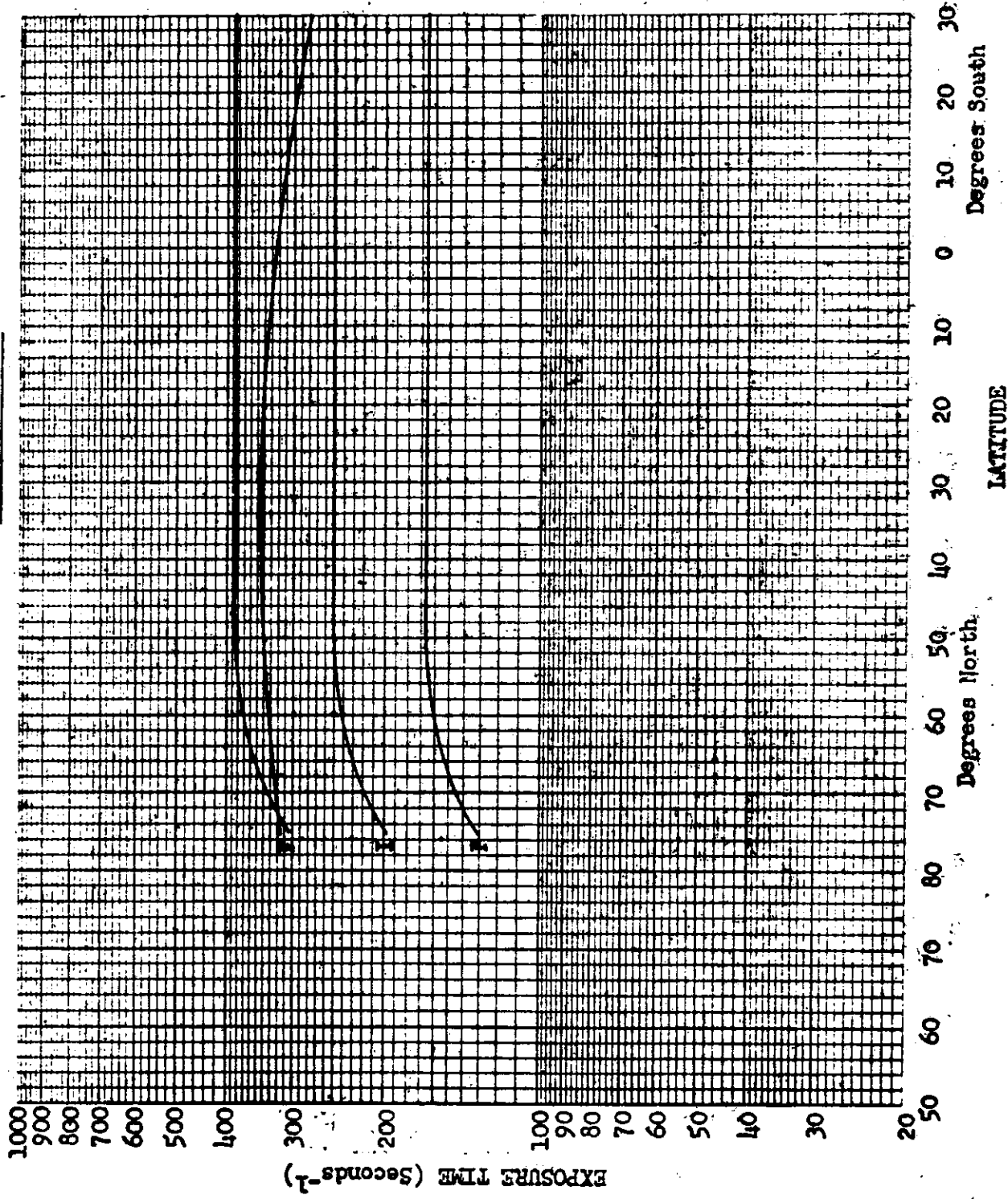
Mission No: 1036
 Payload No: J-32
 Camera No: 190
 Pass No: 137
 Launch Date: 8/9/66
 Launch Time: 2046 Z
 Slit Width: .200
 Filter Type: Wratten 23A
 Film Type: 3404

FIGURE 8-7

TOP SECRET C/

TOP SECRET
NO.

EXPOSURE POINTS



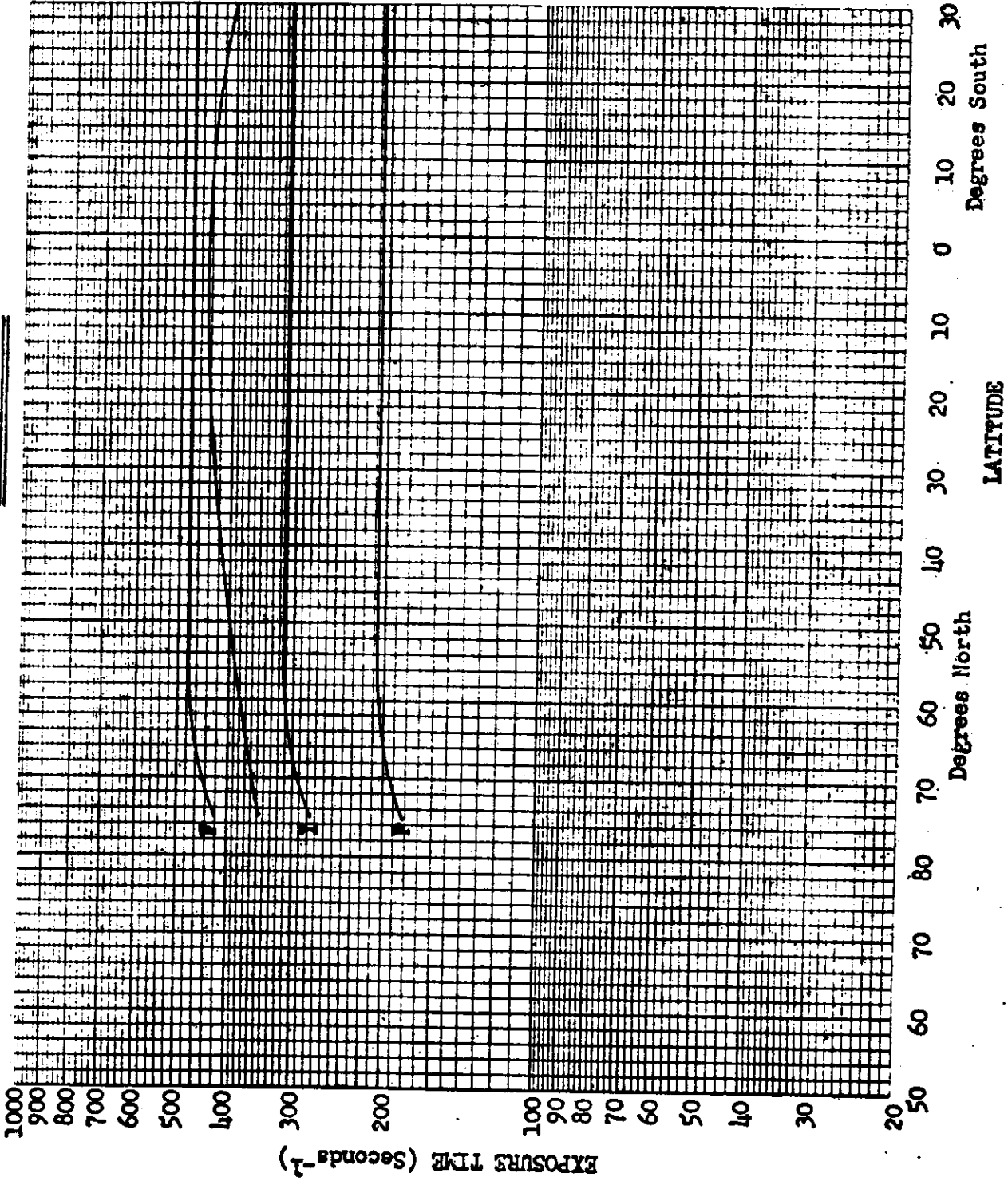
Mission No: 1036
Payload No: J-22
Camera No: 190
Pass No: 201
Launch Date: 8/9/66
Launch Time: 2046 Z
Slit Width: .200
Filter Type: Wratten 23A
Film Type: 3404

FIGURE 8-8

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TOP SECRET
C/ [REDACTED] NO: [REDACTED]

EXPOSURE POINTS



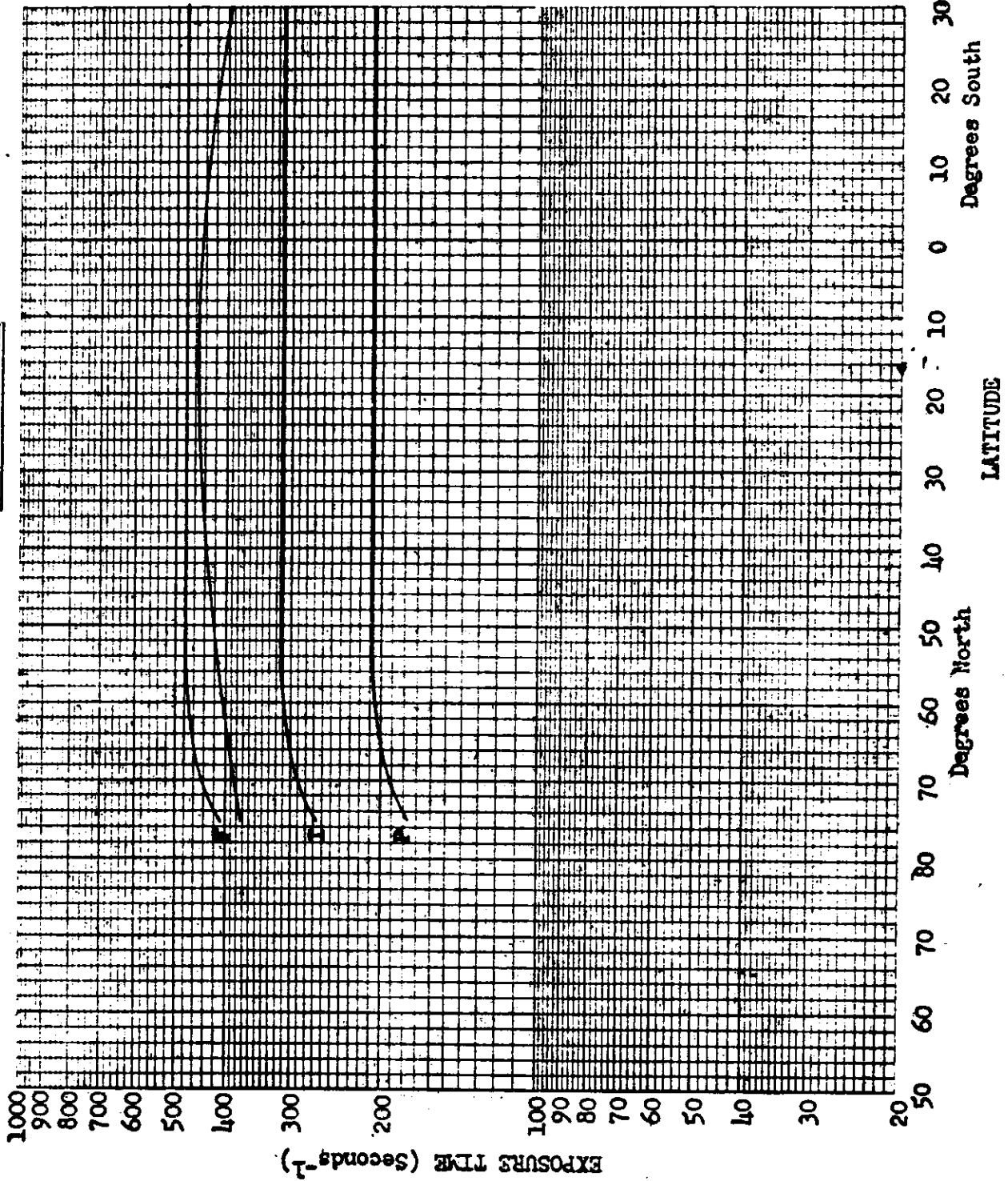
Mission No: 1036
Payload No: J-32
Camera No: 191
Pass No: 8
Launch Date: 8/9/66
Launch Time: 2046 Z
Slit Width: .150
Filter Type: Wratten 21
Film Type: 3404

TOP SECRET C/ [REDACTED]

TOP SECRET

NO.

EXPOSURE POINTS



Mission No: 1036

Payload No: J-32

Camera No: 191

Pass No: 72

Launch Date: 8/9/66

Launch Time: 2016 Z

Slit Width: .150

Filter Type: Wratten 21

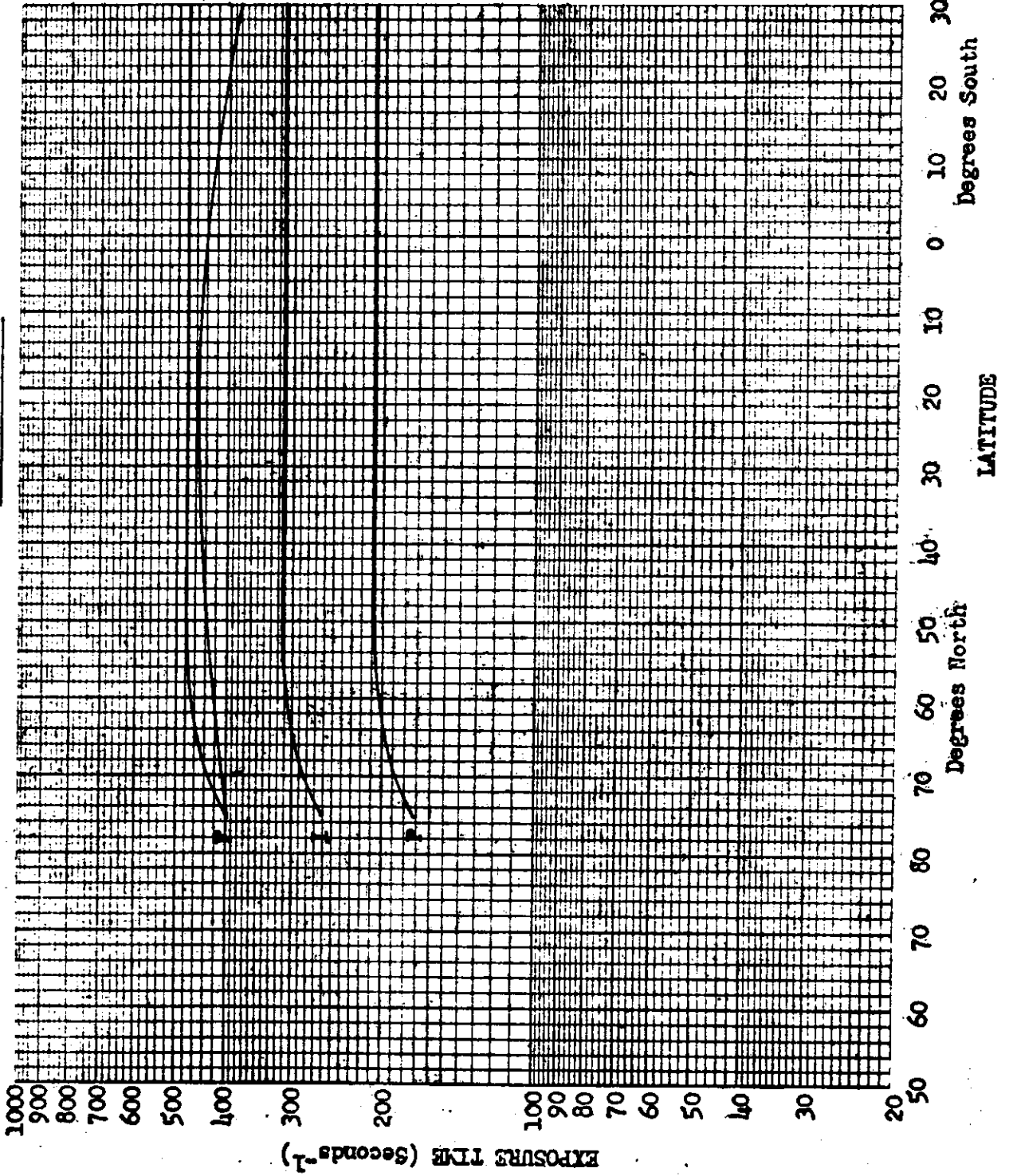
Film Type: 3104

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C-NO.

EXPOSURE POINTS



Mission No: 1036

Payload No: J-32

Camera No: 191

Pass No: 137

Launch Date: 8/9/66

Launch Time: 2006 Z

Slit Width: .150

Filter Type: Wratten 21

Film Type: 3404

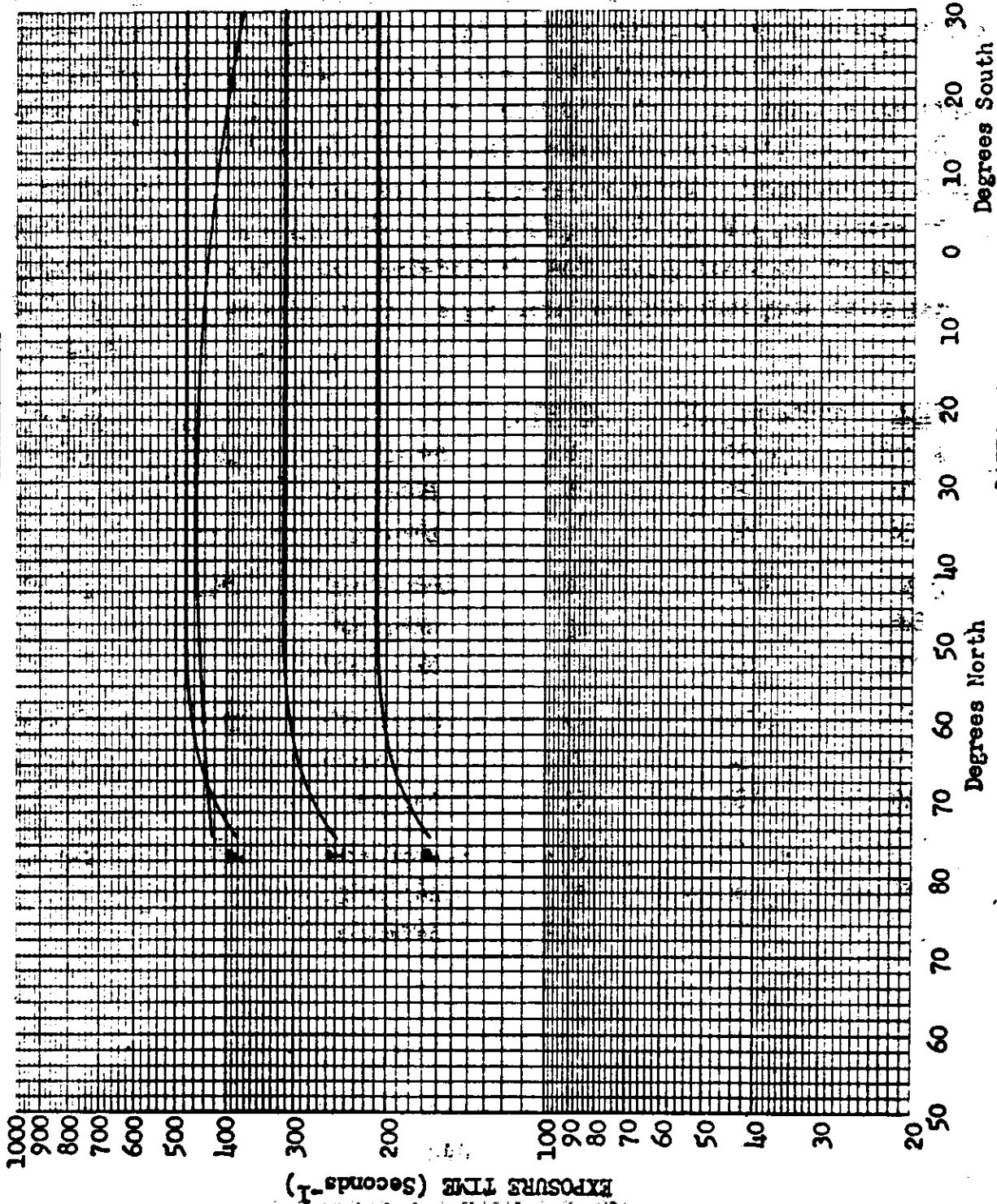
TOP SECRET C

FIGURE 8-11

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NO.

EXPOSURE POINTS



Mission No: 1036
 Payload No: J-32
 Camera No: 191
 Pass No: 201
 Launch Date: 8/9/66
 Launch Time: 2046 Z
 Slit Width: .250
 Filter Type: Wratten 21
 Film Type: 3404

FIGURE 8-12

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SECTION 9

DIFFUSE DENSITY MEASUREMENTS

The diffuse density measurements made by AFSPPF were computer sorted at A/P to permit analysis of the density ranges encountered at the three processing levels. A study of sorting techniques showed that no absolute method was available to separate the density values as the accuracy of the Processing History published by [redacted] appears rather low and processing transition phases are not accounted for. The sorting technique selected uses the base plus fog density values where measurements up to 0.09 density are considered as having received Primary processing 0.10 to 0.17 as Intermediate and above 0.17 density as Full. The percentage of original negative that was processed at each level, based on the computer sort, is tabulated below with the predicted and reported processing percentages.

<u>Mission</u>	<u>Camera</u>		<u>Primary</u>	<u>Intermediate</u>	<u>Full</u>
1036-1	FWD	Predicted	0	66.4	33.6
		Reported	8	14	78
		Computed	1	14	85
1036-1	AFT	Predicted	0	4.7	95.3
		Reported	3	9	88
		Computed	0	10	90
1036-2	FWD	Predicted	0	15.1	84.9
		Reported	1	19	80
		Computed	0	18	82
1036-2	AFT	Predicted	0	3.5	96.5
		Reported	3	20	77
		Computed	0	17	83

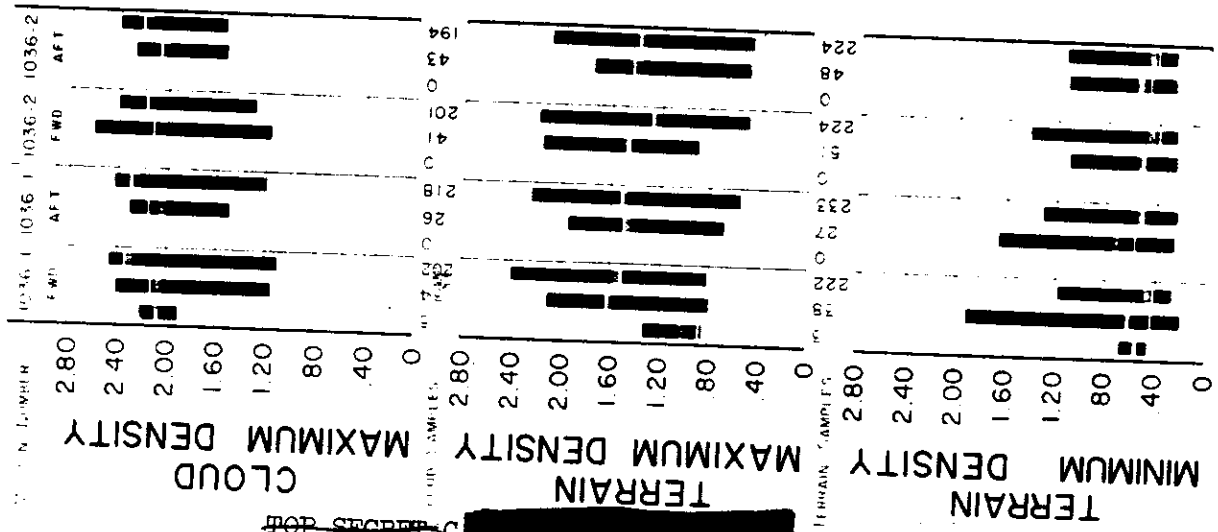
The tabulations of density frequency distributions for Missions 1036-1 and 1036-2 are included in Appendix A, Table A-1 thru A-4. The graphical presentation of the density distribution are computer plotted in Appendix A, Figures A-1 thru A-39.

A summary of the processing and exposure analysis is shown in Table 9-1. The terrain D-Min criteria, (range) for proper exposure and processing is 0.40 to 0.90 density units. The area measured for D-Min is selected subjectively and is not necessarily the absolute D-Min in the photography.

A density range chart Figure 9-1 is included in this report. This type of chart for Missions 1004 to 1031 is included in the A/P final report for Mission 1031.

These charts are produced from the same density measurements previously mentioned in this section. The computer produced the mean, median and range figures for the various processing levels used. The chart includes the number of frames (samples) in which the density measurements were made. These measurements are made on approximately every tenth frame throughout the mission.

J MISSION DENSITY RANGES



LEGEND
 PRIMARY
 INTERMEDIATE
 FULL
 MEDIAN
 MEAN

FIGURE 9-1

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C/ [REDACTED] -NO. [REDACTED]

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[REDACTED]

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CONTROL NO.

MISSION 1036-1 INSTR - FRWD 11/28/66 PROCESSING AND EXPOSURE ANALYSIS

PROCESS LEVEL	SAMPLE SIZE	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	3	0 PC	0 PC	100 PC	0 PC	0 PC
INTERMEDIATE	38	5 PC	34 PC	39 PC	13 PC	8 PC
FULL	222	38 PC	0 PC	61 PC	0 PC	0 PC
ALL LEVELS	263	33 PC	5 PC	59 PC	2 PC	1 PC

MISSION 1036-1 INSTR - AFT 11/28/66 PROCESSING AND EXPOSURE ANALYSIS

PROCESS LEVEL	SAMPLE SIZE	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	0	0 PC	0 PC	0 PC	0 PC	0 PC
INTERMEDIATE	27	0 PC	19 PC	52 PC	26 PC	4 PC
FULL	233	14 PC	0 PC	83 PC	3 PC	0 PC
ALL LEVELS	260	12 PC	2 PC	80 PC	5 PC	0 PC

MISSION 1036-2 INSTR - FRWD 11/28/66 PROCESSING AND EXPOSURE ANALYSIS

PROCESS LEVEL	SAMPLE SIZE	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	0	0 PC	0 PC	0 PC	0 PC	0 PC
INTERMEDIATE	51	0 PC	33 PC	61 PC	6 PC	0 PC
FULL	224	46 PC	0 PC	51 PC	3 PC	0 PC
ALL LEVELS	275	38 PC	6 PC	53 PC	3 PC	0 PC

MISSION 1036-2 INSTR - AFT 11/28/66 PROCESSING AND EXPOSURE ANALYSIS

PROCESS LEVEL	SAMPLE SIZE	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	0	0 PC	0 PC	0 PC	0 PC	0 PC
INTERMEDIATE	48	0 PC	25 PC	65 PC	10 PC	0 PC
FULL	224	34 PC	0 PC	63 PC	2 PC	0 PC
ALL LEVELS	272	28 PC	4 PC	64 PC	4 PC	0 PC

PROCESS LEVEL	BASE + FOG	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	0.01-0.09	0.01-0.13	0.14-0.39	0.40-0.90	-----	0.91 AND UP
INTERMEDIATE	0.10-0.17	0.01-0.20	0.21-0.39	0.40-0.90	0.91-1.34	1.35 AND UP
FULL	0.18 AND UP	0.01-0.39	-----	0.40-0.90	0.91-1.69	1.70 AND UP

TOP SECRET

CONTROL NO.

SECTION 10

PERFORMANCE MEASUREMENTS

The photography acquired by both panoramic cameras during Missions 1036-1 and 1036-2 received a MIP rating of 85. A summary is tabulated below of the MIF/AIM resolution values measured by AFSPPF and reported in cycles/mm. The microdensitometer slit used was 1 micron by 80 microns.

<u>Mission</u>	<u>Camera</u>	<u>Cycles/mm</u>	<u>Avg.</u>	<u>Ground Resolution</u>
1036-1	FWD	89		
			81	15.4'
1036-2	FWD	73		
1036-1	AFT	94		
			89	13.9'
1036-2	AFT	84		

The details of the measurement and computing techniques, targets measured and target locations are fully reported in the evaluation report published by AFSPPF and are not included in this report. These values were determined by using the "Interim MIF/AIM Program" technique.

SECTION 11

MISSION 1036-1 STELLAR-INDEX CAMERA

A. COMPONENT ASSIGNMENT

<u>Component</u>	<u>Serial Number</u>
Camera	D-89
Index Reseau	110
Stellar Reseau	111

B. CAMERA DATA AND FLIGHT SETTINGS

Stellar Camera:

Lens	85 mm f/1.8
Exposure Time	2 seconds
Filter Type	None
Film Type	Eastman Type 3401

Index Camera:

Lens	38 mm f/4.5
Exposure Time	1/500 second
Filter Type	Wratten 21
Film Type	Eastman Type 3400

C. POST FLIGHT EVALUATION

The Stellar/Index film recovered consisted of 415 frames of photography from each film path of S/I D-89-110-111. Stellar frames 4, 7, 9, and 93 contained minus density streaks termed jettisoned fuel particles in previous reports. Stellar images are present in all frames of photography. Approximately 10 star images appear in each frame at the beginning of Mission 1036-1 and gradually increase in number until approximately 20 stars are present at the end of Mission 1036-1. Most stellar images appear as points rather than the odd shaped marks observed on most previous missions. Point imagery is attributed to a chance condition of the Master and Slave camera being dynamically balanced during the stellar shutter open time of 2 seconds.

The base plus fog level of the stellar film was unusually high at an average value of 0.54. The Normal base plus fog level from previous missions is approximately 0.2. The unusually high base plus fog level caused the loss of all reseau imagery. The uniform high fog level is attributed to viscous processing used for the first time to develop stellar photography one stop more than the usual "Full" level. Normally full processed type 3401 stellar film has an E.I. of approximately 64. One additional stop of processing would produce an E.I. of approximately 128. Processing was reported in control. The film manufacturer has postulated that something in the flight environment (possibly temperature) has caused the stellar film to be sensitive to viscous processor chemical fogging. Future corrective action will consist of a reduction in viscous processing by approximately one stop in order to reduce the base plus fog level to an acceptable level. The type 3401 film in the radiation pack that flew in SRV #1 was not fogged and has a normal base plus fog level of 0.15. The radiation film pack was processed by A/P. In flight temperatures of Mission 1036 were in control and comparable to recent previous missions.

The index camera reseau edge was imaged on a small portion of terrain imagery in each corner of index photography. Degradation of terrain imagery was small. Insufficient masking of the index camera reseau plate was attributed as the cause of reseau edge exposure. Reseau masking procedures at Boston will be investigated and corrective action taken to prevent recurrence of this problem in the future.

SECTION 12

MISSION 1036-2 STELLAR-INDEX CAMERA

A. COMPONENT ASSIGNMENT

<u>Component</u>	<u>Serial Number</u>
Camera	D-88
Index Réseau	108
Stellar Réseau	106

B. CAMERA DATA AND FLIGHT SETTINGS

Stellar Camera:

Lens	85 mm f/1.8
Exposure Time	1 second
Filter Type	None
Film Type	Eastman Type 3401

Index Camera:

Lens	38 mm f/4.5
Exposure Time	1/500 second
Filter Type	Wratten 21
Film Type	Eastman Type 3400

C. POST FLIGHT EVALUATION

S/I #D-88/108/106 operated normally throughout Mission 1036-2. The stellar and index cameras each produced 432 frames of photography. Stellar film base plus fog level was abnormally high at an average level of 0.60. For discussion of high stellar base plus fog see Section 12C, Paragraph 2.

Approximately 12 stars were recorded in each frame of stellar photography. Baffle flare fog was low.

Continuous plus density marking occurred near the ends of stellar records 1036-1 and 1036-2. This type marking has been observed on previous missions and is attributed to static discharging. Static fog marks occurred outside the active format.

SECTION 13

VEHICLE ATTITUDE

The vehicle attitude errors for both Mission 1036-1 and 1036-2 were derived from the reduction of the Stellar camera photography. This attitude data is supplied to A/P by NPIC.

The attitude errors for each frame and the attitude control rates are calculated at the A/P computer facility. The computer also plots the frequency distribution of the rates and errors. Figures 13-1 through 13-6 show these distributions for Mission 1036-1 and Figures 13-7 through 13-12 for Mission 1036-2.

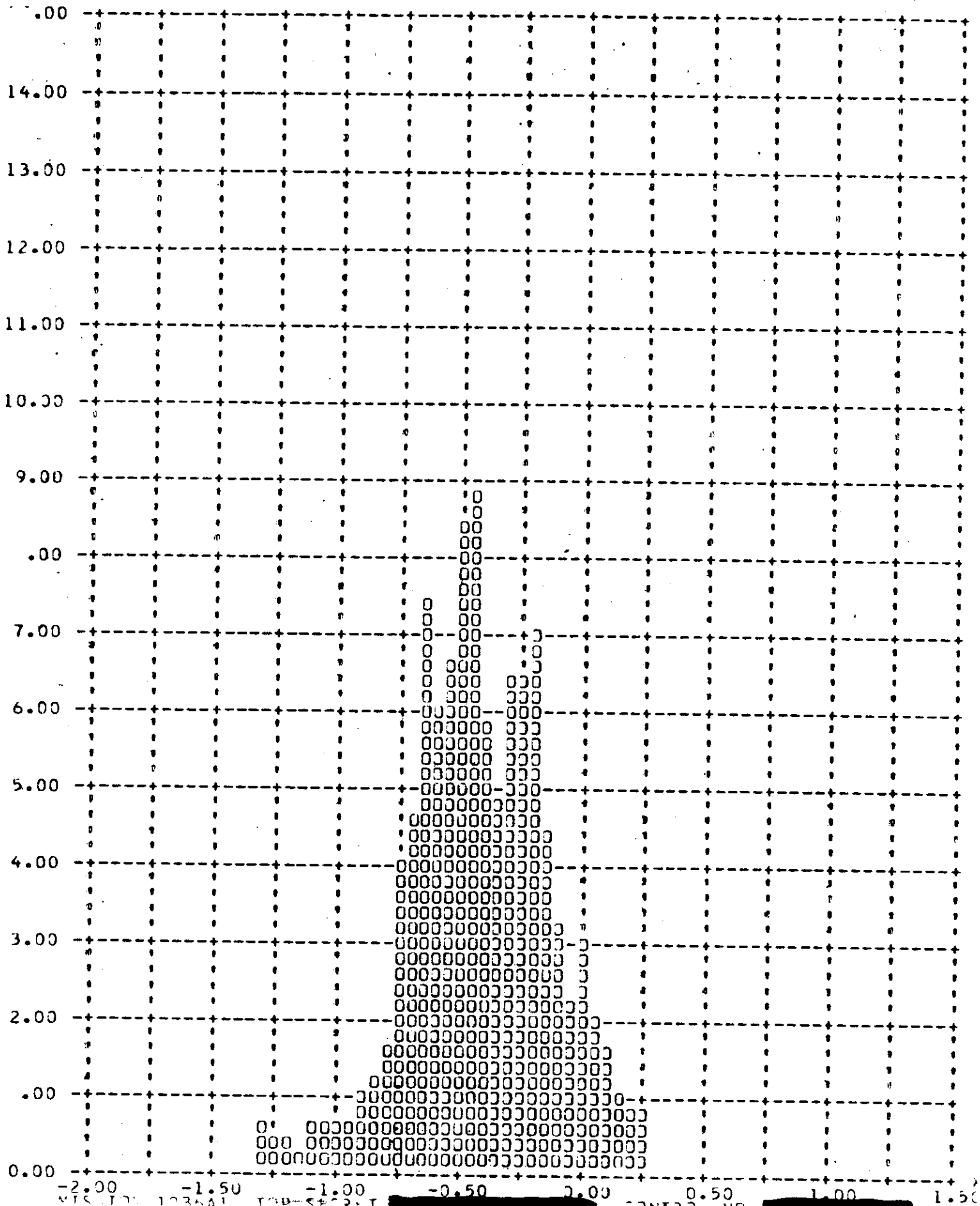
The summary table below lists the maximum attitude errors and rates that were experienced during 90% of the FWD camera photographic operations, excluding the first six frames of each operation, and the total range of the errors and rates.

Value	Mission 1036-1		Mission 1036-2	
	90%	Range	90%	Range
Pitch Error ($^{\circ}$)	0.76	-1.30 to +0.25	0.94	-1.40 to +0.35
Roll Error ($^{\circ}$)	0.96	+0.22 to +1.32	0.70	-0.12 to +0.98
Yaw Error ($^{\circ}$)	0.60	-0.85 to +0.65	0.40	-0.58 to +0.74
Pitch Rate ($^{\circ}$ /hr.)	31.20	-54 to +64	33.00	-72 to +52
Roll Rate ($^{\circ}$ /hr.)	25.59	-80 to +95	29.72	-85 to +55
Yaw Rate ($^{\circ}$ /hr.)	29.51	-70 to +58	23.33	-50 to +80

The performance of the attitude control system is comparable to the control systems used on recent missions. The panoramic photography was not degraded by the attitude control system.

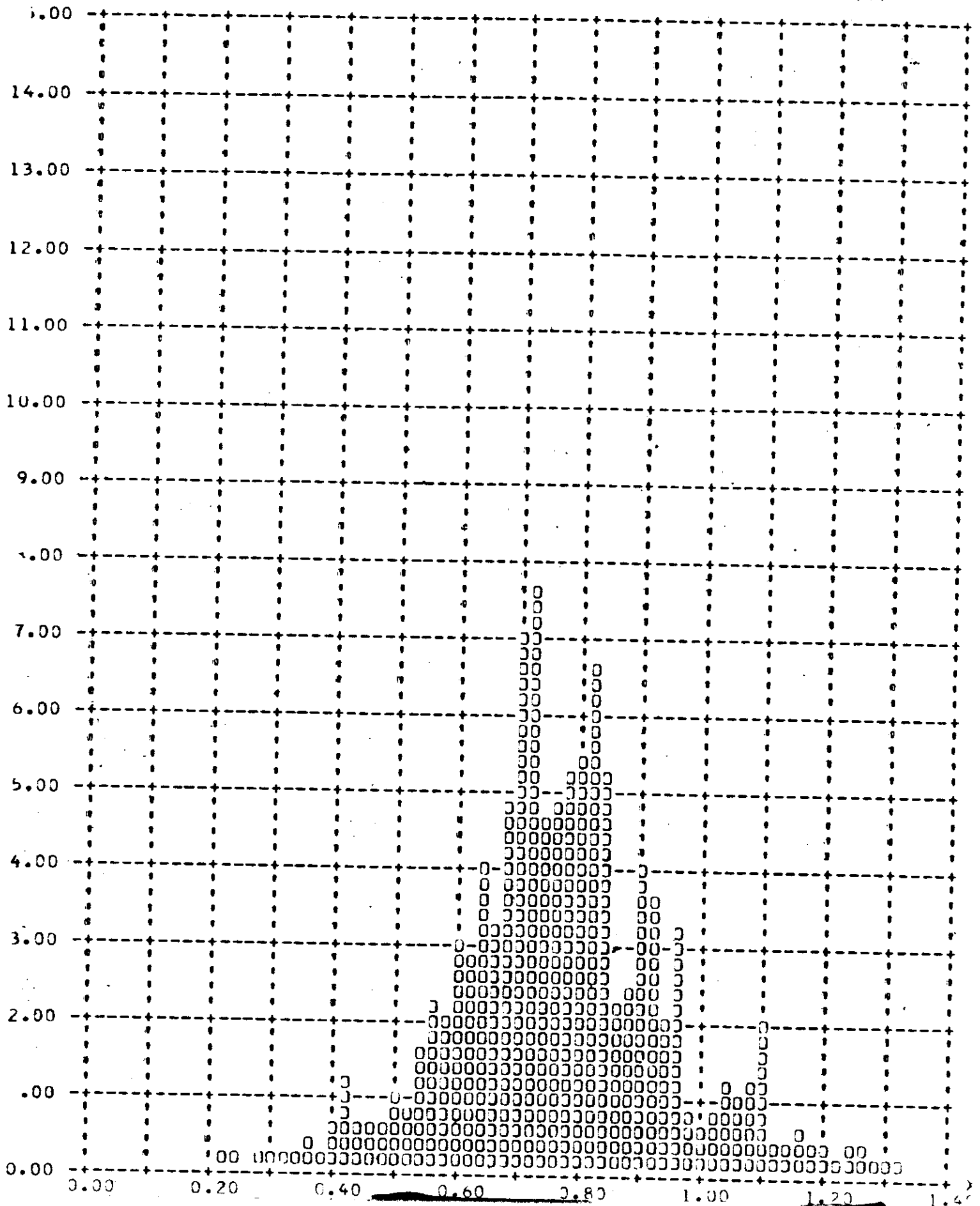
FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 0.75

Y PITCH ANGLE ERROR - DEGREES (X) VERSUS FREQUENCY - PERCENT (Y)



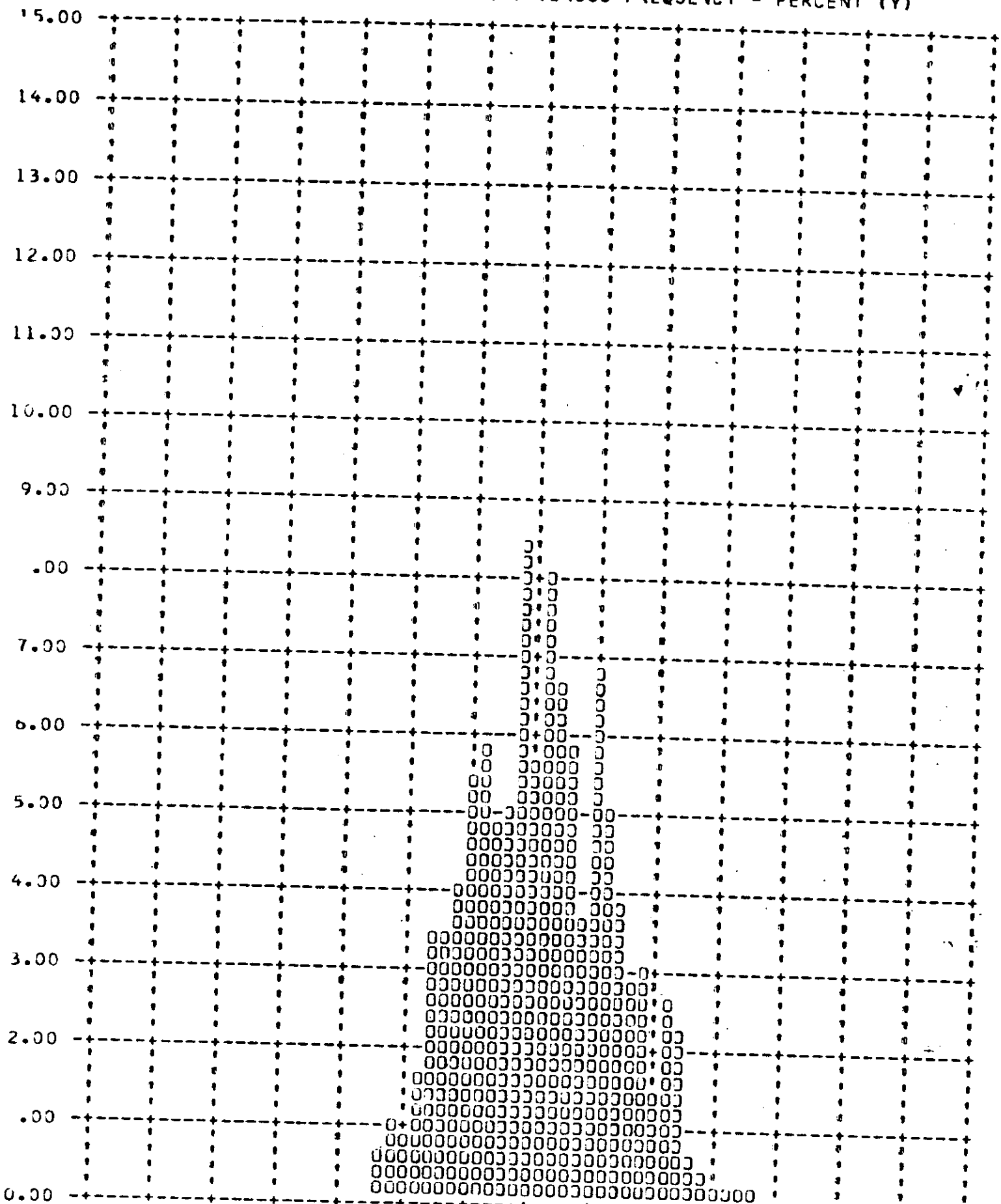
FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 0.96

Y ROLL ANGLE ERROR - DEGREES (X) VERSUS FREQUENCY - PERCENT (Y)



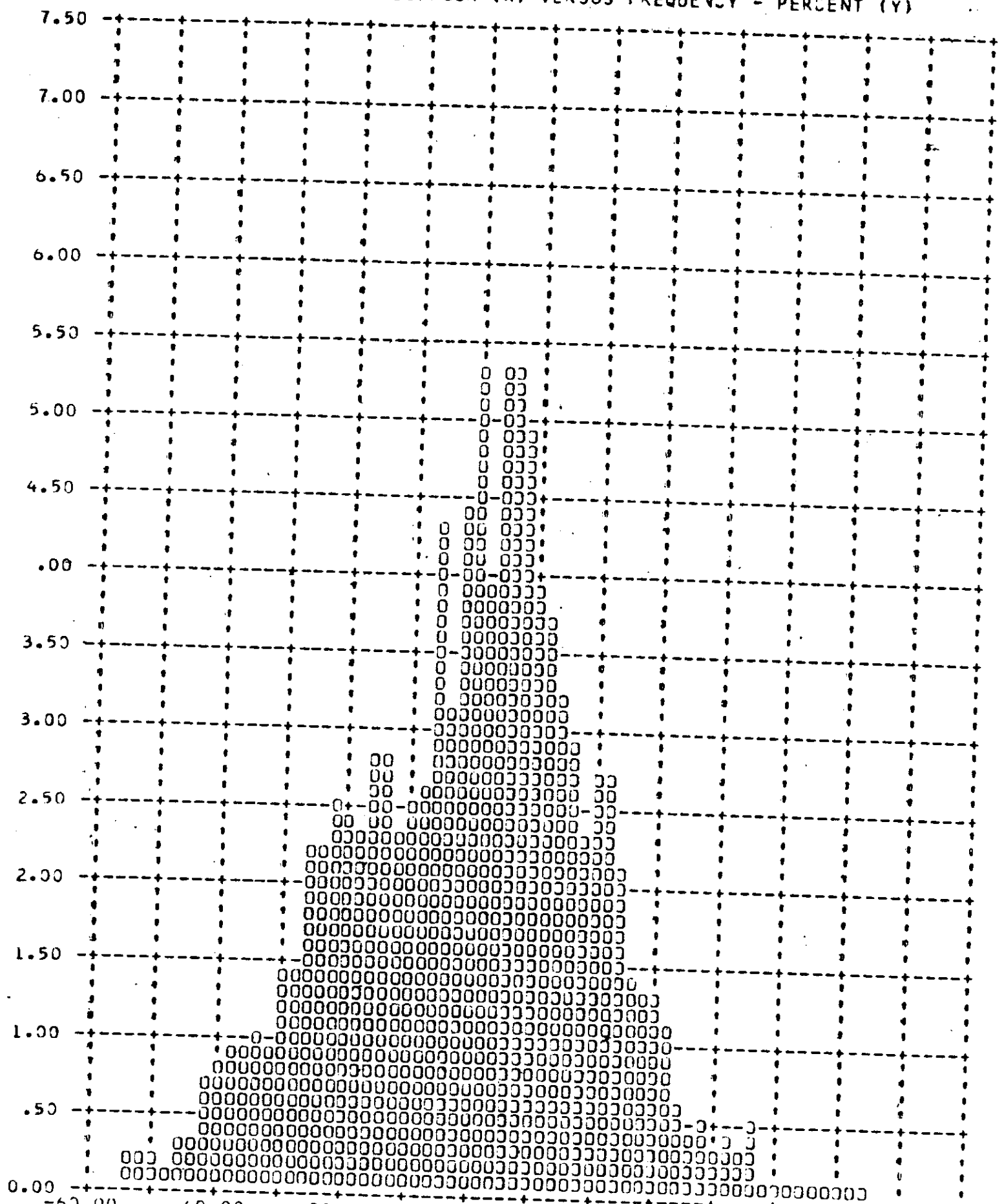
FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 0.60

Y YAW ANGLE ERROR - DEGREES (X) VERSUS FREQUENCY - PERCENT (Y)



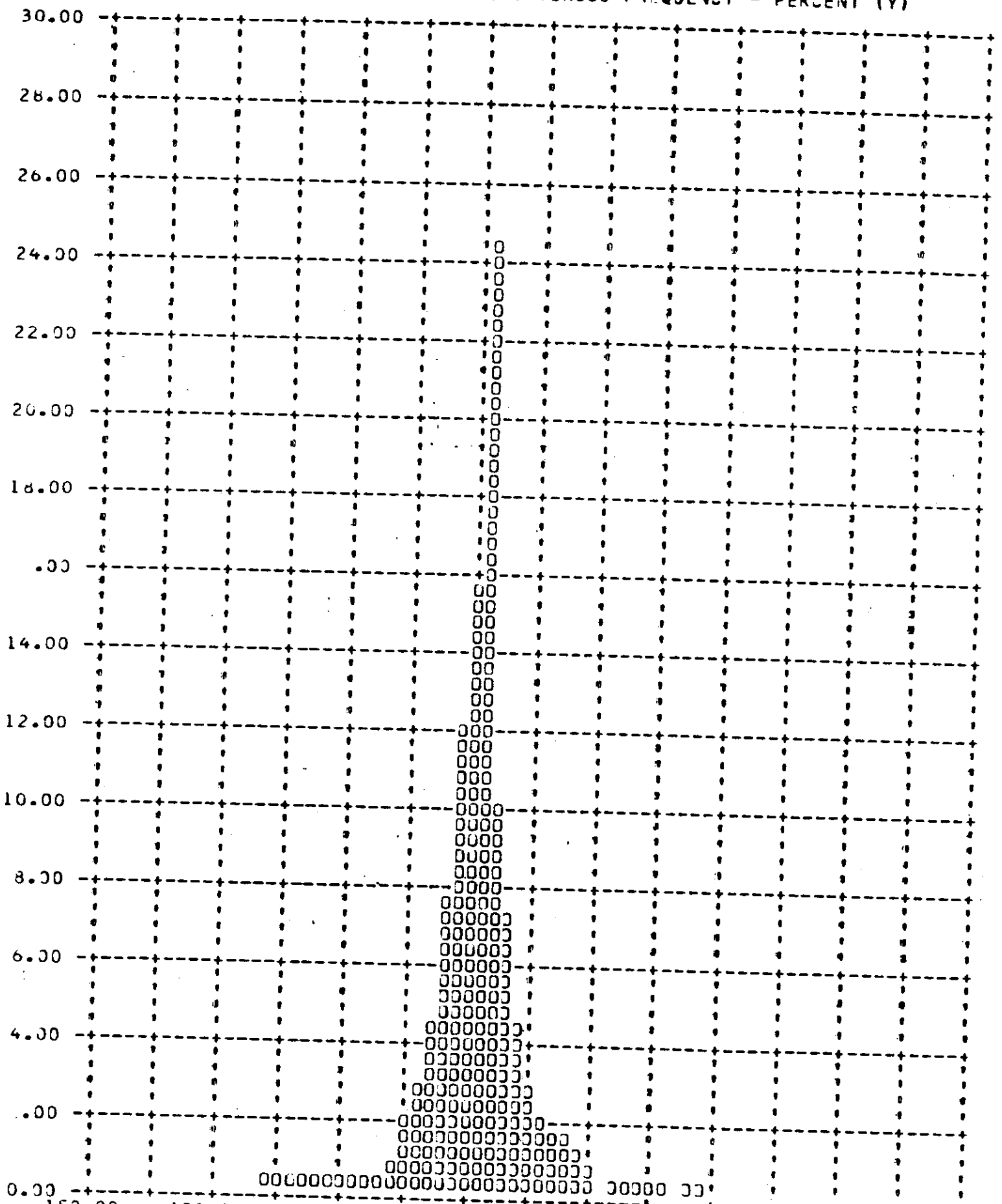
FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 31.20

Y PITCH RATE ERROR - DEG/HOUR (X) VERSUS FREQUENCY - PERCENT (Y)



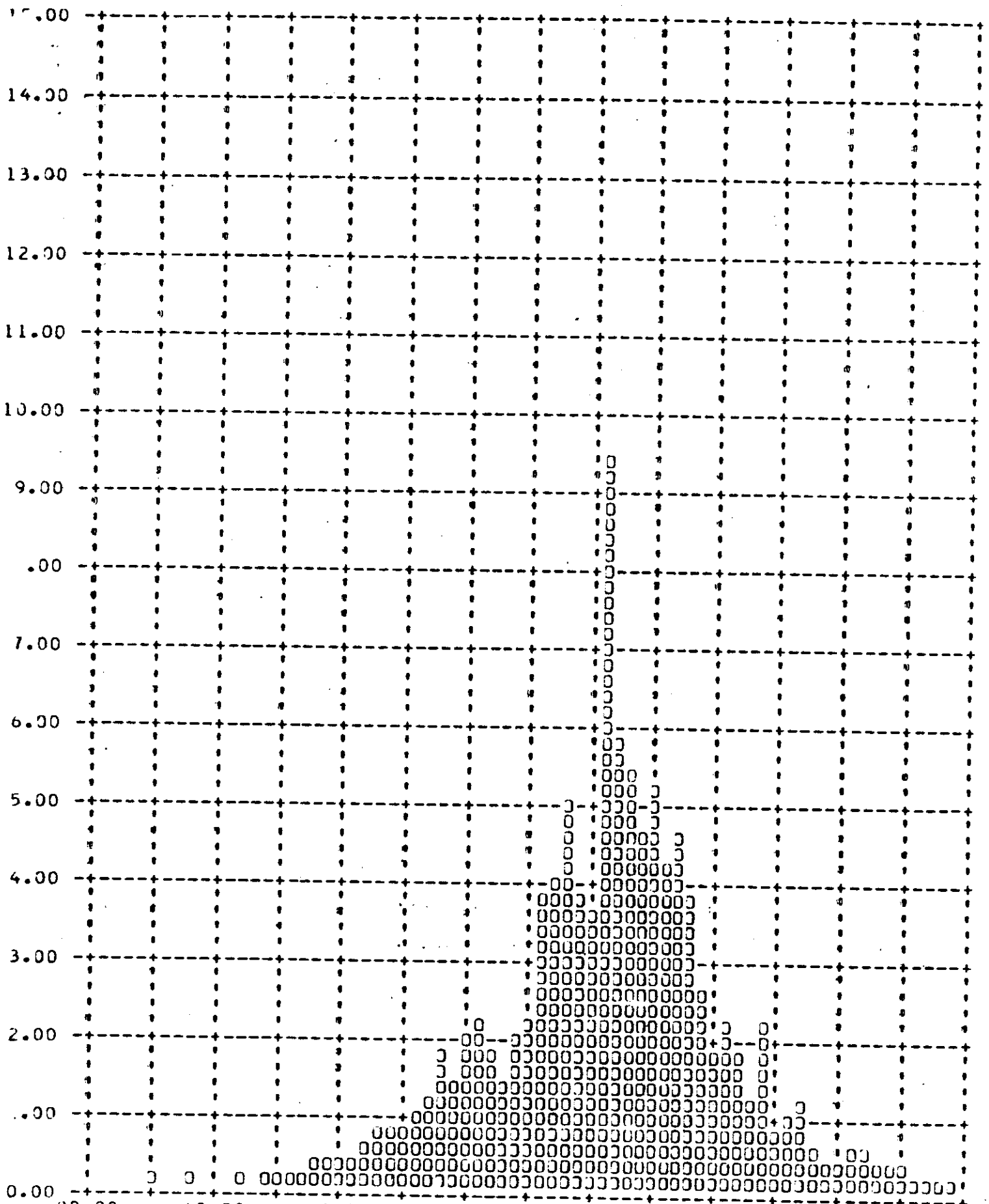
FRAMES 1-6 OF EACH DP OMITTED 90 PERCENT = 25.59

Y ROLL RATE ERROR - DEG/HOUR (X) VERSUS FREQUENCY - PERCENT (Y)



FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 29.51

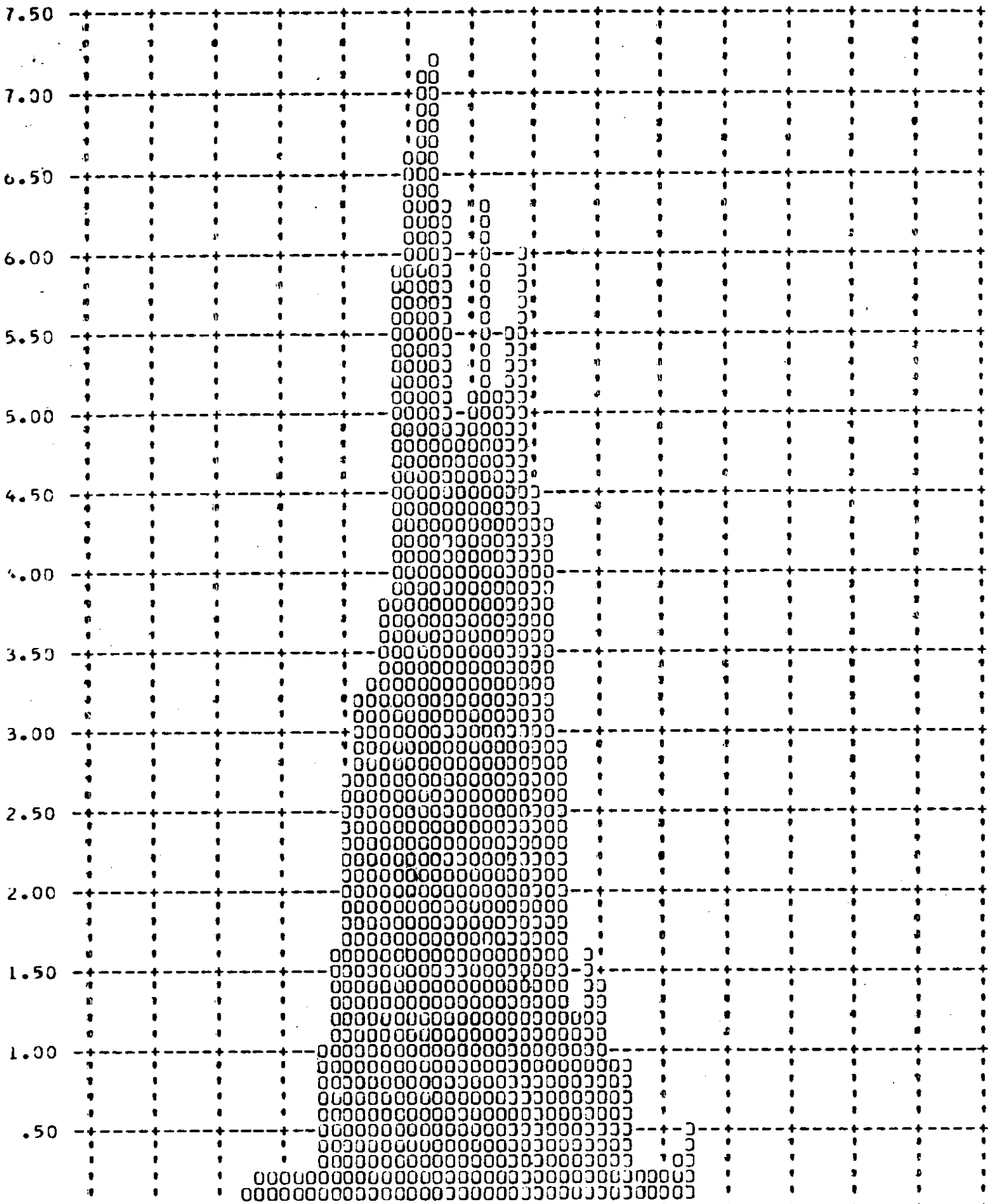
YAW RATE ERROR - DEG/HOUR (X) VERSUS FREQUENCY - PERCENT (Y)



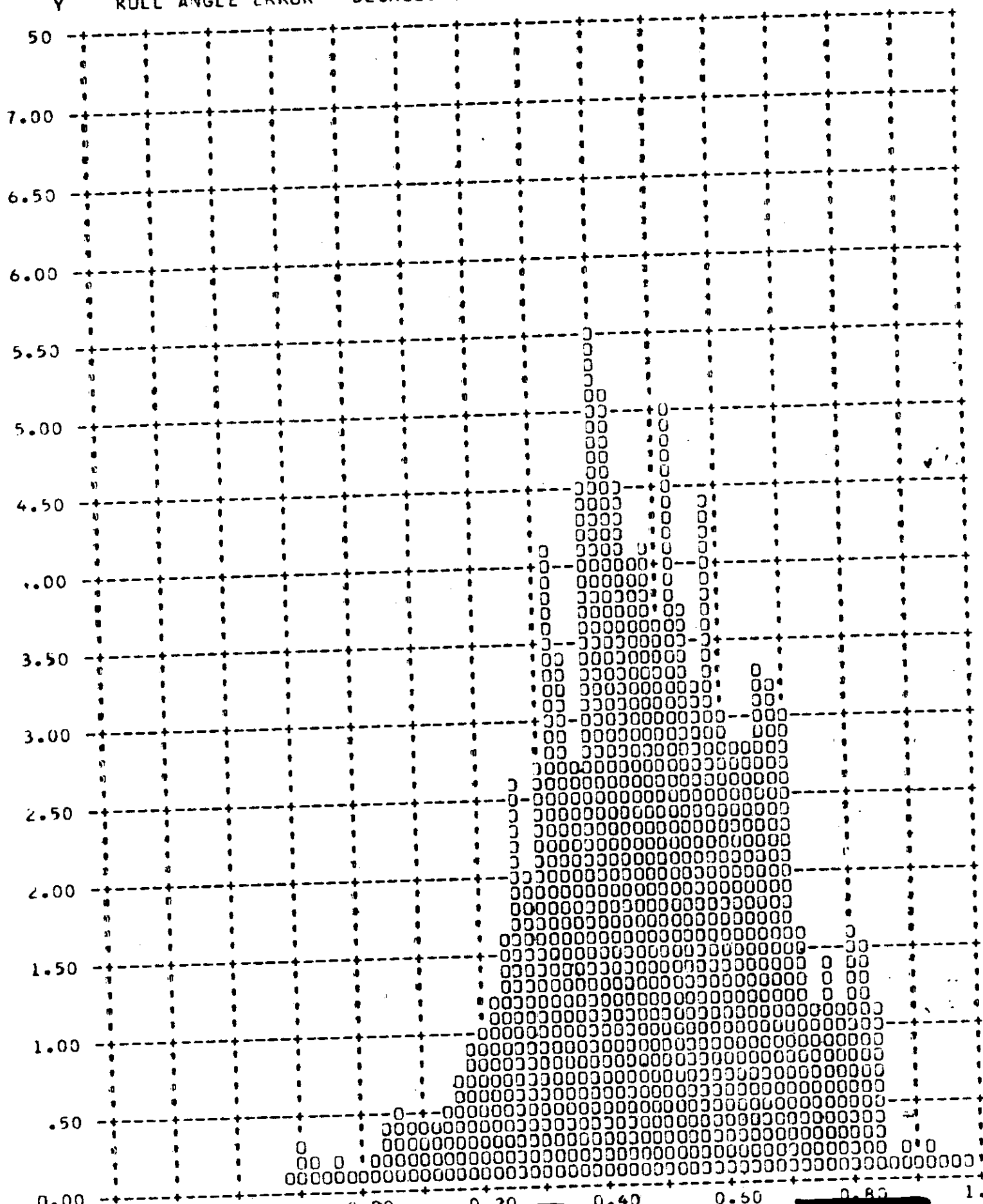
FRAMES 1-6 OF EACH DP OMITTED

90 PERCENT = 0.94

Y PITCH ANGLE ERROR - DEGREES (X) VERSUS FREQUENCY - PERCENT (Y)

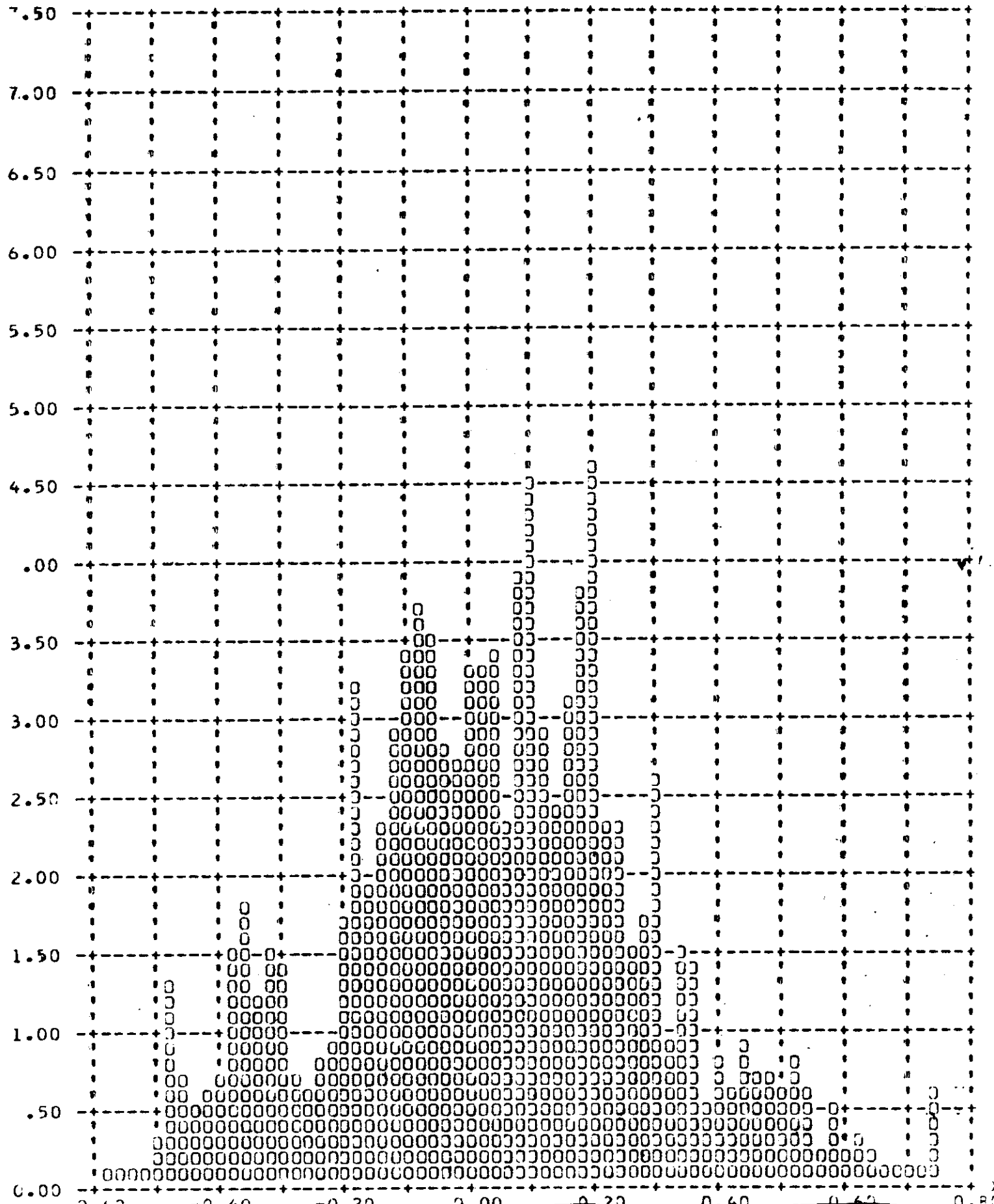


Y ROLL ANGLE ERROR - DEGREES (X) VERSUS FREQUENCY - PERCENT (Y)



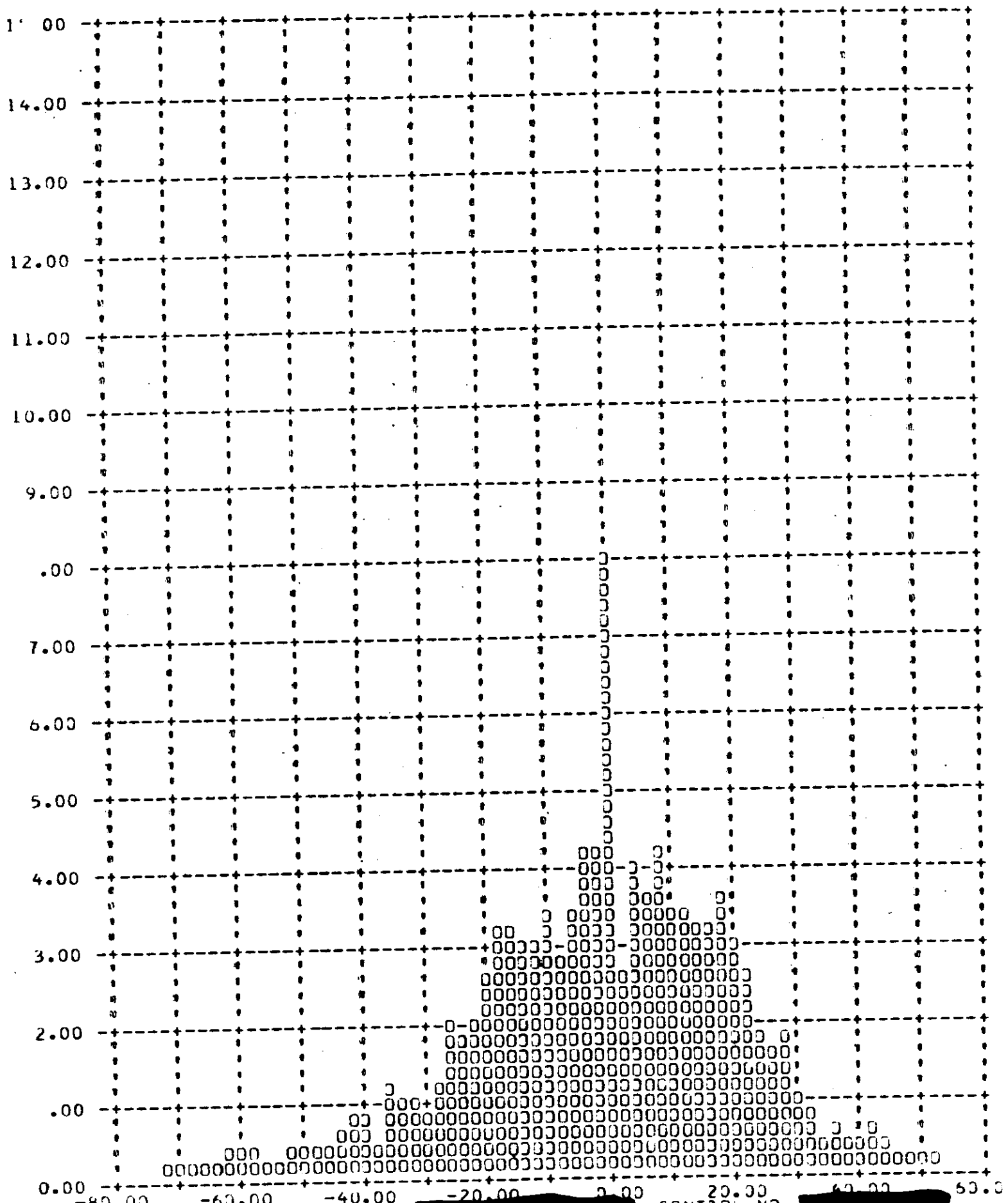
FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 0.40

Y YAW ANGLE ERROR - DEGREES (X) VERSUS FREQUENCY - PERCENT (Y)



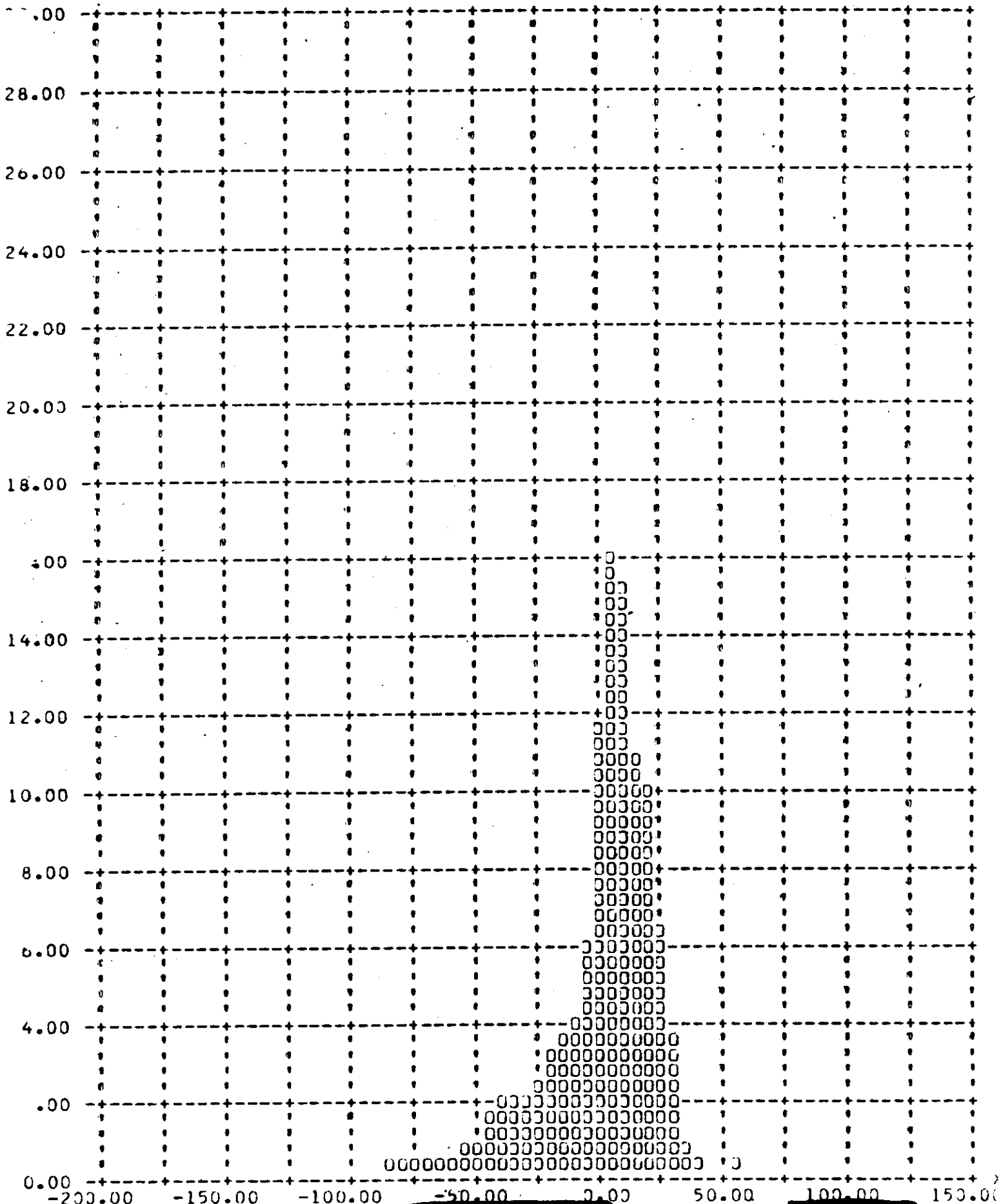
FRAMES 1-6 OF EACH DP OMITTED 90 PERCENT = 33.00

Y PITCH RATE ERROR - DEG/HOUR (X) VERSUS FREQUENCY - PERCENT (Y)

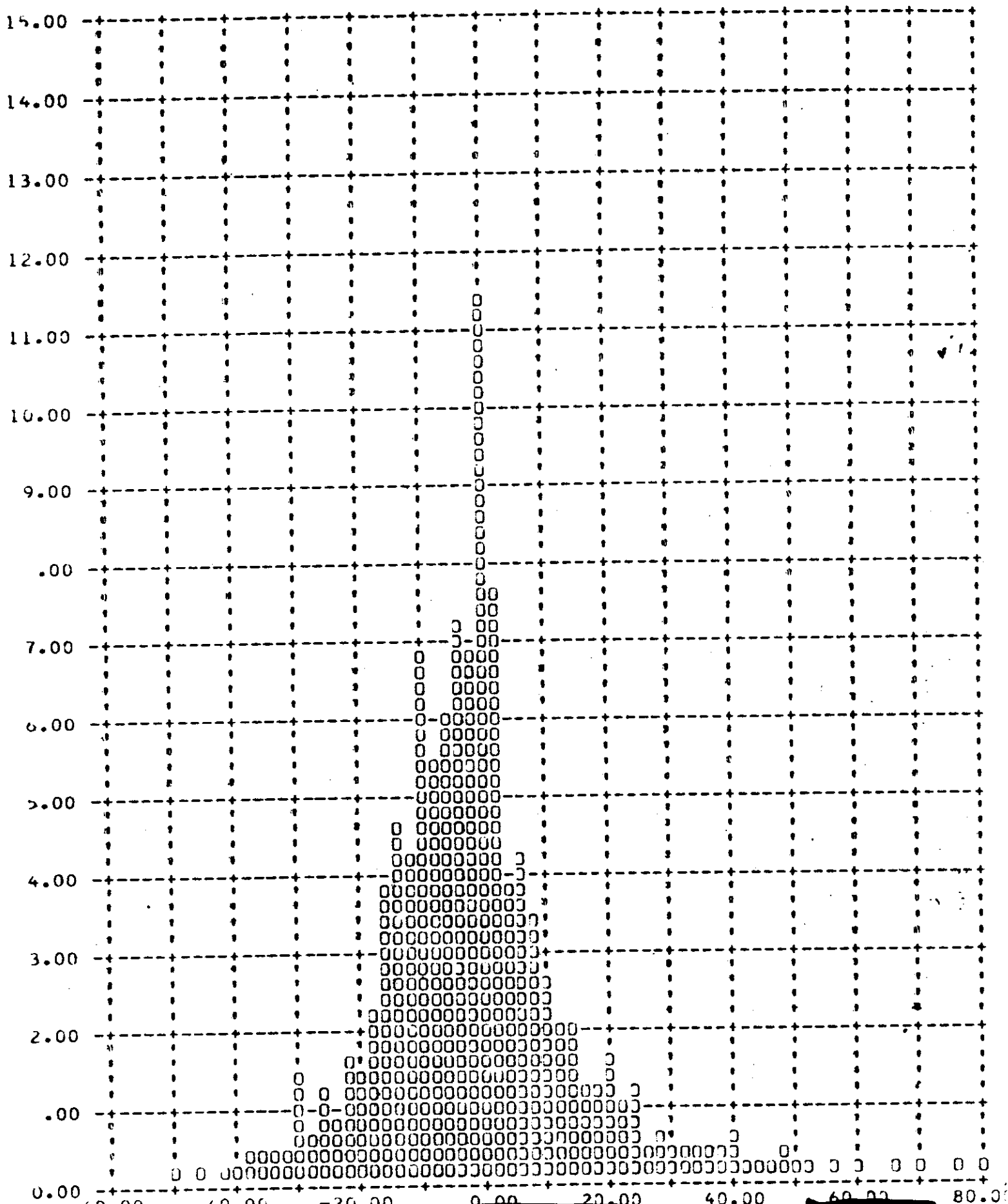


FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 29.72

Y RDLL RATE ERROR - DEG/HOUR (X) VERSUS FREQUENCY - PERCENT (Y)



Y YAW RATE ERROR - DEG/HOUR (X) VERSUS FREQUENCY - PERCENT (Y)



TOP SECRET
C/ [REDACTED] NO. [REDACTED]

SECTION 14

IMAGE SMEAR ANALYSIS

The frame correlation tape supplied to A/P by NFIC contains the binary time word of each frame of photography. A computer program has been assembled at A/P which calculates the exposure time of each frame and compares the camera cycle rate with the ephemeris to calculate the V/h mismatch. This data is combined with the vehicle attitude error and rate values of each frame and the crab error caused by earth rotation at the latitude of each frame. The program outputs the total along track and cross track IMC error and the limit of ground resolution that can be acquired by a camera regardless of focal length and system capabilities.

The computer rejects the first six frames of all operations as the large V/h error induced by camera start-up is not representative of the overall system operations. The frequency distribution of the V/h errors and resolution limits are computer plotted and are shown in Figures 14-1 through 14-12.

The summary table 14-1 presents the maximum V/h ratio errors and resolution limits that existed during 90% of the photographic operations and the total range of values during all operations that were computed.

TOP SECRET

NO.

MISSION 1036

V/h RATIO AND RESOLUTION LIMITS

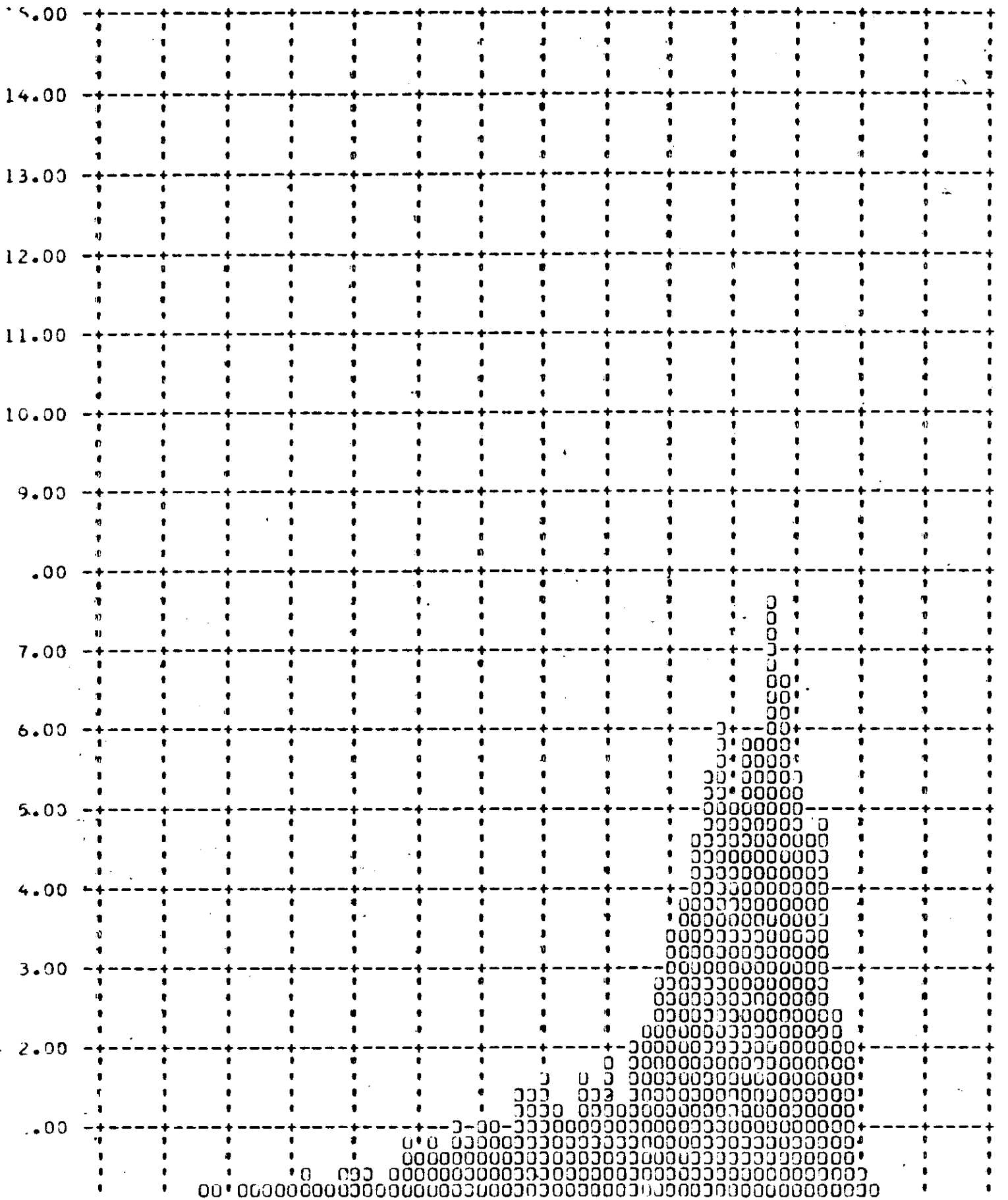
VALUE	UNITS	MISSION 1036-1		MISSION 1036-2	
		CAMERA	90% Range	90% Range	Range
V/h Ratio Error	%	FWD	3.44 -8.4 to +2.2	3.33	-10.4 to +1.4
		AFT	3.28 -7.6 to +2.0	3.05	-9.2 to +1.0
Along Track Resolution Limit	Feet	FWD	5.13 0.2 to 7.4	3.79	0.2 to 9.8
		AFT	3.62 0.2 to 5.4	2.65	0.2 to 6.0
Cross Track Resolution Limit	Feet	FWD	6.76 0.2 to 8.6	6.53	0.2 to 8.4
		AFT	5.10 0.2 to 6.4	4.91	0.2 to 6.2

TABLE 14-1

TOP SECRET

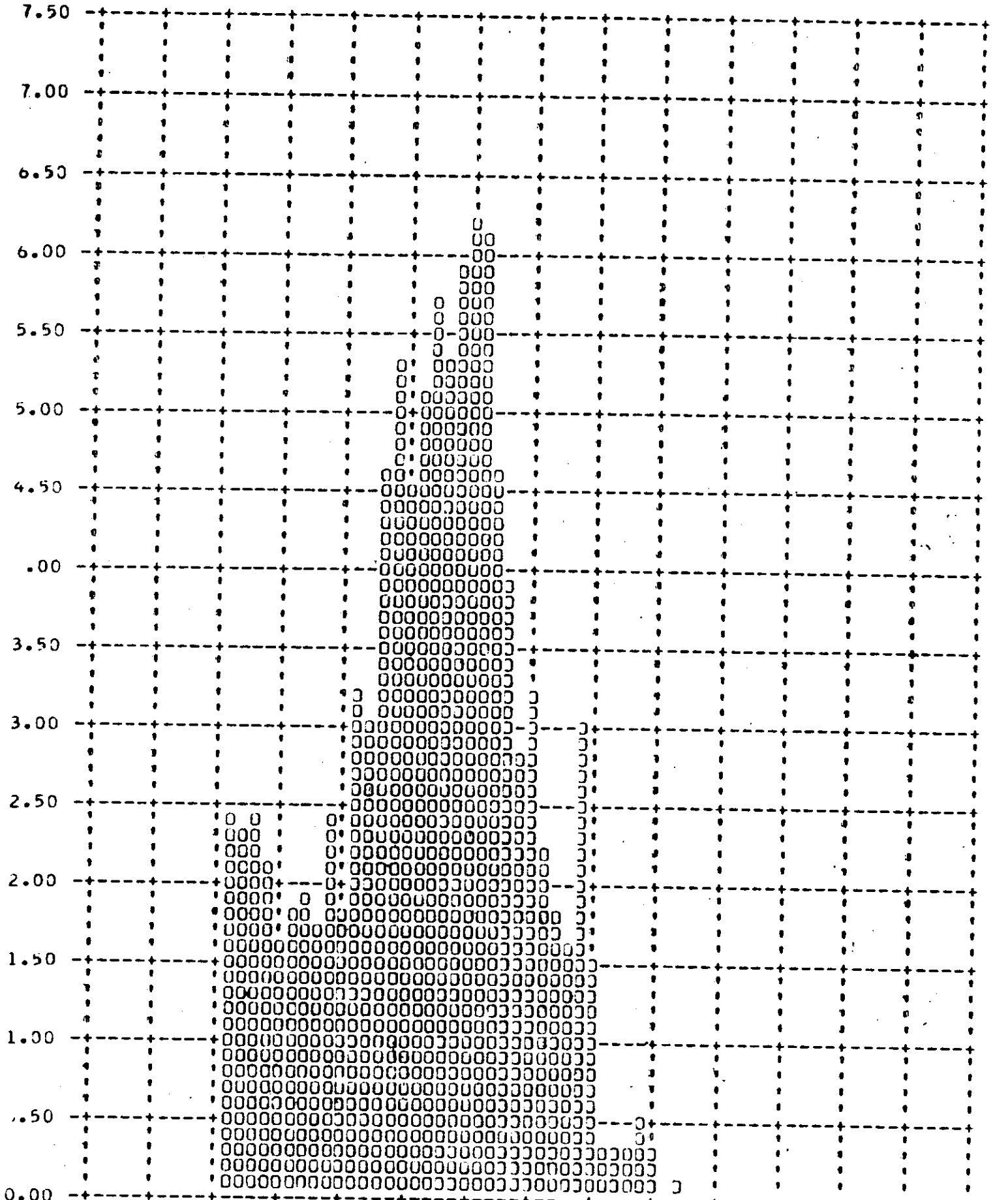
FRAMES 1-6 OF EACH DP OMITTED 90 PERCENT = 3.44

Y V/H RATIO ERROR - PERCENT (X) VERSUS FREQUENCY - PERCENT (Y)



FRAMES 1-6 OF EACH DP OMITTED 90 PERCENT = 5.13

Y ALONG TRACK RESOLUTION LIMIT - FEET (X) VERSUS FREQUENCY - PERCENT (Y)



Y CROSS TRACK RESOLUTION LIMIT - FEET (X) VERSUS FREQUENCY - PERCENT (Y)

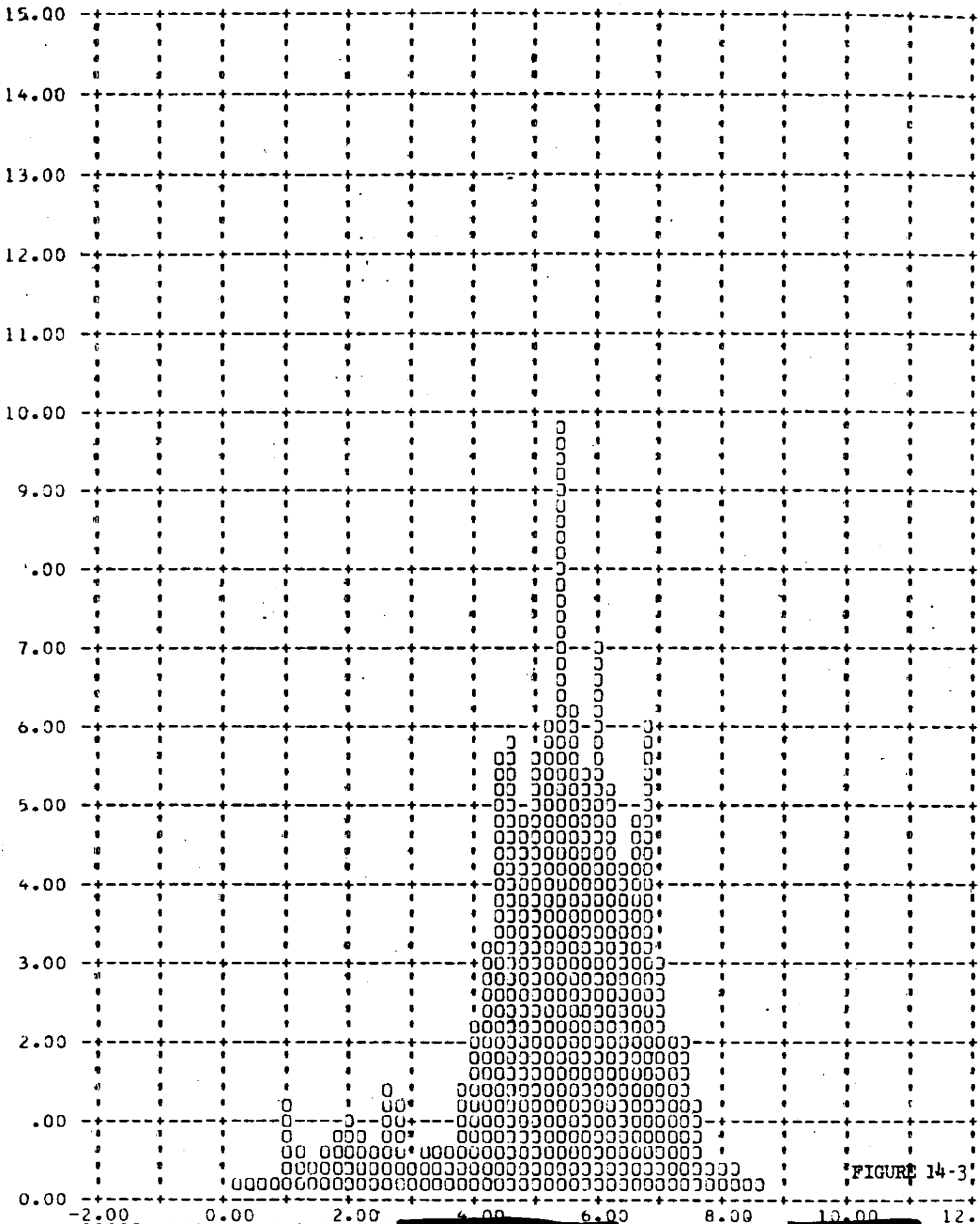
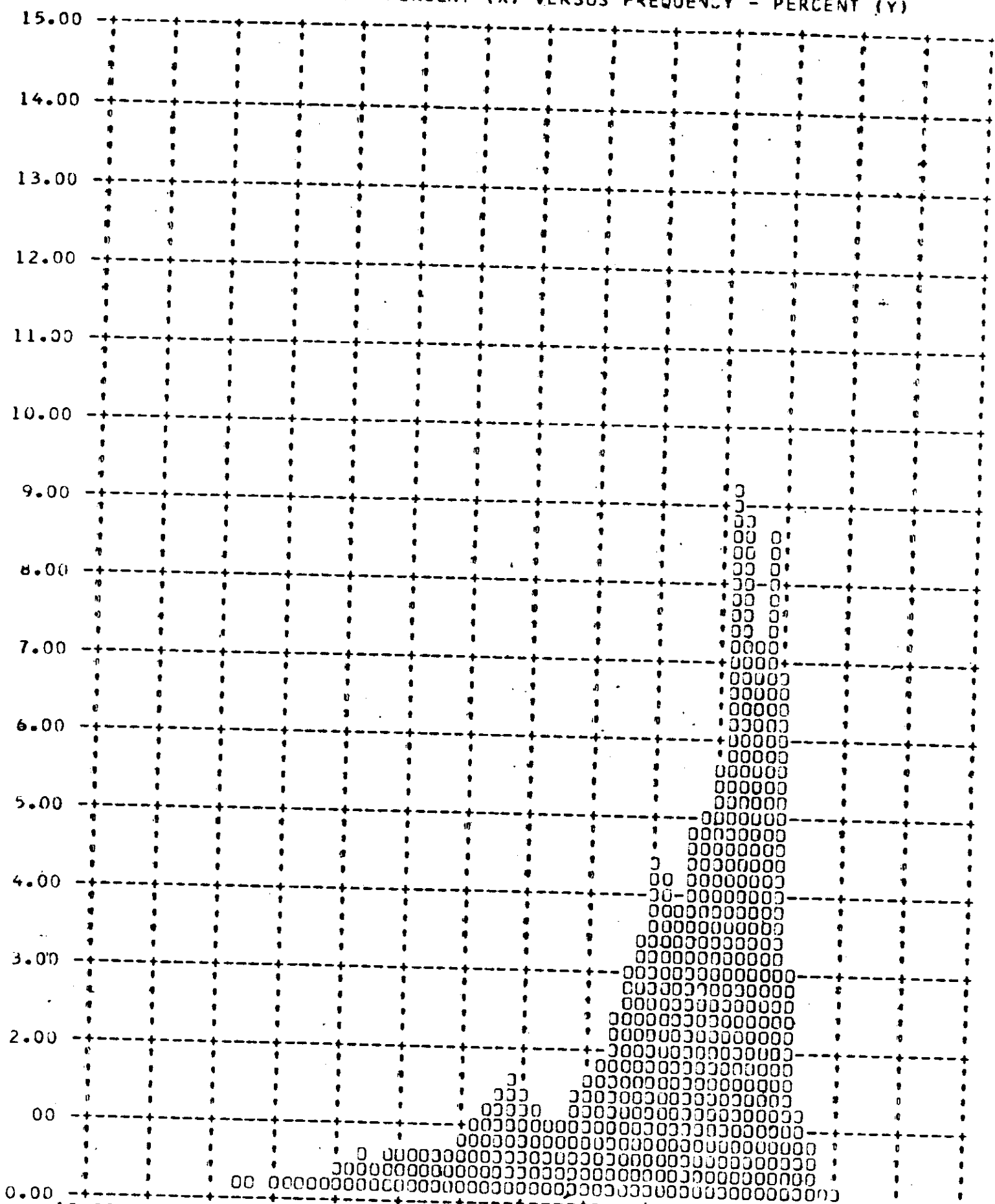


FIGURE 14-3

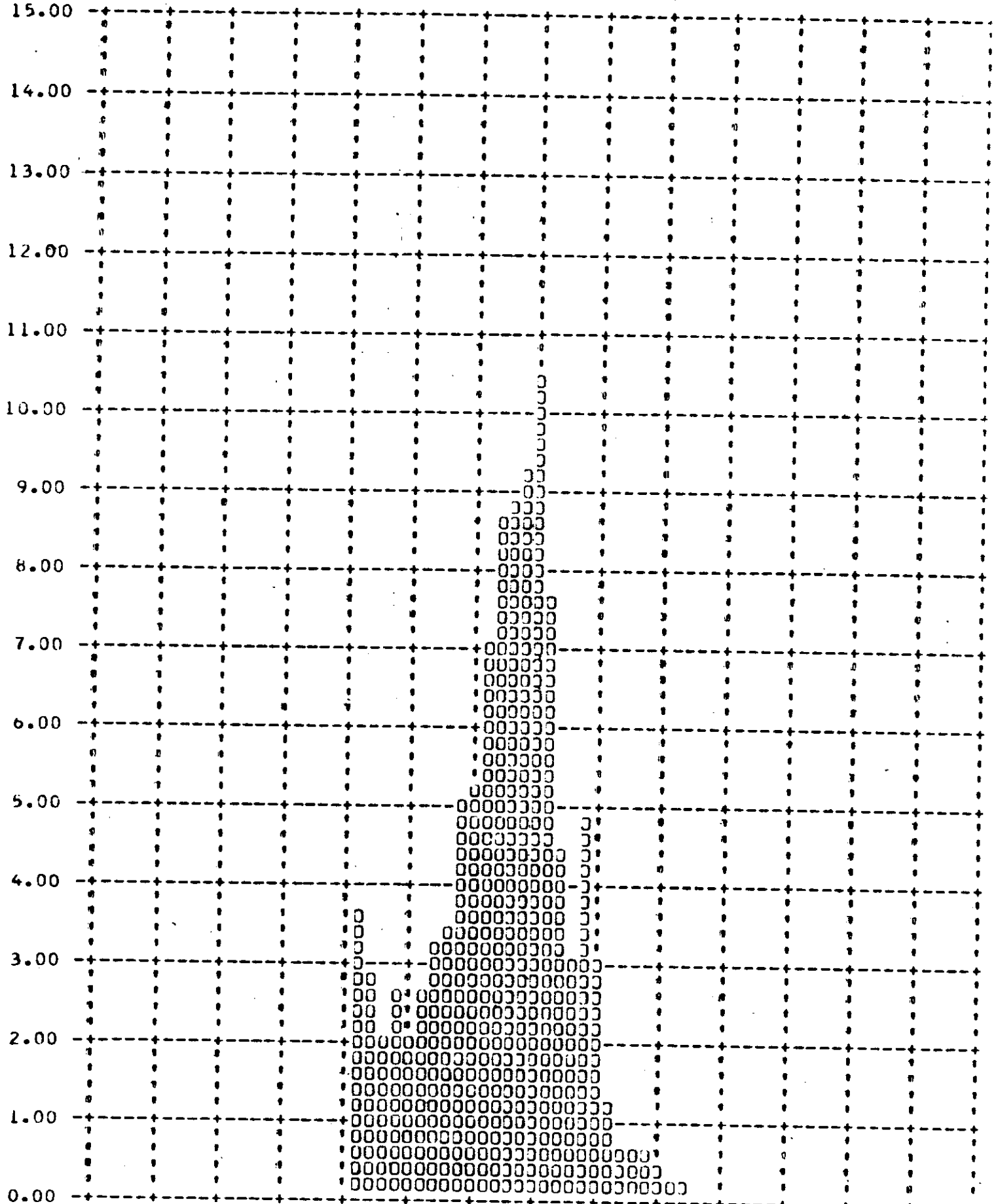
FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 3.0

Y V/H RATIO ERROR - PERCENT (X) VERSUS FREQUENCY - PERCENT (Y)



FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 3.0

Y ALONG TRACK RESOLUTION LIMIT - FEET (X) VERSUS FREQUENCY - PERCENT ()



FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 5.0

Y CROSS TRACK RESOLUTION LIMIT - FEET (X) VERSUS FREQUENCY - PERCENT (Y)

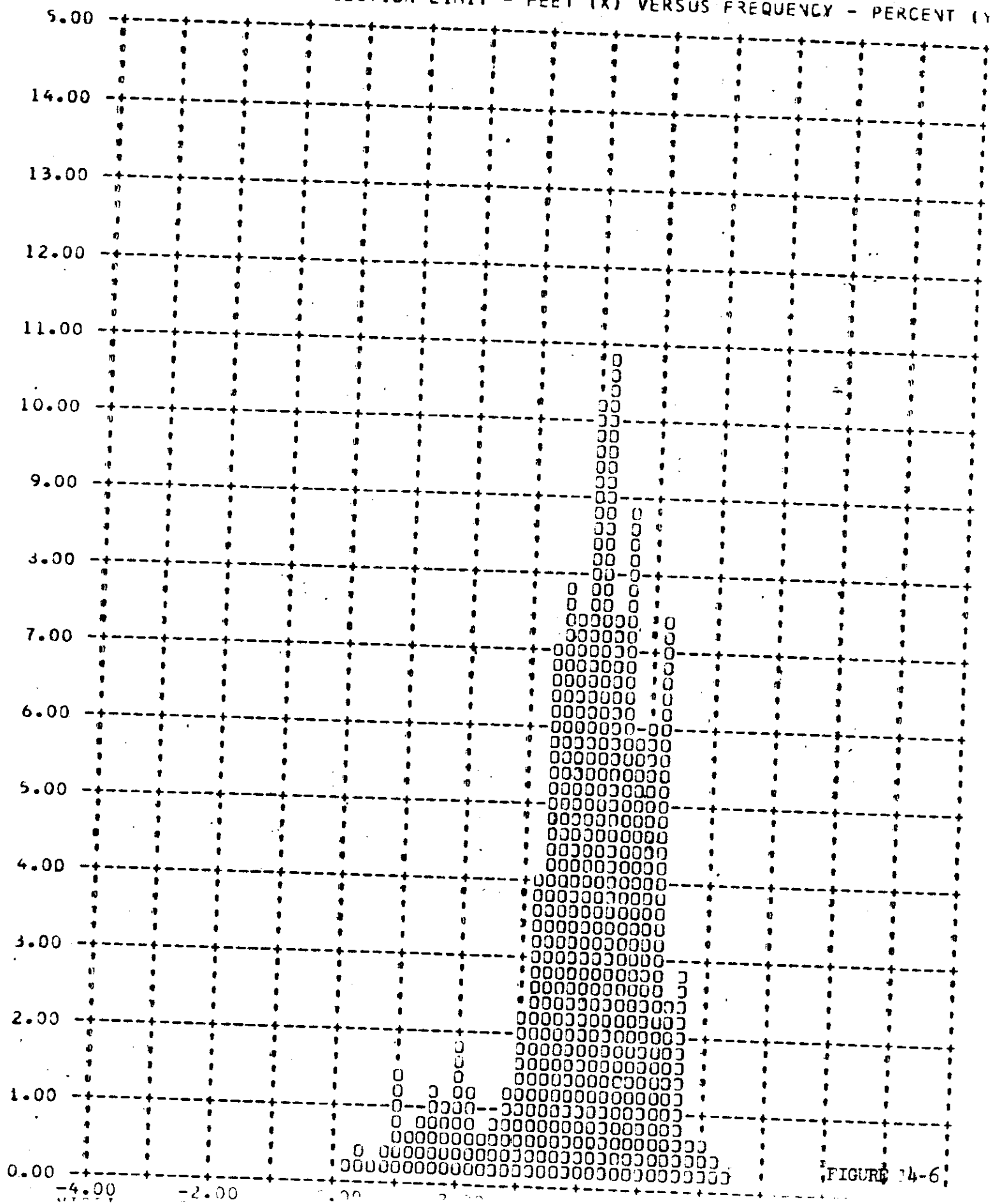
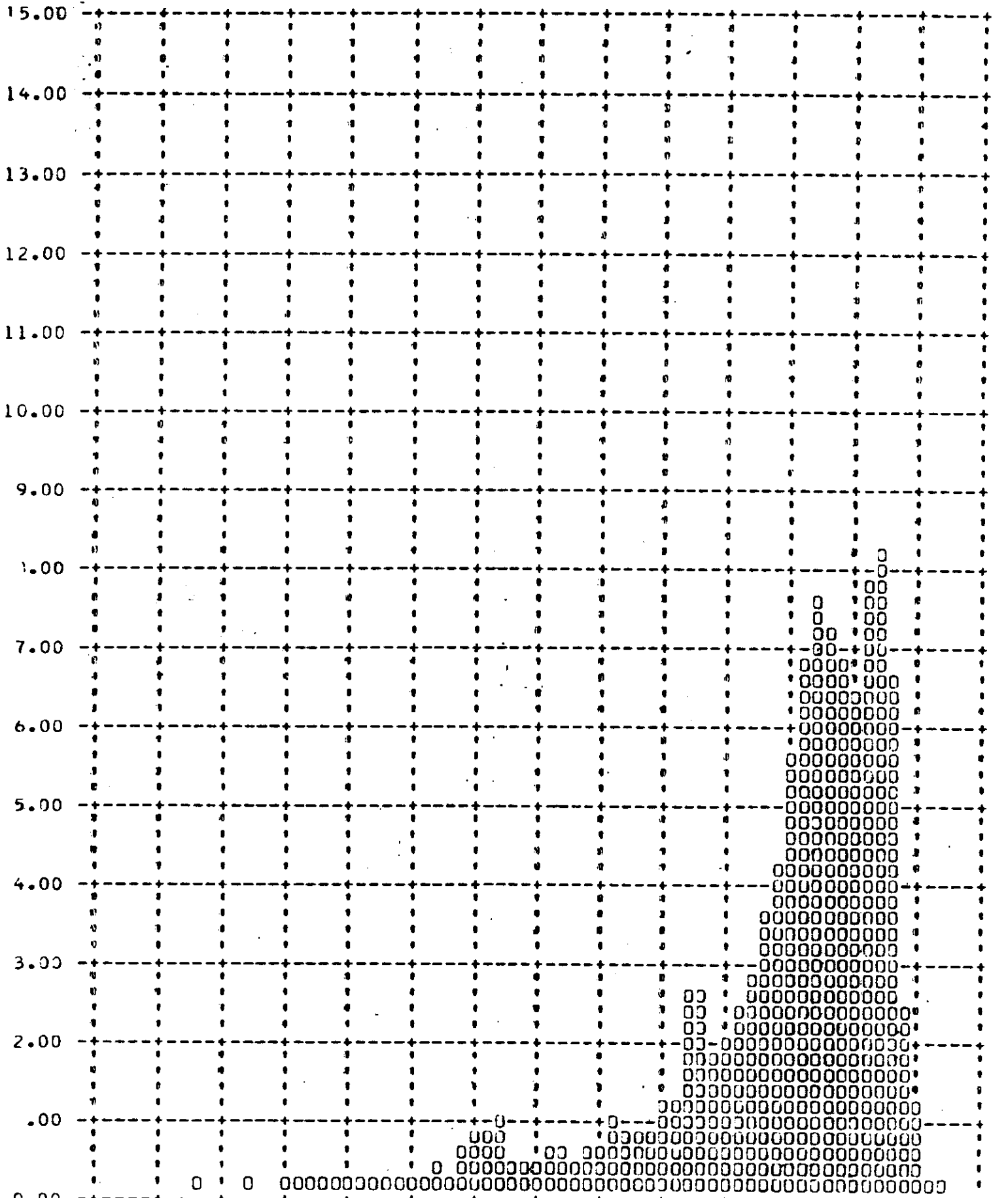


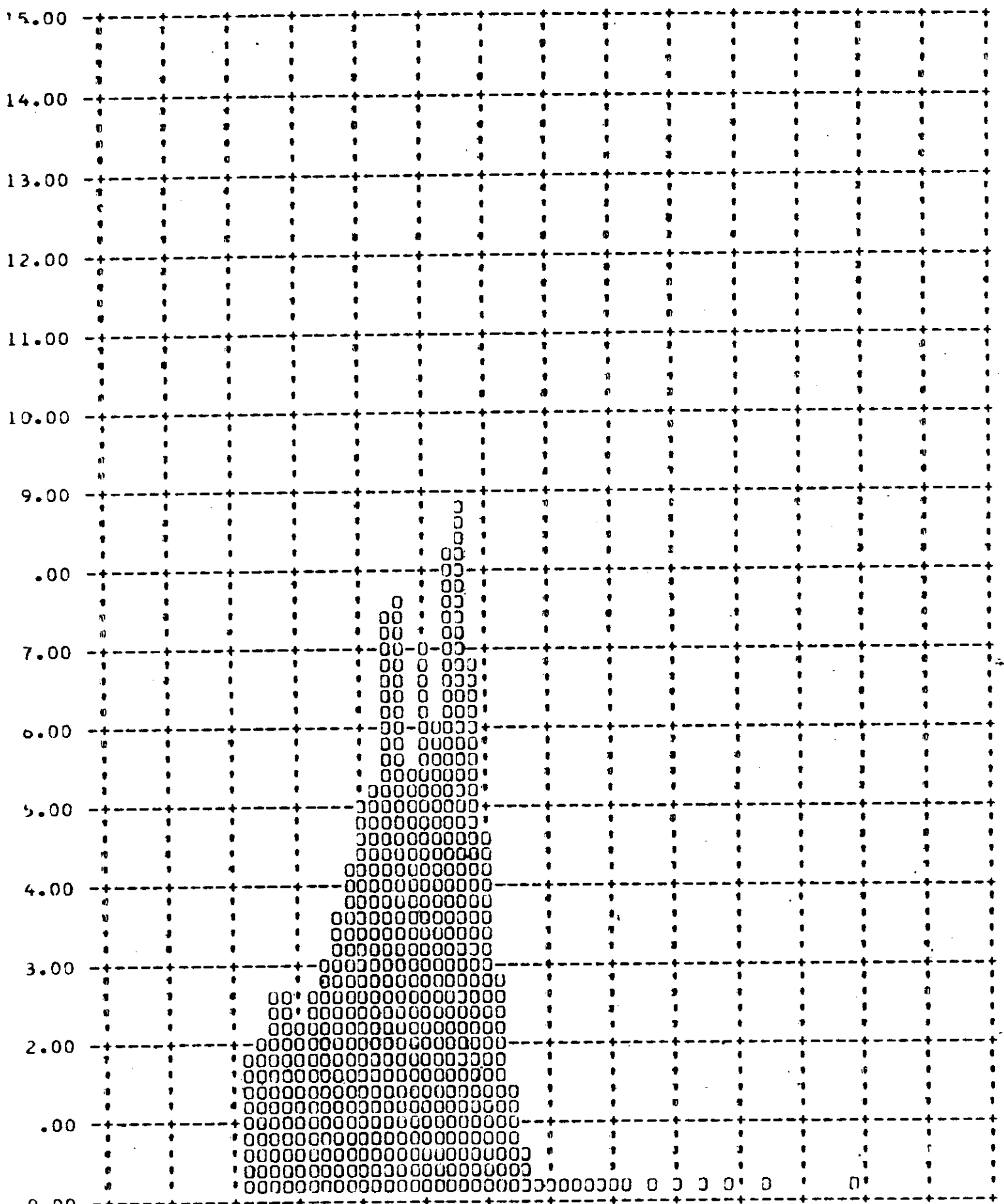
FIGURE 14-6

FRAMES 1-6 OF EACH DP OMITTED 90 PERCENT = 3.33

Y V/H RATIO ERROR - PERCENT (X) VERSUS FREQUENCY - PERCENT (Y)

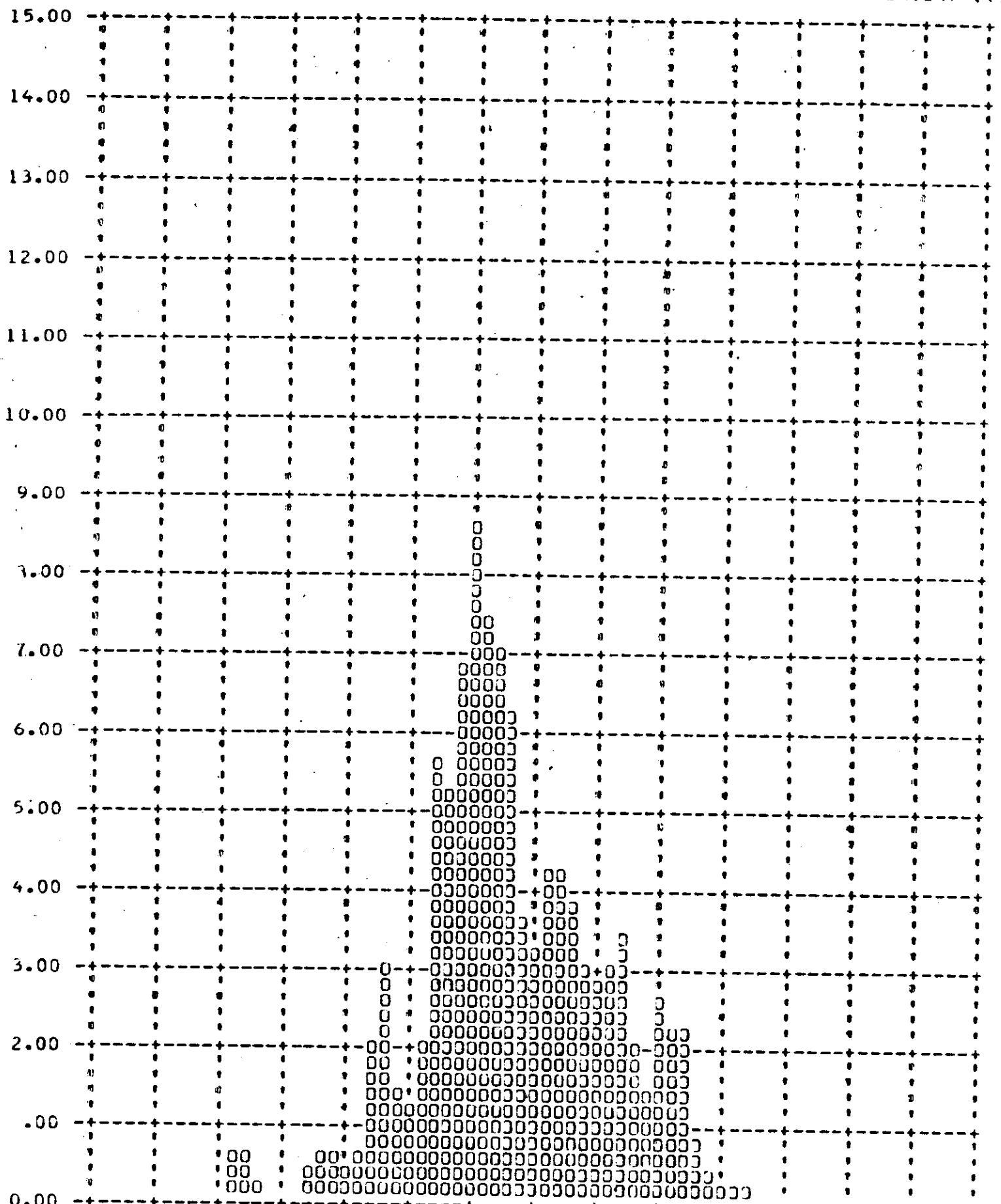


Y ALONG TRACK RESOLUTION LIMIT - FEET (X) VERSUS FREQUENCY - PERCENT (Y)



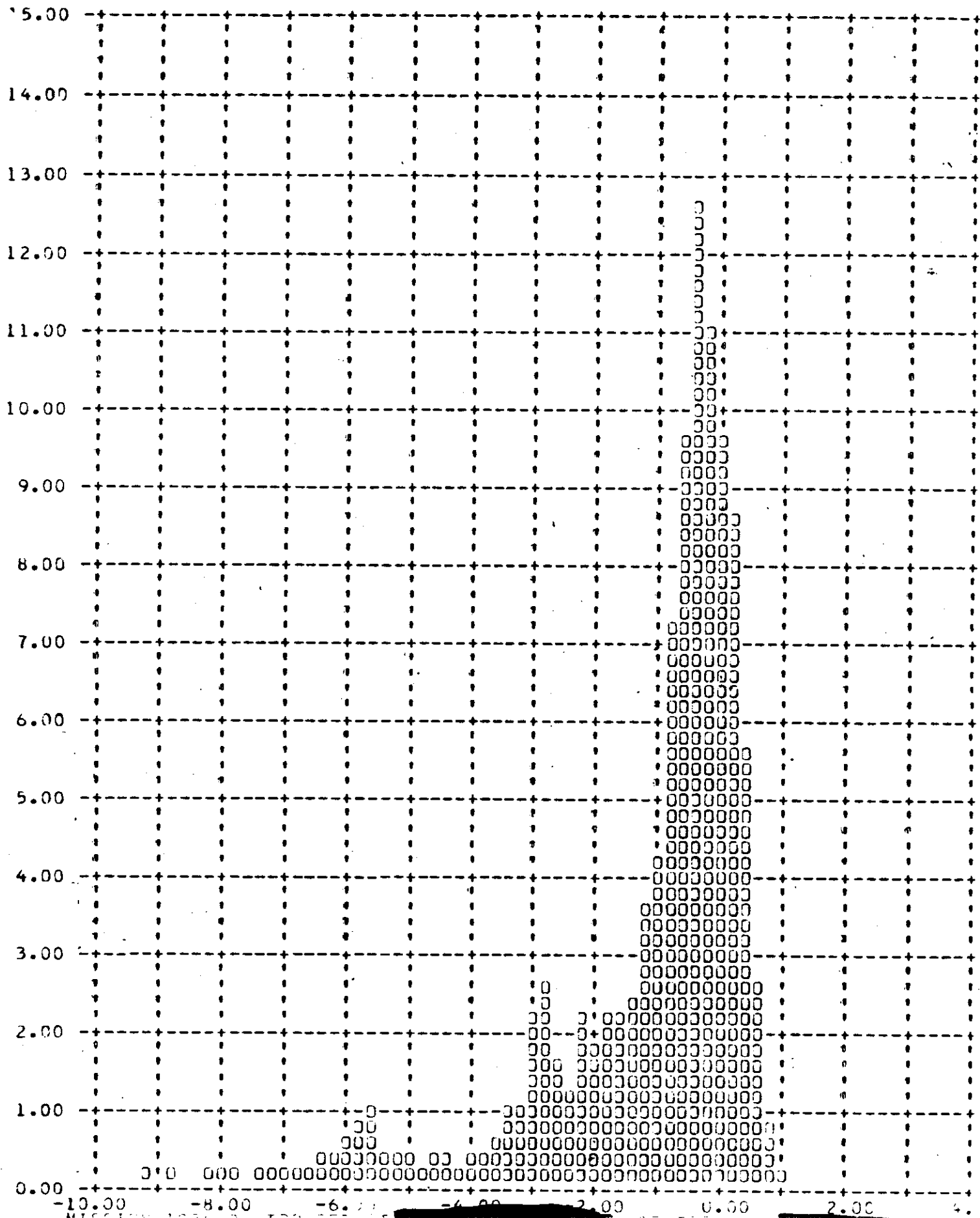
FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 6.53

Y CROSS TRACK RESOLUTION LIMIT - FEET (X) VERSUS FREQUENCY - PERCENT (Y)



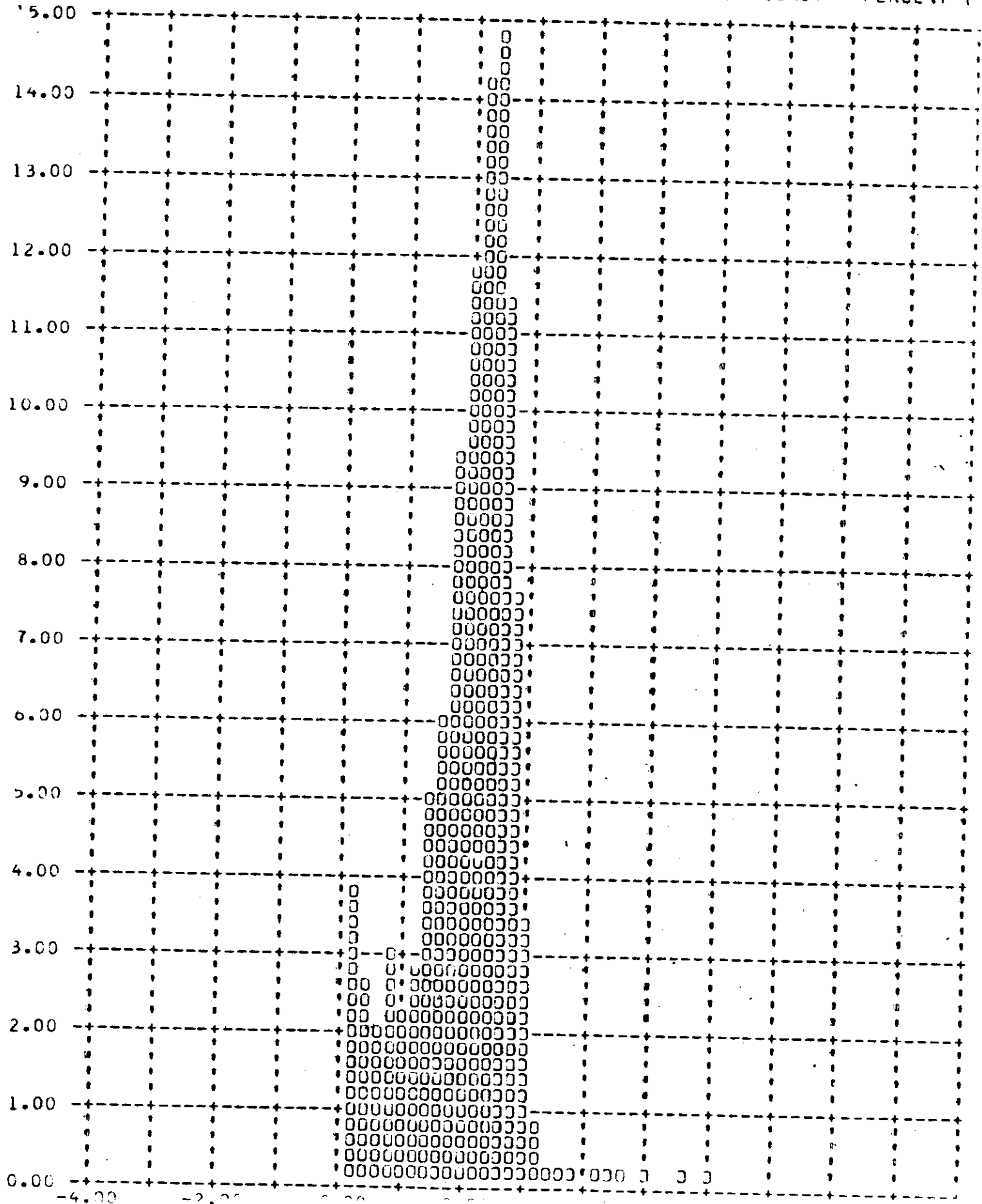
FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 3.0

Y V/H RATIO ERROR - PERCENT (X) VERSUS FREQUENCY - PERCENT (Y)



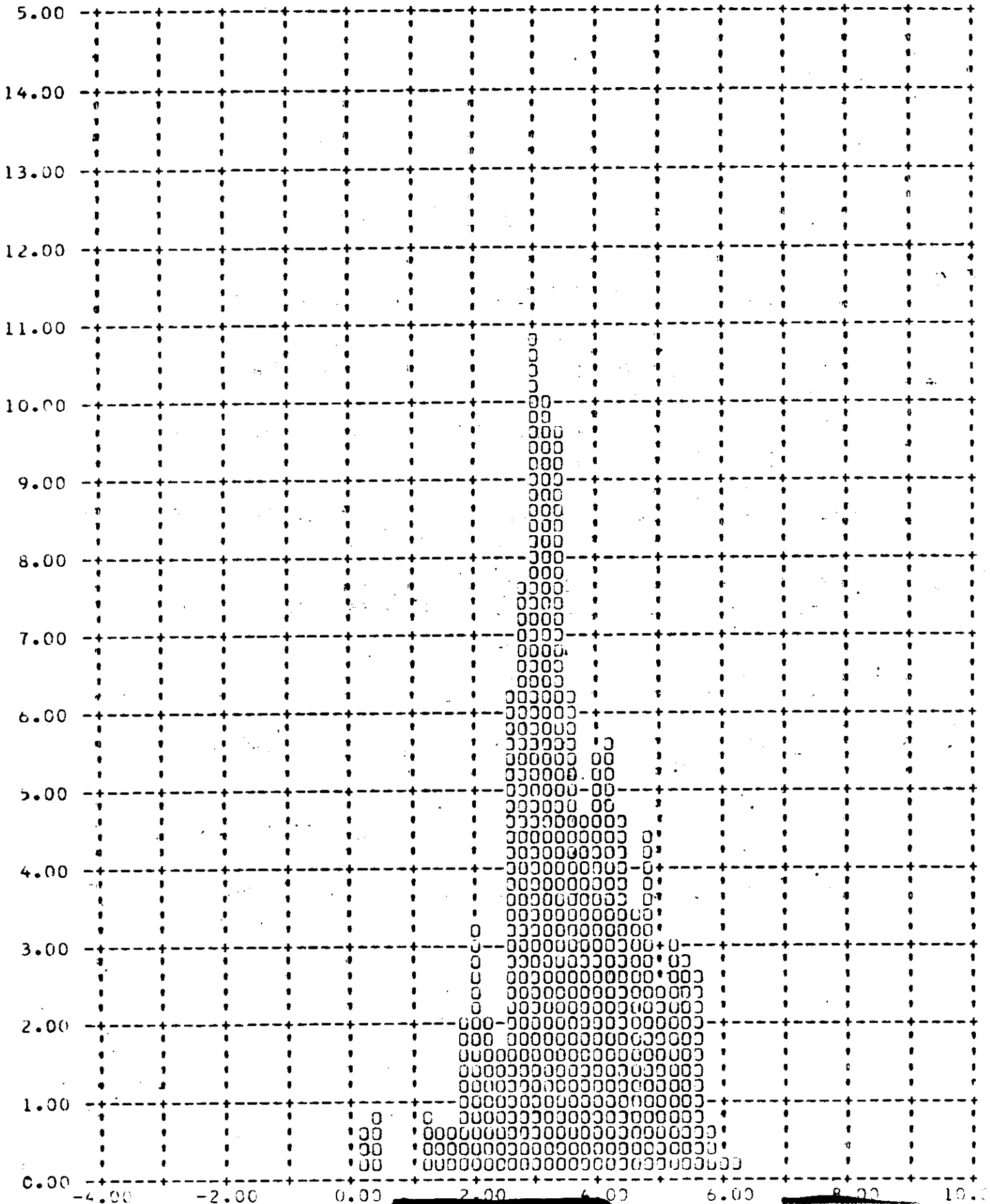
FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 2.

Y ALONG TRACK RESOLUTION LIMIT - FEET (K) VERSUS FREQUENCY - PERCENT (



FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 4.91

Y CROSS TRACK RESOLUTION LIMIT - FEET (X) VERSUS FREQUENCY - PERCENT (Y)



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MISSION SUMMARY

MISSION NUMBER	PAYLOAD NUMBER	VEHICLE NUMBER	LAUNCH DATE	LAUNCH TIME	ORBIT INCLINATION (°)	PERIGEE		RECOVERY PASS	MASTER CAMERA		SLAVE CAMERA		STELLAR-INDEX CAMERA NUMBER				
						ALTITUDE (NM)	LOCATION (°M)		CAMERA NUMBER	SLIT TYPE	CAMERA NUMBER	SLIT TYPE		CAMERA NUMBER	SLIT TYPE		
1004	J-05	1174	2/15/64	2138 Z	74.9	99.9	29.0	49	112	124	0.250	W-21	125	0.250	W-21	D29/29/29	D42/42/37
1006	J-09	1176	6/4/64	2259 Z	79.9	84.0	63.2	65	128	148	0.200	W-21	149	0.200	W-21	D45/47/45	D49/53/42
1007	J-07	1609	6/19/64	2318 Z	85.0	99.2	41.5	65	128	144	0.250	W-25	145	0.200	W-21	D43/43/43	D54/56/51
1008	J-10	1177	7/10/64	2314 Z	85.0	99.4	40.8	49	112	150	0.200	W-21	151	0.200	W-21	D48/49/48	D33/28/33
1009	J-12	1605	8/5/64	2316 Z	80.1	99.6	39.5	49	128	154	0.200	W-21	155	0.200	W-21	D56/54/56	D38/38/34
1010	J-11	1178	9/14/64	2234 Z	84.9	97.4	42.5	65	144	152	0.175	W-21	153	0.175	W-21	D41/41/41	D44/46/44
1011	J-3X	1170	10/5/64	2150 Z	79.9	99.3	20.9	65	144	160	0.175	W-21	161	0.175	W-21	D30/30/30	D57/57/57
1012	J-13	1179	10/17/64	2202 Z	75.0	96.2	32.4	49	81	156	0.200	W-21	157	0.200	W-21	D51/51/47	D46/52/53
1013	J-15	1173	11/2/64	2130 Z	80.0	100.0	25.0	65	81	158	0.225	W-21	159	0.225	W-21	D52/49/85	D47/48/54
1014	J-16	1180	11/18/64	2036 Z	70.0	103.2	65.6	81	145	162	0.250	W-25	159	0.175	W-21	D53/59/49	D50/44/48
1015	J-17	1607	12/18/64	2110 Z	74.9	96.7	21.5	81	175	138	0.250	W-25	141	0.175	W-21	D61/61/61	D58/58/58
1016	J-18	1608	1/15/65	2101 Z	74.9	99.4	30.2	81	159	132	0.250	W-25	133	0.175	W-21	D55/55/50	D59/50/59
1017	J-14	1611	2/25/65	2144 Z	75.0	97.2	25.9	81	145	140	0.250	W-25	165	0.175	W-21	D21/21/21	D60/61/1
1018	J-19	1612	3/25/65	2111 Z	96.0	100.2	40.3	66	99	122	0.250	W-25	123	0.175	W-21	D20/20/20	D22/22/22
1019	J-04	1614	4/29/65	2144 Z	85.0	99.1	27.1	80	144	118	0.250	W-25	119	0.175	W-21	D39/39/35	D19/18/18
1020	J-20	1613	6/9/65	2158 Z	79.1	97.1	40.6	97	113	136	0.250	W-25	137	0.175	W-21	D67/65/60	D62/65/65
1021	J-21	1615	5/18/65	1803 Z	75.0	109.2	24.3	81	161	166	0.175	W-21	167	0.250	W-25	D63/69/69	D25/27/25
1022	J-22	1617	7/19/65	2201 Z	85.0	99.7	30.3	65	144	168	0.250	W-25	169	0.175	W-21	D65/77/70	D24/24/24
1023	J-23	1618	8/17/65	2100 Z	70.0	97.8	29.0	81	144	170	0.225	W-25	171	0.150	W-21	D17/19/82	D66/75/72
1024	J-24	1619	9/22/65	2131 Z	80.0	95.9	18.4	81	161	172	0.225	W-25	173	0.150	W-21	D69/72/84	D64/82/66
1025	JX-28	1616	10/3/65	1746 Z	75.0	112.9	44.3	81	161	142	0.175	W-21	127	0.175	W-21	D73/78/88	D70/86/81
1026	J-25	1620	10/28/65	2117 Z	75.0	93.0	17.0	81	160	174	0.225	W-25	175	0.150	W-21	D75/92/93	D72/89/85
1027	JX-27	1621	12/9/65	2110 Z	80.0	97.4	17.3	17	33	164	0.250	W-25	163	0.175	W-21	D71/87/87	D68/74/83
1028	J-26	1610	12/24/65	2106 Z	80.0	97.6	28.4	81	144	176	0.250	W-25	177	0.175	W-21	D77/81/87	D74/76/95

SECTION 15

RADIATION DOSAGE

Each recovery system flown on a Corona mission contains a sealed packet of Eastman Type 3401 and Royal X Pan emulsions to determine the total radiation received at the take-up cassette. Both film types have been irradiated by LMSC at various levels and the base plus fog densities recorded after controlled processing.

Following recovery the film dosimeter packets are removed at A/P and processed with a pre-flight sample of the same film type and sensitometric control film. The resulting base plus fog density measurement of the dosimeter strips is used to ascertain the total radiation level. The table below presents the base plus fog readings for the dosimeter strips and the radiation level equivalents.

<u>Emulsion</u>	<u>Mission 1036-1</u>		<u>Mission 1036-2</u>	
	<u>B + F</u>	<u>Radiation</u>	<u>B + F</u>	<u>Radiation</u>
Type 3401	0.15	0.3 R	0.18	0.6 R
Royal X Pan	0.23	0.3 R	0.28	0.6 R

These levels are below that which will degrade the photography.

SECTION 1

SYSTEM RELIABILITY

Reliability calculations for the payload are based on a sample beginning with M-7. Hence both the major part of the Mural Program and the "J" Program are covered in the calculation. For certain auxiliaries, i.e., the stellar-index camera and the horizon cameras, the sample size is changed to recognize incorporation of modified equipment or new designs where reliability was one of the principal reasons for the modification. However, for primary mission function, the sample size is consistent with reliability reporting for the vehicle.

The reliability estimates of this section deal exclusively with the payload. Failures to achieve orbit or vehicle induced failures are thereby excluded. Recoveries before a complete mission has been completed are considered as full missions providing that early termination was caused by reasons not connected with payload operation. Film quality is not considered in the reliability estimate calculation. Hence, only electrical and mechanical functioning are considered.

The reliability estimate is also divided into primary and secondary functions. The primary functions are operation of the panoramic cameras, main camera door operation, operation of the payload clock, and recovery operations. The secondary mission functions are horizon camera operation excluding catastrophic open shutter failure mode, auxiliary data recording, and stellar-index camera operation. A summary of estimated reliability is shown in Tables 16-1.

Panoramic Camera Reliability

Sample Size - 155 opportunities to operate.

One failure - S/I Programmer on System J-19

Assume - 3000 cycles per camera per mission.

Estimated Reliability = 98.9% at 50% confidence level

Main Camera Door Reliability

Sample Size - 52 vehicles x 2 doors = 104 opportunities to operate
Estimated Reliability = 99.3% at 50% confidence level.

Payload Command and Control

Sample Size - 8520 hours operation in sample
Two failures
Estimated Reliability = 97.0% at 50% confidence level

Payload Clock Reliability

Sample Size - 8520 hours operation in sample
No failures
Estimated Reliability = 99.2% at 50% confidence level

Estimated Reliability of Payload Functioning on orbit = 97.3% at
50% confidence level

Recovery System Reliability

69 opportunities to recover
1 failure - improper separation due to water seal - cutter failure
Estimated Reliability = 97.6% at 50% confidence level

Stellar-Index Camera Reliability

Sample begins with J5
Sample size = 20,830 cycles
Four failures
Estimated Reliability = 90.9% at 50% confidence level

Horizon Camera Reliability

Sample begins with J5 - 85,500 cycles
Estimated Reliability of Single Camera = 98.8% at 50% confidence level
Estimated Reliability of Four Horizon Cameras at a Parallel
Redundant System = 99.9% at 50% confidence level.

ESTIMATED RELIABILITY SUMMARY

(AT 50% CONFIDENCE LEVEL)

MISSION NUMBER	PRIMARY FUNCTIONS										SECONDARY FUNCTIONS				
	PANORAMIC CAMERA		PANORAMIC CAMERA DOORS		COMMAND & CONTROL SYSTEM		PAYLOAD CLOCK		ON-ORBIT FUNCTIONS		RECOVERY SYSTEM		STELLAR-INDEX CAMERAS		HORIZON CAMERAS
	SAMPLE FAILURES	RELIABILITY	SAMPLE FAILURES	RELIABILITY	SAMPLE FAILURES	RELIABILITY	SAMPLE FAILURES	RELIABILITY	RELIABILITY	SAMPLE FAILURES	RELIABILITY	SAMPLE FAILURES	RELIABILITY	SAMPLE FAILURES	RELIABILITY
9038 TO 1008	60 OPERATIONS	97.3	52 DOORS	96.6	3124 HOURS	98.0	3124 HOURS	98.0	96.1	18 CAPSULES	90.7	3400 CYCLES	91.7	12,000 CYCLES	91.7
1009	64	97.4	54	96.7	3216	98.0	3216	98.0	96.2	20	91.3	4230	93.4	15,000	93.4
1010	66	97.6	56	96.8	3432	98.1	3432	98.1	96.4	22	92.5	5100	94.4	18,000	94.4
1011	72	97.7	58	96.9	3600	98.1	3600	98.1	96.8	24	93.0	5525	95.8	21,000	95.8
1012	76	97.8	60	96.9	3720	98.2	3720	98.2	96.9	26	93.6	5525	96.0	24,000	96.0
1013	78	97.8	62	96.9	3940	98.2	3940	98.2	96.0	28	94.0	5950	96.4	25,500	96.4
1014	82	97.8	64	99.0	4056	98.3	4056	98.3	96.1	30	94.4	6375	96.0	28,500	96.0
1015	86	97.9	66	99.0	4320	98.3	4320	98.3	96.1	32	94.4	7225	96.4	31,500	96.4
1016	90	98.0	68	99.0	4560	98.3	4560	98.3	96.4	34	94.8	7650	96.7	34,500	96.7
1017	94	98.1	70	99.0	4760	98.3	4760	98.3	96.4	36	95.2	8925	97.0	37,500	97.0
1018	98	99.3	72	99.0	4920	98.7	4920	98.8	97.6	38	95.4	8980	97.3	40,500	97.3
1019	102	98.3	74	99.1	5136	98.6	5136	98.7	96.7	39	95.8	9075**	97.5	43,500	97.5
		98.4		99.1		98.9		98.7	96.8		95.8		97.6		97.6

TOP SECRET

DESIGN FOR NEGATED PREVIOUS FAILURE CONSIDERATIONS

MAT. P. 1/-1

** 10% SAMPLE OUT OF SEQUENCE

ESTIMATED RELIABILITY SUMMARY

(AT 50% CONFIDENCE LEVEL)

MISSION NUMBER	PRIMARY FUNCTIONS						ON-ORBIT FUNCTIONS RELIABILITY	RECOVERY SYSTEM		SECONDARY FUNCTIONS	
	PANORAMIC CAMERA SAMPLE FAILURES RELIABILITY	PANORAMIC CAMERA DOORS SAMPLE FAILURES RELIABILITY	PANORAMIC CAMERA COMMAND B CONTROL SYSTEM SAMPLE FAILURES RELIABILITY	PAYLOAD CLOCK SAMPLE FAILURES RELIABILITY	RECOVERY SYSTEM SAMPLE FAILURES RELIABILITY	STELLAR-INDEX CAMERAS SAMPLE FAILURES RELIABILITY		HORIZON CAMERAS SAMPLE FAILURES RELIABILITY			
1020	108	78	5544	5544	1	96.9	43	10,680	48,000	96.1	97.5
1021	104	76	5376	5376	0	96.9	41	9830	46,500	96.0	97.5
1022	112	80	5784	5784	0	96.9	45	11,550	51,000	96.3	98.0
23	114	82	6000	6000	0	96.2	47	12,190	54,000	96.5	98.1
24	118	84	6240	6240	0	96.3	49	13,040	57,000	96.6	98.2
25	122	86	6480	6480	0	96.4	51	13,890	60,000	96.7	98.3
26	126	88	6720	6720	0	96.5	53	14,740	63,000	96.8	98.4
27	128	90	6744	6744	0	96.5	55	15,165	64,500	97.0	98.4
1028	132	92	6960	6960	0	96.7	57	16,015	67,500	97.1	98.4
1029	136	94	7200	7200	0	96.8	59	16,980	70,500	97.1	98.5
1030	140	96	7440	7440	0	96.9	61	17,430	73,500	97.2	98.6
1031	143	98	7704	7704	0	96.9	63	18,280	76,500	97.3	98.6

ESTIMATED RELIABILITY SUMMARY

(AT 50% CONFIDENCE LEVEL)

MISCELLANEOUS NUMBER	PANORAMIC CAMERA				PANORAMIC CAMERA COMMAND & CONTROL SYSTEM				PAYLOAD CLOCK				ORBIT FUNCTIONS		RECOVERY SYSTEM		STELLAR INDEX CAMERAS		FUNCTIONS		
	SAMPLE	FAILURES	RELIABILITY		SAMPLE	FAILURES	RELIABILITY		SAMPLE	FAILURES	RELIABILITY		SAMPLE	FAILURES	RELIABILITY	SAMPLE	FAILURES	RELIABILITY	SAMPLE	FAILURES	RELIABILITY
1033	147	1	98.9	100	0	99.3	7968	2	96.8	7968	0	99.2	97.1	65	19,130	4	90.2	79,500	0	98.7	
1034	151	1	98.9	102	0	99.3	8208	2	96.9	8208	0	99.2	97.2	67	19,980	4	90.3	82,500	0	98.7	
1035	159	1	99.0	106	0	99.4	8760	2	97.1	8760	0	99.2	97.4	71	21,680	4	91.3	88,500	0	98.7	
1036	155	1	98.9	104	0	99.3	8520	2	97.0	8520	0	99.2	97.3	69	20,830	4	90.9	85,500	0	98.8	
																					98.8

SECTION 1

SUMMARY DATA

The comparison of the operating parameters and the performance achieved by previous missions has been difficult due to the large volume of data that results from each mission. Some of the pertinent characteristics from prior missions have been summarized in Tables 17-1 through 17-3.

The summary data was started with Mission 1004 as the J-05 camera system was the first to incorporate the major modifications of the titanium drum and scan arm, four roller scan head and Corona J capabilities. Only those missions that culminated in the recovery of some photography have been listed, therefore Missions 1003, 1005 and 1032 are deleted.

MISSION SUMMARY

MISSION NUMBER	PAYLOAD NUMBER	VEHICLE NUMBER	LAUNCH DATE	LAUNCH TIME	ORBIT INCLINATION (°)	PERIODE		RECOVERY PASS	MASTER CAMERA		SLAVE CAMERA		STELLAR INDEX CAMERA NUMBER		
						ALTITUDE (NM)	LOCATION (°M)		CAMERA NUMBER	SLIT (")	FILTER TYPE	CAMERA NUMBER		SLIT (")	FILTER TYPE
1029	J-27	1623	2/2/66	2132 Z	75.1	99.5	22.5	81	178	0.275	W-25	179	0.175	W-21	079/94/91
1030	J-29	1622	3/9/66	2202 Z	75.0	97.5	18.7	81	182	0.275	W-25	183	0.175	W-21	076/70/94
1031	J-30	1627	4/7/66	2202 Z	75.1	104.5	23.3	113	184	0.225	W-23A	185	0.150	W-21	094/100/107
1032	J-28	1625	5/3/66	1925 Z				177	180	0.150	W-21	181	0.150	W-21	082/195/102
1033	J-33	1630	5/24/66	0213 Z	66.1	102.0	60.7	82	194	0.200	W-21	195	0.200	W-21	086/106/86
1034	J-31	1626	6/21/66	2131 Z	80.1	105.4	18.2	81	186	0.200	W-23A	187	0.150	W-21	080/73/100
1035	J-36	1628	9/20/66	2114 Z	85.0	99.5	29.1	81	188	0.225	W-23A	189	0.175	W-21	084/102/75
1036	J-32	1631	8/9/66	2046 Z	100.0	102.4	22.9	115	190	0.200	W-23A	191	0.150	W-21	083/101/89
								212							081/97/101
															087/107/105
															095/112/113
															096/104/116
															089/110/111
															088/108/106

PERFORMANCE SUMMARY

MISSION NUMBER	CAMERA	SERIAL NUMBER	M I P VALUE	VISUAL RES	AFSPPL		MTF/AM		SLIT (μ)	AVERAGE	90% ATTITUDE ERROR (°)			90% ATTITUDE RATES (°/HR)			90% V/H ERROR (%)	90% RESOLUTION ALONG TRACK	90% RESOLUTION ACROSS TRACK
					SLIT (μ)	AVERAGE	PITCH	ROLL			YAW	PITCH	ROLL	YAW					
1004-1	FWD	124	85	78	97	109	43	109	127	0.42	1.08	30.0	25.0	21.0	5.1	7.7	6.1		
1004-2	AFT	125	85	76	80	96	43	96	117	0.50	0.91	44.0	30.0	29.0	4.9	8.8	6.5		
1006-1	FWD	148	90	78	65	88	43	88	84	0.41	1.14	26.8	28.5	27.8	15.4	13.8	6.7		
1006-2	AFT	149	90	74	71	90	43	90	87	0.40	1.08	31.1	27.9	30.0	11.6	10.1	7.0		
1007-1	FWD	144	85	80	60	87	43	87	82	0.46	1.43	37.6	23.9	29.9	3.6	3.1	9.4		
1007-2	AFT	145	85	79	63	83	43	83	97	0.47	—	43.0	25.8	—	4.6	2.4	7.8		
1008-1	FWD	150	85	80	77	92	43	92	74	0.39	0.94	43.8	23.9	29.6	2.9	4.9	5.9		
1008-2	AFT	151	85	79	72	83	43	83	81	0.63	0.71	42.9	24.0	32.5	2.8	4.2	8.4		
1009-1	FWD	154	85	92	80	95	43	95	86	0.65	0.71	29.2	22.7	27.8	3.3	5.3	5.8		
1009-2	AFT	155	85	94	85	89	43	89	83	0.48	0.59	33.6	23.9	27.2	2.6	4.9	8.9		
1010-1	FWD	152	85	90	90	88	80	88	75	0.93	0.87	39.1	23.8	30.8	4.5	2.3	4.4		
1010-2	AFT	153	85	83	86	80	80	80	103	0.70	1.21	45.4	23.6	30.7	4.6	7.5	3.8		
1011-1	FWD	160	90	84	76	85	80	85	87	0.77	0.97	43.1	28.9	31.1	2.3	5.3	5.6		
1012-1	FWD	156	85	92	77	86	80	86	83	0.51	—	47.1	33.2	—	1.5	4.8	—		
1012-2	AFT	157	85	91	87	91	80	91	84	0.65	—	—	—	—	—	—	—		
1013-1	FWD	158	85	89	85	96	80	96	85	0.97	0.51	45.2	30.7	20.4	5.9	3.3	5.9		
1014-1	FWD	159	85	77	84	87	80	87	81	0.64	0.34	36.9	29.0	32.3	3.7	7.8	8.2		
1014-2	AFT	162	80	83	78	78	80	78	86	0.32	1.46	35.0	36.1	38.5	3.5	6.2	8.8		
1015-1	FWD	139	80	86	80	84	80	84	77	0.41	1.44	34.8	36.0	38.3	2.2	2.8	8.8		
1015-2	AFT	138	85	87	76	76	80	76	88	0.55	—	38.1	38.0	—	1.4	6.4	6.3		
1016-1	FWD	132	85	85	85	85	80	85	99	0.59	0.64	45.2	30.7	36.3	3.2	2.2	—		
1016-2	AFT	133	85	83	80	81	80	81	103	0.72	0.83	47.0	29.4	38.2	5.0	5.5	5.3		
1017-1	FWD	140	85	72	80	80	80	80	94	0.64	2.01	48.9	30.2	40.4	2.0	5.5	10.3		
1017-2	AFT	185	85	85	70	70	80	70	86	0.83	0.83	42.2	27.2	39.9	2.8	3.4	7.4		
1018-1	FWD	182	85	79	69	69	80	69	86	0.93	2.19	42.2	27.2	39.9	1.5	4.9	8.0		
1018-2	AFT	123	85	84	70	71	80	70	91	0.45	—	35.5	32.2	39.9	2.3	3.3	7.1		
										0.49	2.50	35.5	32.2	39.9	3.3	3.3	11.6		
										0.76	2.49	36.5	32.0	38.5	3.3	3.3	8.1		
										0.69	—	36.5	33.8	—	1.8	8.2	—		
										0.69	—	36.5	33.8	—	2.3	5.3	—		
										0.91	—	47.4	36.7	—	3.4	5.8	—		
										0.90	—	48.2	36.2	—	3.2	3.7	—		
										0.84	—	34.7	30.7	—	3.1	5.6	—		
										0.85	—	34.8	30.7	—	2.8	4.1	—		

TABLE 17-2

PERFORMANCE SUMMARY

MISSION NUMBER	CAMERA	SERIAL NUMBER	M I P VALUE	VISUAL RES	AESSDF		SLIT		MTF/AIM		AVERAGE		90% ATTITUDE ERROR (%)			90% ATTITUDE RATES (1/HR)			90% V/H ERROR (%)		90% RESOLUTION	
					SLIT (μ)	AVERAGE	SLIT (μ)	AVERAGE	SLIT (μ)	AVERAGE	PITCH	ROLL	YAW	PITCH	ROLL	YAW	ALCHG TRACK	LMT (FEET) TRACK				
1019-1	FWD AFT	118 119	85	81 99	—	80	76 63	80	88 87	104 101	0.87 0.96	0.36 0.37	0.43 0.44	31.6 31.6	34.7 34.9	33.0 33.0	3.3 3.3	9.3 9.3	5.0 5.0	9.1 6.5		
1020-1	FWD AFT	136	80	88	—	80	69	80	78	90	0.78	0.35	0.46	37.4	31.8	26.7	5.4	5.8	5.8	8.4		
1020-2	FWD AFT	137	—	—	—	80	82	80	94	105	1.06	0.17	0.41	42.6	23.8	42.5	3.5	4.2	4.2	5.9		
1021-1	FWD AFT	166	85	88	—	80	77	80	86	—	0.81	0.37	0.55	34.9	32.6	26.2	2.7	8.8	8.0	8.0		
1021-2	FWD AFT	167	85	85 74	—	80	90 74	80	98 88	109 112	0.81 0.65	0.38 0.65	0.59	34.8 44.7	33.0 30.6	26.3	3.1	8.6	5.5	5.5		
1022-1	FWD AFT	168	85	88	—	80	66	80	78	91	0.89	0.51	0.47	29.3	27.1	23.6	3.5	9.8	8.6	8.6		
1022-2	FWD AFT	169	85	90 92	—	80	83 68	80	101 99	111 110	0.90 0.90	0.51 0.51	0.40	27.9 29.4	26.8 27.3	23.8	2.6	8.0	6.1	6.1		
1023-1	FWD AFT	170	85	—	—	80	94	80	97	110	0.50	0.33	0.49	33.0	28.7	23.5	3.4	4.0	4.4	5.9		
1023-2	FWD AFT	171	85	—	—	80	87 71	80	83 76	101 87	0.50 0.53	0.33 0.37	0.42	32.9 29.6	28.7 21.0	28.6	2.4	2.7	4.3	4.3		
1024-1	FWD AFT	172	85	—	—	80	79	80	90	102	0.62	0.25	0.42	32.2	24.9	30.5	2.6	5.9	6.8	6.8		
1024-2	FWD AFT	173	85	—	—	80	95 86	80	94 89	105 101	0.62 0.93	0.25 0.31	0.36	32.2 30.4	24.9 24.5	30.4	2.1	3.8	4.5	4.5		
1025-1	FWD AFT	142	85	—	—	80	97	80	80	97	0.85	0.41	0.50	30.6	23.6	36.4	5.1	3.3	3.6	3.6		
1025-2	FWD AFT	127	85	—	—	80	97 85	80	101 96	114 103	0.85 0.82	0.42 0.44	0.52	28.1	28.7	25.9	2.0	3.9	6.7	6.7		
1026-1	FWD AFT	174	85	—	—	80	76	80	80	92	0.70	0.24	0.65	28.0	26.0	29.0	1.7	4.7	6.9	6.9		
1026-2	FWD AFT	175	85	—	—	80	93 85	80	98 92	113 104	0.70 0.87	0.24 0.56	0.55	37.9 41.1	33.2 46.5	28.5	6.1	13.5	6.2	6.2		
1027-1	FWD AFT	164 163	85	—	—	80	93 69	80	90 80	103	0.68 0.74	0.65 0.37	0.59	43.3	50.0	27.7	6.7	3.3	4.5	4.5		
1028-1	FWD AFT	176	85	—	—	80	79	80	80	92	0.74	0.37	0.51	47.2	25.5	26.2	4.7	10.5	7.2	7.2		
1028-2	FWD AFT	177	85	—	—	80	81 92	80	89 93	—	0.50 0.50	0.37 0.37	0.52	36.6 36.6	28.0 28.0	30.5	3.9	4.8	8.0	8.0		
1029-1	FWD AFT	178	85	—	—	80	88 77	80	87 84	—	0.52 0.76	0.37 0.52	0.76	42.7 42.5	25.7 25.6	30.5	3.2	4.0	5.6	5.6		
1029-2	FWD AFT	179	85	—	—	80	91	80	84	—	0.52	0.52	0.76	42.7	25.7	30.5	2.9	4.2	5.6	5.6		
1030-1	FWD AFT	182	85	—	—	80	76	80	84	—	0.67	0.34	0.67	29.1	31.3	34.4	2.9	7.8	7.4	7.4		
1030-2	FWD AFT	183	85	—	—	80	79 81	80	77 81	—	0.77 0.44	0.33 0.48	0.64	28.5 38.8	30.8 32.5	34.6	4.6	3.3	4.8	4.8		
1031-1	FWD AFT	184	85	—	—	80	94	80	81	—	0.44	0.48	0.65	37.5	32.1	25.7	2.3	2.9	7.5	7.5		
1031-2	FWD AFT	185	85	—	—	80	76	80	66	—	0.89	0.25	0.67	29.6	22.8	36.1	3.9	8.9	8.6	8.6		
1033-1	FWD AFT	194	85	—	—	80	71 94	80	66 74	—	0.91 0.75	0.41 0.20	0.54	18.1 19.0	17.3 19.3	22.8	6.0	13.8	6.4	6.4		
1033-2	FWD AFT	195	85	—	—	80	94	80	87	—	0.80	0.33	0.11	11.3	34.9	27.3	3.5	8.2	6.2	6.2		

TABLE 17.2

PERFORMANCE SUMMARY

MISSION NUMBER	CAMERA	SERIAL NUMBER	M.T.P. VALUE	AFSPFF MTF/AM		90% ATTITUDE ERROR			90% ATTITUDE RATES			90% RESOLUTION LIMITS			I.M.C. ERROR
				AVERAGE (SLIT)	(M) AVERAGE (SLIT)	PITCH	RO L	YAW	PITCH	ROLL	YAW	ALONG TRACK	CROSS TRACK	LIMITS	
1031-1	FWD	186	80	75	91	0.20	0.19	0.03	19.1	20.4	24.3	17.8	5.9	---	
	AFT			93	90	0.20	0.19	0.03	19.1	20.4	24.3	17.8	5.9	---	
	AFT			74	85	0.34	0.30	0.55	21.1	23.9	16.2	10.4	7.1	---	
1034-2	FWD	187	80	69	86	0.34	0.36	0.31	21.1	23.0	16.2	8.0	5.3	---	
	AFT			66	86	0.16	0.35	2.33	18.9	27.9	33.9	4.3	3.7	4.0	
1035-2	FWD	189	85	80	---	0.17	0.64	2.43	19.3	23.4	32.2	3.7	2.4	---	
	AFT			81	---	0.16	0.50	3.02	18.4	30.1	27.5	4.0	3.5	---	
	AFT			22	---	0.17	0.51	3.02	19.9	28.7	26.3	3.3	2.4	---	
1036-1	FWD	190	85	89	---	0.76	0.36	0.60	31.2	25.6	29.6	5.1	6.8	---	
	AFT			54	---	0.76	0.36	0.60	31.1	25.5	29.4	3.3	5.1	---	
1036-2	FWD	191	85	73	---	0.54	0.70	0.40	33.0	29.7	23.3	3.8	5.5	---	
	AFT			84	---	0.34	0.70	0.40	32.9	29.7	23.3	2.7	3.9	---	

TABLE 17-2

EXPOSURE - PROCESSING SUMMARY

MISSION NUMBER	CAMERA	SOLAR ELEVATION RANGE (°)		SOLAR AZIMUTH RANGE (°)		PREDICTED PROCESSING			REPORTED PROCESSING			COMPUTED PROCESSING			TERRAIN D - MIN			TERRAIN D - MAX			CLOUD RANGE			UNDER EXPOSED (%)	UNDER PROCESSED (%)	NOMINAL EXP. % PROC. (%)	OVER PROCESSED (%)	OVER EXPOSED (%)	CLOUD COVER (%)	
		LOW	HIGH	LOW	HIGH	P	F	P	F	P	F	P	F	MEAN	MEDIAN	HIGH	LOW	HIGH	MEAN	MEDIAN	LOW	HIGH	MEAN							MEDIAN
1004-1	FWD	3	61	25	124	5	76	19	4	79	17	0	79	21	0	80	20	0	80	20	0	80	20	0	4	4	60	31	5	35
1004-2	AFT	-3	61	25	124	5	74	21	4	79	17	0	80	20	0	80	20	0	80	20	0	80	20	0	4	4	67	26	3	35
1006-1	FWD	-4	68	10	131	7	76	12	37	50	13	4	77	19	4	83	13	4	83	13	4	83	13	0	4	59	9	3	35	
1006-2	AFT	38	56	52	140	1	99	0	1	99	0	0	51	49	0	51	49	0	51	49	0	51	49	0	5	72	21	1	60	
1007-1	FWD	32	64	36	147	2	98	0	30	41	29	11	59	30	0	60	20	0	60	20	0	60	20	0	1	58	40	0	60	
1007-2	AFT	32	64	36	147	2	98	0	35	40	25	21	54	25	0	54	25	0	54	25	0	54	25	0	11	72	4	0	45	
1008-1	FWD	12	49	30	103	0	95	1	20	79	0	25	75	0	25	75	0	25	75	0	25	75	0	0	0	67	5	0	65	
1008-2	AFT	30	51	50	102	0	100	0	10	42	48	6	77	17	0	77	17	0	77	17	0	77	17	0	13	80	5	1	60	
1009-1	FWD	29	56	42	105	0	100	0	3	30	67	0	27	73	0	27	73	0	27	73	0	27	73	0	1	84	0	0	45	
1009-2	AFT	29	56	42	105	0	100	0	3	30	67	0	27	73	0	27	73	0	27	73	0	27	73	0	1	84	0	0	45	
1010-1	FWD	12	49	42	132	0	100	0	1	26	73	0	34	66	0	34	66	0	34	66	0	34	66	0	5	77	14	0	50	
1010-2	AFT	12	49	42	132	0	100	0	4	40	60	0	45	55	0	45	55	0	45	55	0	45	55	0	1	73	20	0	50	
1011-1	FWD	18	47	45	83	0	21	79	0	13	87	0	91	9	0	91	9	0	91	9	0	91	9	0	3	75	4	0	48	
1011-2	AFT	15	52	38	76	0	50	50	0	16	84	0	16	84	0	16	84	0	16	84	0	16	84	0	9	81	6	0	48	
1012-1	FWD	2	55	33	66	0	64	36	2	23	77	0	23	77	0	23	77	0	23	77	0	23	77	0	17	76	10	0	60	
1012-2	AFT	0	45	38	71	0	64	36	7	56	37	0	65	35	0	65	35	0	65	35	0	65	35	0	6	68	10	0	60	
1013-1	FWD	0	57	34	106	0	77	23	6	44	50	0	49	51	0	49	51	0	49	51	0	49	51	0	4	74	11	0	60	
1013-2	AFT	0	56	28	85	0	64	36	0	42	58	0	55	45	0	55	45	0	55	45	0	55	45	0	7	72	23	0	40	
1014-1	FWD	0	59	15	71	0	84	16	2	7	91	0	67	33	0	67	33	0	67	33	0	67	33	0	13	76	4	0	40	
1014-2	AFT	0	59	14	69	0	84	16	0	13	87	0	63	37	0	63	37	0	63	37	0	63	37	0	27	76	16	0	40	
1015-1	FWD	5	68	19	68	0	92	2	2	96	0	2	98	0	2	98	0	2	98	0	2	98	0	19	29	2	0	40		
1015-2	AFT	4	68	18	67	0	90	7	0	5	95	0	4	96	0	4	96	0	4	96	0	4	96	0	0	0	65	7	0	45
1016-1	FWD	0	79	-2	71	0	21	79	0	8	91	0	91	0	0	91	0	0	91	0	0	91	0	17	17	70	12	0	40	
1016-2	AFT	0	77	0	34	0	29	71	0	5	95	0	4	96	0	4	96	0	4	96	0	4	96	0	19	19	56	8	0	45
1017-1	FWD	-1	50	21	98	0	100	0	100	0	100	0	82	18	0	82	18	0	82	18	0	82	18	0	22	23	15	6	40	
1017-2	AFT	-1	57	19	98	0	100	0	100	0	100	0	62	38	0	62	38	0	62	38	0	62	38	0	22	23	15	6	40	
1018-1	FWD	6	77	13	134	0	100	0	100	0	100	0	63	37	0	63	37	0	63	37	0	63	37	0	19	19	71	7	0	35
1018-2	AFT	6	77	14	134	0	100	0	100	0	100	0	63	37	0	63	37	0	63	37	0	63	37	0	19	19	71	7	0	35

EXPOSURE - PROCESSING SUMMARY

MISSION NUMBER	SOLAR ELEVATION RANGE (°)		SOLAR AZIMUTH RANGE (°)		PREDICTED PROCESSING (%)		REPORTED PROCESSING (%)		COMPUTED PROCESSING (%)		TERRAIN D - MIN			TERRAIN D - MAX			CLOUD RANGE			UNDER EXPOSED (%)	UNDER PROCESSED (%)	NOMINAL EXP & PRO (%)	OVER PROCESSED (%)	OVER EXPOSED (%)	CLOUD COVER (%)																		
	LOW	HIGH	LOW	HIGH	P	I	F	P	I	F	LOW	HIGH	MEAN	MEDIAN	LOW	HIGH	MEAN	LOW	HIGH							MEAN	LOW	HIGH	MEAN	LOW	HIGH	MEAN	LOW	HIGH	MEAN								
1034-1	23	77	16	165	0	96	4	3	21	76	0	20	80	0	25	180	0	57	0	50	0	55	2	42	1	58	1	61	0	88	2	45	2	22	2	26	18	3	70	7	2	35	35
1034-2	23	77	10	165	0	55	45	2	31	67	0	16	84	0	29	153	0	56	0	50	0	41	2	35	1	55	1	60	0	97	2	44	2	19	2	25	18	4	71	7	0	35	35
1035-1	29	85	0	178	0	88	12	9	26	65	0	27	73	0	19	152	0	57	0	52	0	72	2	40	1	63	1	60	0	21	2	47	2	25	12	4	76	8	0	45	45		
1035-2	30	86	0	178	0	41	59	6	37	37	0	34	66	0	26	160	0	54	0	49	0	70	2	32	1	59	1	62	1	08	2	48	2	22	2	29	12	10	73	4	2	45	45
1036-1	13	60	19	144	0	17	83	0	11	89	0	5	95	0	28	190	0	52	0	45	0	61	2	44	1	40	1	40	1	06	2	43	2	15	2	22	23	1	71	4	1	30	30
1036-2	13	68	18	144	0	5	95	0	14	85	0	9	91	0	24	159	0	50	0	43	0	60	2	42	1	48	1	53	0	90	2	55	2	15	2	24	27	3	66	5	1	30	30
1036-1	4	81	10	158	0	22	78	4	18	78	0	18	82	0	21	150	0	52	0	47	0	43	2	33	1	32	1	30	0	96	2	50	2	09	2	18	24	5	86	4	0	40	40
1036-2	3	81	8	158	0	23	77	1	20	79	0	12	86	0	21	159	0	55	0	51	0	50	2	25	1	34	1	30	0	74	2	60	2	09	2	16	14	3	76	7	0	40	40
1036-1	13	82	7	170	0	66	34	8	14	78	1	14	85	0	20	191	0	48	0	42	0	60	2	40	1	54	1	53	1	10	2	47	2	26	2	33	33	5	59	2	1	40	40
1036-2	15	83	5	171	0	5	95	3	9	98	0	10	90	0	24	165	0	55	0	51	0	55	2	25	1	19	1	52	1	20	2	43	2	23	12	2	80	5	0	40	40		
1036-2	10	78	12	167	0	15	85	1	19	80	0	18	82	0	26	143	0	47	0	42	0	50	2	20	1	30	1	36	1	18	2	60	2	12	38	6	53	3	0	35	35		
1036-2	12	78	9	168	0	4	95	3	20	77	0	17	83	0	28	114	0	48	0	44	0	48	2	10	1	37	1	40	1	54	2	40	2	15	2	20	28	4	64	4	0	35	35

REC-100
JPM

C/

NO.

SECTION A

APPENDIX

~~TOP SECRET~~

- CONTROL NO. [REDACTED]

MISSION * 1036-1 * INSTRUMENT * FRWD 11/28/66 DENSITY FREQ DISTR.

DENSITY VALUE	PRIMARY			INTERMEDIATE			FULL			ALL LEVELS		
	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM
0.01	0	0	0	0	0	0	0	0	0	0	0	0
0.02	0	0	0	0	0	0	0	0	0	0	0	0
0.03	0	0	0	0	0	0	0	0	0	0	0	0
0.04	0	0	0	0	0	0	0	0	0	0	0	0
0.05	0	0	0	0	0	0	0	0	0	0	0	0
0.06	0	0	0	0	0	0	0	0	0	0	0	0
0.07	0	0	0	0	0	0	0	0	0	0	0	0
0.08	0	0	0	0	0	0	0	0	0	0	0	0
0.09	0	0	0	0	0	0	0	0	0	0	0	0
0.10	0	0	0	0	0	0	0	0	0	0	0	0
0.11	0	0	0	0	0	0	0	0	0	0	0	0
0.12	0	0	0	0	0	0	0	0	0	0	0	0
0.13	0	0	0	0	0	0	0	0	0	0	0	0
0.14	0	0	0	0	0	0	0	0	0	0	0	0
0.15	0	0	0	0	0	0	0	0	0	0	0	0
0.16	0	0	0	0	0	0	0	0	0	0	0	0
0.17	0	0	0	0	0	0	0	0	0	0	0	0
0.18	0	0	0	0	0	0	0	0	0	0	0	0
0.19	0	0	0	0	0	0	0	0	0	0	0	0
0.20	0	0	0	2	0	0	0	0	0	0	0	0
0.21	0	0	0	2	0	0	0	0	0	0	0	0
0.22	0	0	0	0	0	0	0	0	0	0	0	0
0.23	0	0	0	0	0	0	0	0	0	0	0	0
0.24	0	0	0	0	0	0	0	0	0	0	0	0
0.25	0	0	0	0	0	0	0	0	0	0	0	0
0.26	0	0	0	1	0	0	0	0	0	1	0	0
0.27	0	0	0	0	0	0	0	0	0	0	0	0
0.28	0	0	0	0	0	0	1	0	0	1	0	0
0.29	0	0	0	1	0	0	2	0	0	3	0	0
0.30	0	0	0	0	0	0	2	0	0	2	0	0
0.31	0	0	0	0	0	0	2	0	0	2	0	0
0.32	0	0	0	5	0	0	5	0	0	10	0	0
0.33	0	0	0	0	0	0	5	0	0	10	0	0
0.34	0	0	0	1	0	0	9	0	0	10	0	0
0.35	0	0	0	0	0	0	7	0	0	7	0	0
0.36	0	0	0	2	0	0	9	0	0	11	0	0
0.37	0	0	0	0	0	0	6	0	0	6	0	0
0.38	0	0	0	1	0	0	19	0	0	20	0	0
0.39	0	0	0	2	0	0	12	0	0	14	0	0
0.40	0	0	0	2	0	0	7	0	0	9	0	0
0.41	0	0	0	0	0	0	1	0	0	1	0	0
0.42	0	0	0	2	0	0	20	0	0	22	0	0
0.43	1	0	0	1	0	0	5	0	0	6	0	0
0.44	0	0	0	1	0	0	9	0	0	11	0	0
0.45	0	0	0	0	0	0	4	0	0	4	0	0
0.46	0	0	0	0	0	0	10	0	0	10	0	0
0.47	0	0	0	1	0	0	7	0	0	3	0	0
0.48	0	0	0	1	0	0	2	0	0	3	0	0
0.49	0	0	0	0	0	0	3	0	0	3	0	0
0.50	0	0	0	1	0	0	7	0	0	8	0	0
SUBTOTAL	1	0	0	24	0	0	150	0	0	185	0	0

~~TOP SECRET~~

- CONTROL NO. [REDACTED]

TABLE A-1

~~TOP SECRET~~

CONTROL NO. [REDACTED]

MISSION * 1036-1 * INSTRUMENT * FRWD

11/28/66

DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY			INTERMEDIATE			FULL			ALL LEVELS		
	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM
0.51	0	0	0	0	0	0	3	0	0	3	0	0
0.52	0	0	0	0	0	0	2	0	0	2	0	0
0.53	0	0	0	0	0	0	2	0	0	2	0	0
0.54	0	0	0	0	0	0	2	0	0	2	0	0
0.55	0	0	0	0	0	0	2	0	0	2	0	0
0.56	0	0	0	0	0	0	2	0	0	2	0	0
0.57	0	0	0	0	0	0	2	0	0	2	0	0
0.58	0	0	0	0	0	0	2	0	0	2	0	0
0.59	0	0	0	0	0	0	2	0	0	2	0	0
0.60	0	0	0	0	0	0	2	0	0	2	0	0
0.61	0	0	0	0	0	0	2	0	0	2	0	0
0.62	0	0	0	0	0	0	2	0	0	2	0	0
0.63	0	0	0	0	0	0	2	0	0	2	0	0
0.64	0	0	0	0	0	0	2	0	0	2	0	0
0.65	0	0	0	0	0	0	2	0	0	2	0	0
0.66	0	0	0	0	0	0	2	0	0	2	0	0
0.67	0	0	0	0	0	0	2	0	0	2	0	0
0.68	0	0	0	0	0	0	2	0	0	2	0	0
0.69	0	0	0	0	0	0	2	0	0	2	0	0
0.70	0	0	0	0	0	0	2	0	0	2	0	0
0.71	0	0	0	0	0	0	2	0	0	2	0	0
0.72	0	0	0	0	0	0	2	0	0	2	0	0
0.73	0	0	0	0	0	0	2	0	0	2	0	0
0.74	0	0	0	0	0	0	2	0	0	2	0	0
0.75	0	0	0	0	0	0	2	0	0	2	0	0
0.76	0	0	0	0	0	0	2	0	0	2	0	0
0.77	0	0	0	0	0	0	2	0	0	2	0	0
0.78	0	0	0	0	0	0	2	0	0	2	0	0
0.79	0	0	0	0	0	0	2	0	0	2	0	0
0.80	0	0	0	0	0	0	2	0	0	2	0	0
0.81	0	0	0	0	0	0	2	0	0	2	0	0
0.82	0	0	0	0	0	0	2	0	0	2	0	0
0.83	0	0	0	0	0	0	2	0	0	2	0	0
0.84	0	0	0	0	0	0	2	0	0	2	0	0
0.85	0	0	0	0	0	0	2	0	0	2	0	0
0.86	0	0	0	0	0	0	2	0	0	2	0	0
0.87	0	0	0	0	0	0	2	0	0	2	0	0
0.88	0	0	0	0	0	0	2	0	0	2	0	0
0.89	0	0	0	0	0	0	2	0	0	2	0	0
0.90	0	0	0	0	0	0	2	0	0	2	0	0
0.91	0	0	0	0	0	0	2	0	0	2	0	0
0.92	0	0	0	0	0	0	2	0	0	2	0	0
0.93	0	0	0	0	0	0	2	0	0	2	0	0
0.94	0	0	0	0	0	0	2	0	0	2	0	0
0.95	0	0	0	0	0	0	2	0	0	2	0	0
0.96	0	0	0	0	0	0	2	0	0	2	0	0
0.97	0	0	0	0	0	0	2	0	0	2	0	0
0.98	0	0	0	0	0	0	2	0	0	2	0	0
0.99	0	0	0	0	0	0	2	0	0	2	0	0
1.00	0	0	0	0	0	0	2	0	0	2	0	0
SUBTOTAL	2	2	2	8	1	0	61	9	0	71	12	0

~~TOP SECRET~~

CONTROL NO. [REDACTED]

TABLE A-1

~~TOP SECRET~~

- CONTROL NO. [REDACTED]

MISSION * 1036-1 * INSTRUMENT * FRWD 11/28/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY			INTERMEDIATE			FULL			ALL LEVELS		
	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM
1.01	0	0	0	0	0	0	0	0	0	0	0	0
1.02	0	0	0	0	0	0	0	0	0	0	0	0
1.03	0	0	0	0	0	0	0	0	0	0	0	0
1.04	0	0	0	0	0	0	0	0	0	0	0	0
1.05	0	0	0	0	0	0	0	0	0	0	0	0
1.05	0	0	0	0	0	0	0	3	0	0	0	0
1.07	0	0	0	0	0	0	0	2	0	0	0	0
1.08	0	0	0	0	0	0	0	1	0	0	0	0
1.09	0	0	0	0	0	0	0	0	0	0	0	0
1.10	0	0	0	0	0	0	0	6	1	1	0	0
1.11	0	0	0	0	0	0	0	1	0	0	0	0
1.12	0	0	0	0	0	0	0	0	0	0	0	0
1.13	0	0	0	0	0	0	0	0	0	0	0	0
1.14	0	0	0	0	0	0	0	1	1	0	0	0
1.15	0	0	0	0	0	0	0	2	1	1	1	1
1.16	0	0	0	0	0	0	0	1	1	0	0	0
1.17	0	0	0	0	0	0	0	1	1	1	1	1
1.18	0	0	0	0	0	0	0	2	2	1	2	2
1.19	0	0	0	0	0	0	0	2	2	0	2	0
1.20	0	0	0	0	0	0	0	0	0	1	0	0
1.21	0	0	0	0	0	0	0	0	0	1	1	1
1.22	0	0	0	0	0	0	0	1	1	1	1	1
1.23	0	0	0	0	0	0	0	1	1	0	1	0
1.24	0	0	0	0	0	0	0	3	1	3	3	3
1.25	0	0	0	0	0	0	0	1	1	1	1	1
1.26	0	0	0	0	0	0	0	6	6	0	6	0
1.27	0	0	0	0	0	0	0	2	2	0	2	0
1.28	0	0	0	0	0	0	0	2	2	0	2	0
1.29	0	0	0	0	0	0	0	2	2	0	2	0
1.30	0	0	0	0	0	0	0	6	6	0	7	0
1.31	0	0	0	0	0	0	0	3	3	0	3	0
1.32	0	0	0	0	0	0	0	2	1	0	4	0
1.33	0	0	0	0	0	0	0	5	1	0	5	0
1.34	0	0	0	0	0	0	0	2	2	0	2	0
1.35	0	0	0	0	0	0	0	2	2	0	2	0
1.36	0	0	0	0	0	0	0	3	3	0	3	0
1.37	0	0	0	0	0	0	0	2	2	0	2	0
1.38	0	0	0	0	0	0	0	2	2	0	2	0
1.39	0	0	0	0	0	0	0	2	2	0	2	0
1.40	0	0	0	0	0	0	0	2	2	0	2	0
1.41	0	0	0	0	0	0	0	5	5	0	5	0
1.42	0	0	0	0	0	0	0	3	3	0	3	0
1.43	0	0	0	0	0	0	0	3	3	0	3	0
1.44	0	0	0	0	0	0	0	2	2	0	2	0
1.45	0	0	0	0	0	0	0	5	5	0	5	0
1.46	0	0	0	0	0	0	0	2	2	0	2	0
1.47	0	0	0	0	0	0	0	2	2	0	2	0
1.48	0	0	0	0	0	0	0	0	0	0	0	0
1.49	0	0	0	0	0	0	0	5	5	0	7	0
1.50	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	1	0	3	11	3	1	102	1	4	114	4

~~TOP SECRET~~

- CONTROL NO. [REDACTED]

TABLE A-1

~~TOP SECRET~~

CONTROL NO. [REDACTED]

MISSION # 1036-1 * INSTRUMENT * FRWD 11/28/65 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY			INTERMEDIATE			FULL			ALL LEVELS		
	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM
1.51	0	0	0	0	0	0	0	1	0	0	0	0
1.52	0	0	0	1	0	0	0	4	0	0	1	0
1.53	0	0	0	0	0	0	0	1	0	0	1	0
1.54	0	0	0	0	1	0	0	0	0	0	1	0
1.55	0	0	0	0	0	0	0	2	0	0	2	0
1.56	0	0	0	0	0	0	0	1	0	0	1	0
1.57	0	0	0	0	0	0	0	1	0	0	1	0
1.58	0	0	0	1	1	0	0	3	0	0	4	0
1.59	0	0	0	0	0	0	0	1	0	0	1	0
1.60	0	0	0	0	0	0	0	9	0	0	1	0
1.61	0	0	0	0	0	0	0	2	0	0	6	0
1.62	0	0	0	0	4	0	0	2	0	0	2	0
1.63	0	0	0	0	1	0	0	2	0	0	3	0
1.64	0	0	0	0	1	0	0	2	0	0	4	0
1.65	0	0	0	0	1	0	0	2	0	0	2	0
1.66	0	0	0	0	0	0	0	2	0	0	2	0
1.67	0	0	0	0	0	0	0	2	0	0	0	0
1.68	0	0	0	0	1	0	0	2	0	0	3	0
1.69	0	0	0	0	0	0	0	2	0	0	2	0
1.70	0	0	0	0	1	0	0	5	0	0	6	0
1.71	0	0	0	0	0	0	0	3	0	0	5	0
1.72	0	0	0	0	2	0	0	3	0	0	3	0
1.73	0	0	0	0	0	0	0	3	0	0	3	0
1.74	0	0	0	0	0	0	0	3	0	0	3	0
1.75	0	0	0	0	0	0	0	4	0	0	5	0
1.76	0	0	0	0	1	0	0	3	0	0	3	0
1.77	0	0	0	0	0	0	0	3	0	0	3	0
1.78	0	0	0	0	0	0	0	1	0	0	1	0
1.79	0	0	0	0	0	0	0	1	0	0	1	0
1.80	0	0	0	0	0	0	0	1	0	0	2	0
1.81	0	0	0	0	0	0	0	1	0	0	1	0
1.82	0	0	0	0	0	0	0	0	0	0	1	0
1.83	0	0	0	0	0	0	0	0	0	0	0	0
1.84	0	0	0	0	2	0	0	1	0	0	3	0
1.85	0	0	0	0	0	0	0	2	0	0	2	0
1.86	0	0	0	0	0	0	0	2	0	0	2	0
1.87	0	0	0	0	0	0	0	0	0	0	4	0
1.88	0	0	0	0	1	0	0	3	0	0	0	0
1.89	0	0	0	0	0	0	0	0	0	0	3	0
1.90	0	0	0	0	0	0	0	3	0	0	3	0
1.91	0	0	0	1	0	0	0	2	0	0	2	0
1.92	0	0	0	0	2	0	0	3	0	0	5	0
1.93	0	0	0	0	1	0	0	3	0	0	2	0
1.94	0	0	0	0	1	0	0	4	0	0	4	0
1.95	0	0	0	0	0	0	0	1	0	0	1	0
1.96	0	0	0	0	0	0	0	3	0	0	3	0
1.97	0	0	0	0	0	0	0	1	0	0	1	0
1.98	0	0	0	0	0	0	0	0	0	0	1	0
1.99	0	0	0	0	0	0	0	0	0	0	0	0
2.00	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	1	3	25	10	0	97	13	3	122	24

~~TOP SECRET~~

CONTROL NO. [REDACTED]

TABLE A-1

~~TOP SECRET~~

CONTROL NO. [REDACTED]

MISSION * 1036-1 * INSTRUMENT * FRWD 11/28/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY			INTERMEDIATE			FULL			ALL LEVELS		
	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM
2.01	0	0	0	0	0	0	0	1	1	0	1	1
2.02	0	0	1	0	0	0	0	0	0	0	0	0
2.03	0	0	0	0	0	0	0	0	0	0	0	0
2.04	0	0	0	0	0	0	0	0	0	0	0	0
2.05	0	0	0	0	0	1	0	1	1	0	2	3
2.06	0	0	0	0	0	0	0	0	0	0	0	0
2.07	0	0	0	0	0	0	0	0	0	0	0	0
2.08	0	0	0	0	0	1	0	0	0	0	0	0
2.09	0	0	0	0	0	0	0	5	0	0	0	3
2.10	0	0	0	0	0	1	1	0	0	0	0	1
2.11	0	0	0	0	0	0	1	0	0	0	0	3
2.12	0	0	0	0	0	0	1	1	0	0	1	3
2.13	0	0	0	0	0	0	0	0	0	0	0	0
2.14	0	0	0	0	0	0	0	0	0	0	0	0
2.15	0	0	0	0	0	0	0	0	0	0	0	0
2.16	0	0	0	0	0	0	0	0	1	0	0	1
2.17	0	0	0	0	0	0	0	0	0	0	0	0
2.18	0	0	0	0	0	0	0	0	0	0	0	0
2.19	0	0	0	0	0	1	1	0	0	0	0	1
2.20	0	0	1	0	0	1	1	1	1	0	2	3
2.21	0	0	0	0	0	0	0	1	1	0	1	2
2.22	0	0	0	0	0	0	0	0	0	0	0	0
2.23	0	0	0	0	0	0	0	0	5	0	0	1
2.24	0	0	0	0	0	0	0	0	1	0	0	1
2.25	0	0	0	0	0	0	0	0	3	7	5	7
2.26	0	0	0	0	0	0	0	0	0	0	0	0
2.27	0	0	0	0	0	0	0	0	0	0	0	0
2.28	0	0	0	0	0	0	0	0	0	0	0	0
2.29	0	0	0	0	0	0	0	0	0	0	0	0
2.30	0	0	0	0	0	0	0	0	0	0	0	18
2.31	0	0	0	0	0	0	0	0	18	0	0	7
2.32	0	0	0	0	0	0	0	0	10	0	0	11
2.33	0	0	0	0	0	0	0	0	7	0	0	8
2.34	0	0	0	0	0	0	0	0	13	0	0	14
2.35	0	0	0	0	0	0	0	0	6	0	0	6
2.36	0	0	0	0	0	0	0	0	8	0	0	9
2.37	0	0	0	0	0	0	0	0	11	0	0	11
2.38	0	0	0	0	0	0	0	0	14	0	0	16
2.39	0	0	0	0	0	0	0	0	5	0	0	5
2.40	0	0	0	0	0	0	0	0	14	0	0	15
2.41	0	0	0	0	0	0	0	0	7	0	0	7
2.42	0	0	0	0	0	0	0	0	10	0	0	10
2.43	0	0	0	0	0	0	0	0	12	0	0	12
2.44	0	0	0	0	0	0	0	0	4	0	0	4
2.45	0	0	0	0	0	0	0	0	4	0	0	4
2.46	0	0	0	0	0	0	0	0	0	0	0	0
2.47	0	0	0	0	0	0	0	0	0	0	0	0
2.48	0	0	0	0	0	0	0	0	0	0	0	0
2.49	0	0	0	0	0	0	0	0	0	0	0	0
2.50	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	4	0	1	21	0	14	189	0	15	213

~~TOP SECRET~~

CONTROL NO. [REDACTED]

TABLE A-1

~~TOP SECRET~~

CONTROL NO. [REDACTED]

MISSION # 1036-1 * INSTRUMENT * FRWD 11/28/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY			INTERMEDIATE			FULL			ALL LEVELS		
	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM
2.51	0	0	0	0	0	0	0	0	0	0	0	0
2.52	0	0	0	0	0	0	0	0	0	0	0	0
2.53	0	0	0	0	0	0	0	0	0	0	0	0
2.54	0	0	0	0	0	0	0	0	0	0	0	0
2.55	0	0	0	0	0	0	0	0	0	0	0	0
2.56	0	0	0	0	0	0	0	0	0	0	0	0
2.57	0	0	0	0	0	0	0	0	0	0	0	0
2.58	0	0	0	0	0	0	0	0	0	0	0	0
2.59	0	0	0	0	0	0	0	0	0	0	0	0
2.60	0	0	0	0	0	0	0	0	0	0	0	0
2.61	0	0	0	0	0	0	0	0	0	0	0	0
2.62	0	0	0	0	0	0	0	0	0	0	0	0
2.63	0	0	0	0	0	0	0	0	0	0	0	0
2.64	0	0	0	0	0	0	0	0	0	0	0	0
2.65	0	0	0	0	0	0	0	0	0	0	0	0
2.66	0	0	0	0	0	0	0	0	0	0	0	0
2.67	0	0	0	0	0	0	0	0	0	0	0	0
2.68	0	0	0	0	0	0	0	0	0	0	0	0
2.69	0	0	0	0	0	0	0	0	0	0	0	0
2.70	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	3	3	5	38	38	34	222	222	202	263	263	241

MISSION 1036-1 INSTR - FRWD 11/28/66 PROCESSING AND EXPOSURE ANALYSIS

PROCESS LEVEL	SAMPLE SIZE	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PRJC	OVER PROCESSED	OVER EXPOSED
PRIMARY	3	0 PC	0 PC	100 PC	0 PC	0 PC
INTERMEDIATE	38	5 PC	34 PC	39 PC	13 PC	8 PC
FULL	222	38 PC	0 PC	61 PC	0 PC	0 PC
ALL LEVELS	263	33 PC	5 PC	59 PC	2 PC	1 PC

PROCESS LEVEL	BASE + FUG	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PRJC	OVER PROCESSED	OVER EXPOSED
PRIMARY	0.01-0.09	0.01-0.13	0.14-0.39	0.40-0.90	-----	0.91 AND UP
INTERMED	0.10-0.17	0.01-0.20	0.21-0.39	0.40-0.90	0.91-1.34	1.35 AND UP
FULL	0.18 AND UP	0.01-0.39	-----	0.40-0.90	0.91-1.69	1.70 AND UP

~~TOP SECRET~~

CONTROL NO. [REDACTED]

TABLE A-1

~~TOP SECRET~~

CONTROL NO.

MISSION # 1036-1 * INSTR # FRWD # 11/28/66 PLOT OF D MIN * TERRAIN * PROCESSING * PRIMARY
ARITH MEAN * 0.55 * MEDIAN * 0.54 * STD DEV * 0.12 * RANGE * 0.44 TO 0.57 WITH 3 SAMPLES

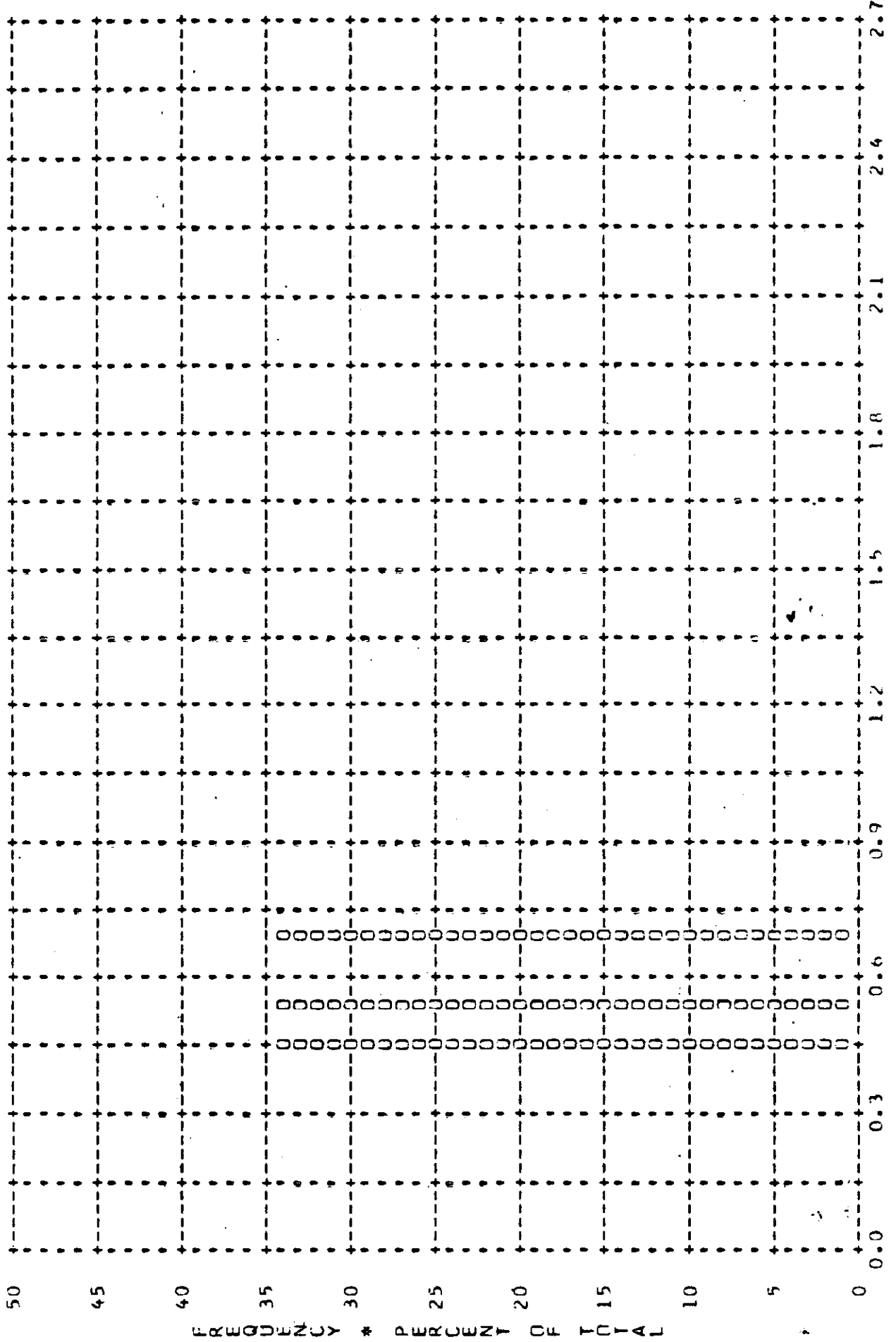


FIGURE A-1

~~TOP SECRET~~

CONTROL NO.

MISSION * 1036-1 * INSTR * FRWD * 11/28/66 PLOT OF D MAX * TERRAIN * PROCESSING * PRIMARY
ARITH MEAN * 1.01 * MEDIAN * 0.87 * STD DEV * 0.27 * RANGE * 0.84 TO 1.32 WITH 3 SAMPLES

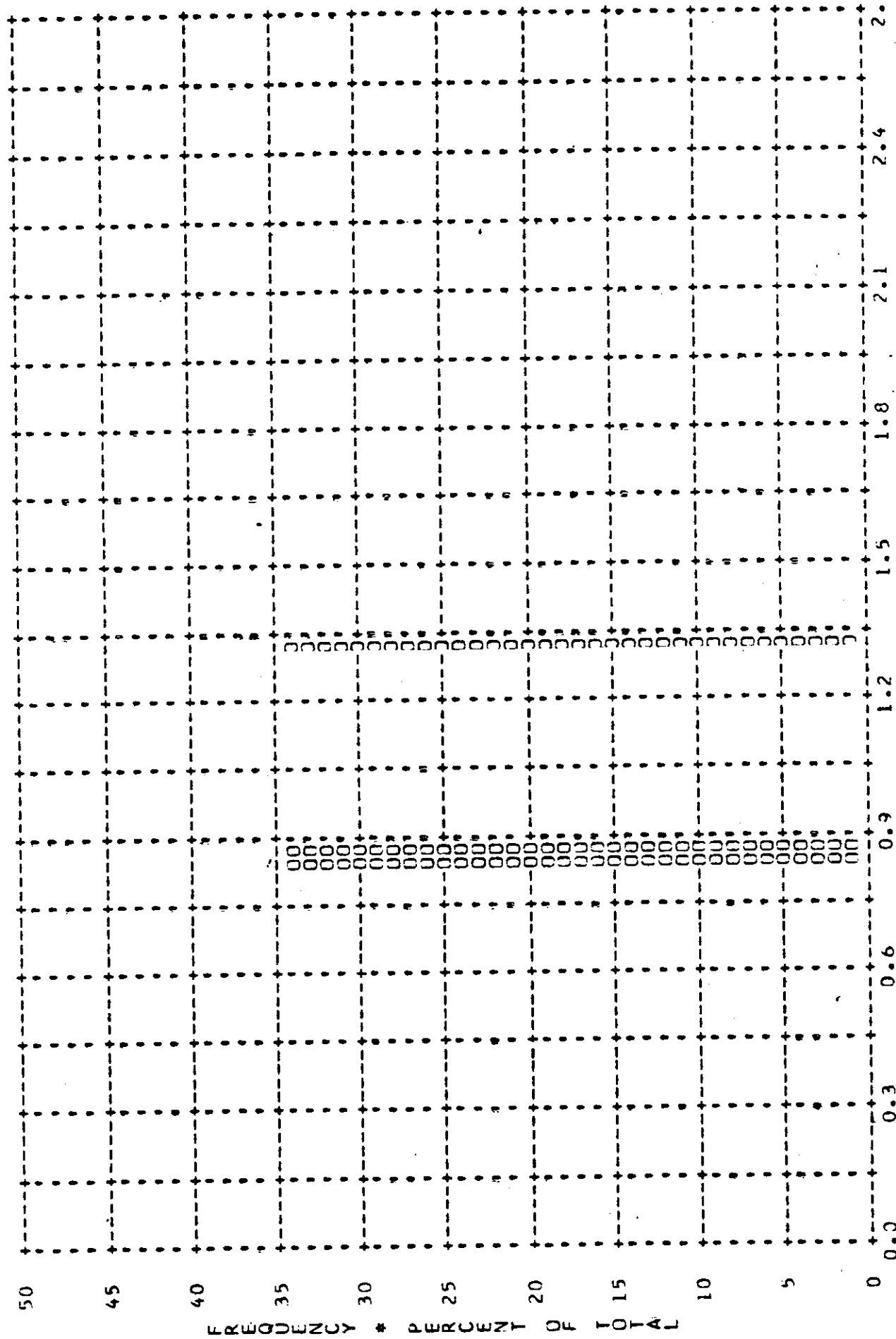


FIGURE A-2

* DENSITY *

~~TOP SECRET~~

- CONTROL NO. [REDACTED]

MISSION * 1036-1 * INSTR * FRWD * 11/28/56 PLOT OF J MAX * CLOUD * PROCESSING * PRIMARY
ARITH MEAN * 2.05 * MEDIAN * 2.06 * STD DEV * 0.11 * RANGE * 1.30 TO 2.20 WITH 5 SAMPLES

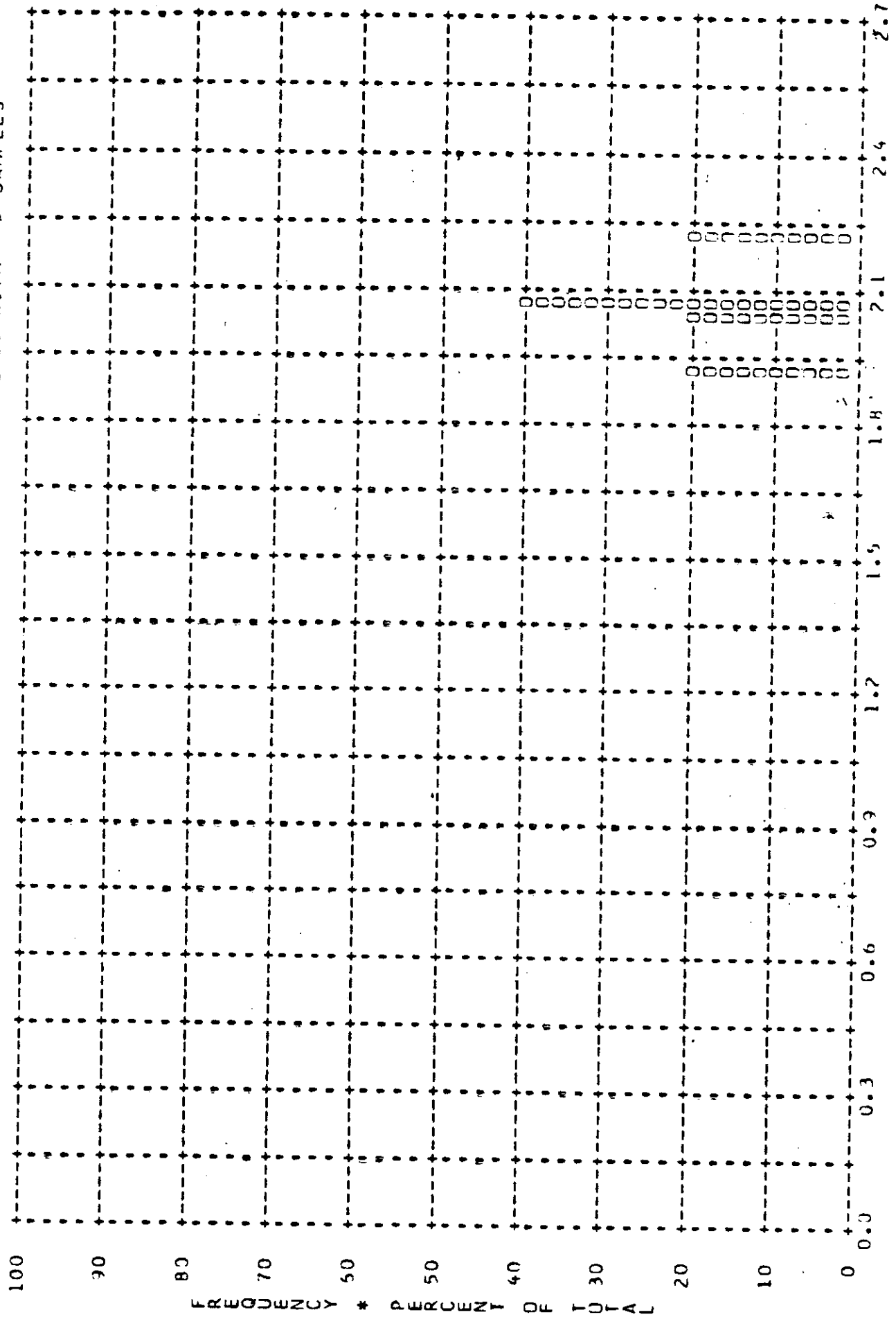


FIGURE A-3

* DENSITY * [REDACTED]

~~TOP SECRET~~

~~TOP SECRET~~

CONTROL NO.

MISSION * 1036-1 * INSTR * FRWD * 11/28/66 PLOT OF 0 MIN * FERRAIN * PROCESSING * INTERMEDIATE
ARITH MEAN * 0.61 * MEDIAN * 0.43 * STD DEV * 0.42 * RANGE * 0.20 TO 1.91 WITH 38 SAMPLES

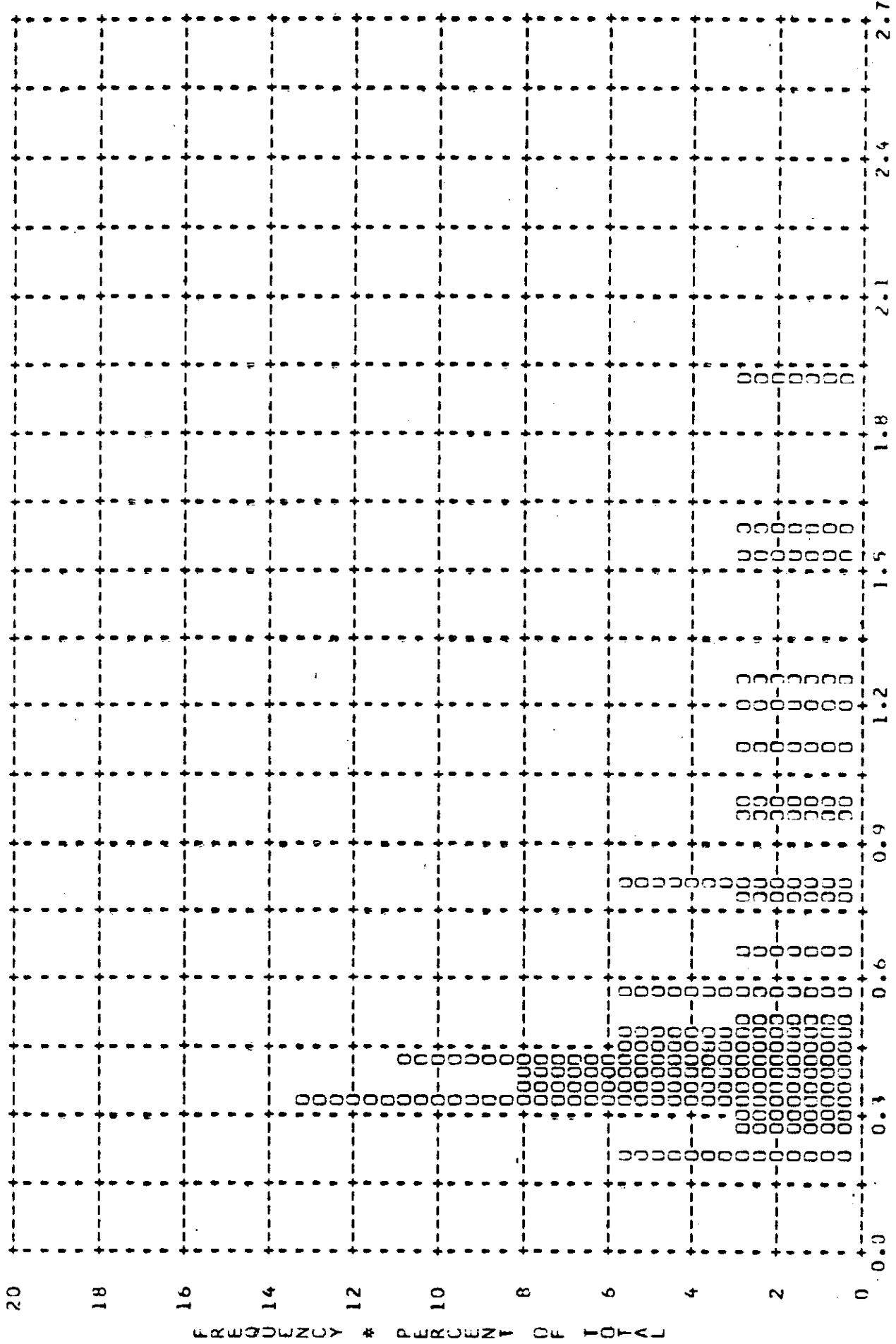
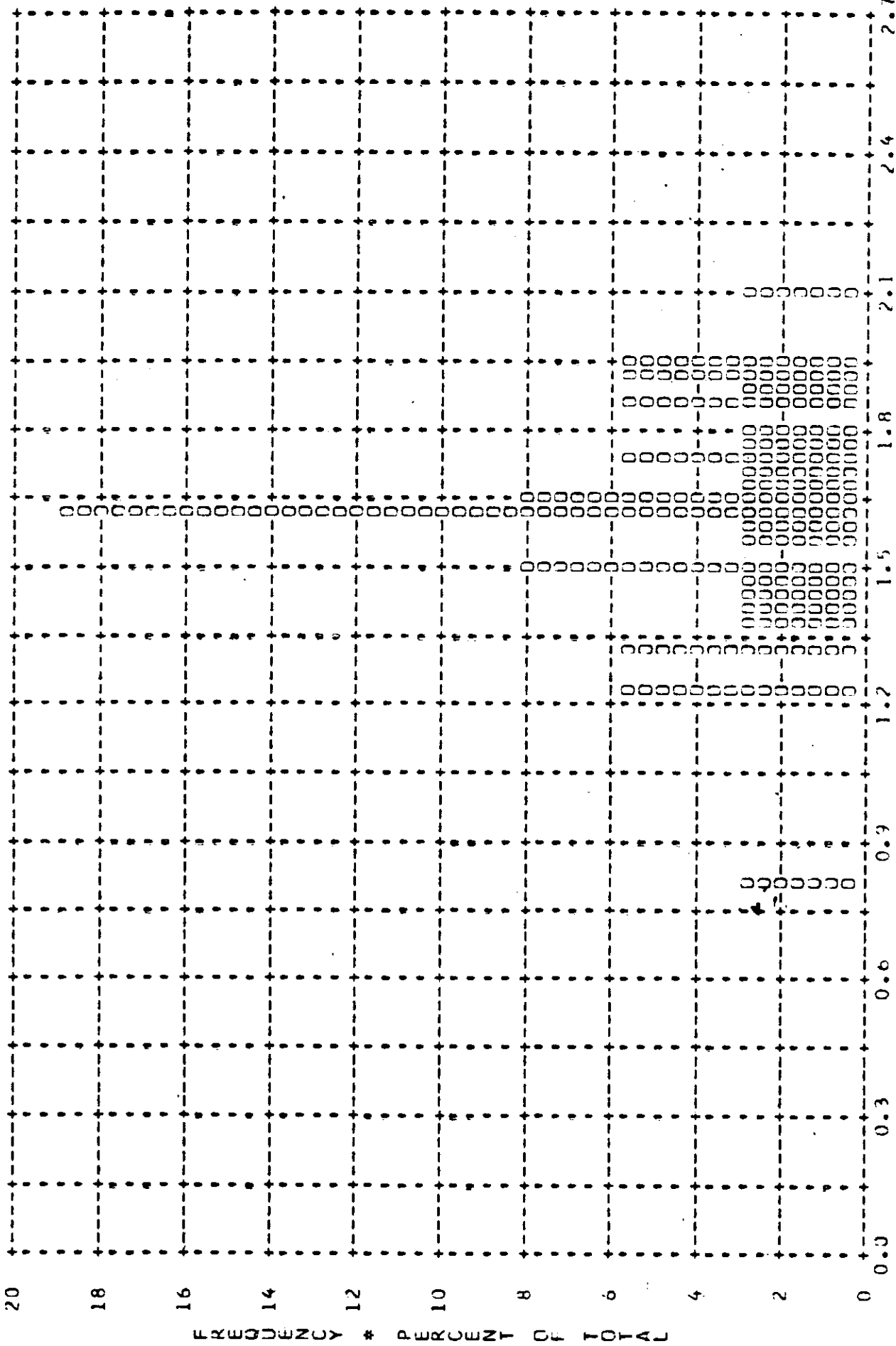


FIGURE A-4

~~TOP SECRET~~

[REDACTED] - CONTROL NO.

MISSION * 1036-1 * INSIR * FRWD * 11/28/66 PLOT OF D MAX * TERRAIN * PROCESSING * INTERMEDIATE
ARITH MEAN * 1.61 * MEDIAN * 1.62 * STD DEV * 0.25 * RANGE * 0.80 TO 2.10 WITH 38 SAMPLES



~~TOP SECRET~~

- CONTROL NO.

MISSION # 1036-1 * INSTR # 11/28/66 PLOT OF D MAX * CLOUD * PROCESSING # INTERMEDIATE
ARITH MEAN * 2.05 * MEDIAN * 2.12 * STD DEV * 0.30 * RANGE * 1.15 TO 2.40 WITH 34 SAMPLES

FREQUENCY	PERCENT OF TOTAL	0.0	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7
10											
9											
8											
7											
6											
5											
4											
3											
2											
1											
0											

FIGURE A-6

* DENSITY *

~~TOP SECRET~~

CONTROL NO.

MISSION * 1036-1 * INSTR * FRWD * 11/28/66 PLOT OF D MIN * TERRAIN * PROCESSING * FULL
ARITH MEAN * 0.46 * MEDIAN * 0.42 * STD DEV * 0.13 * RANGE * 0.28 TO 1.18 WITH 222 SAMPLES

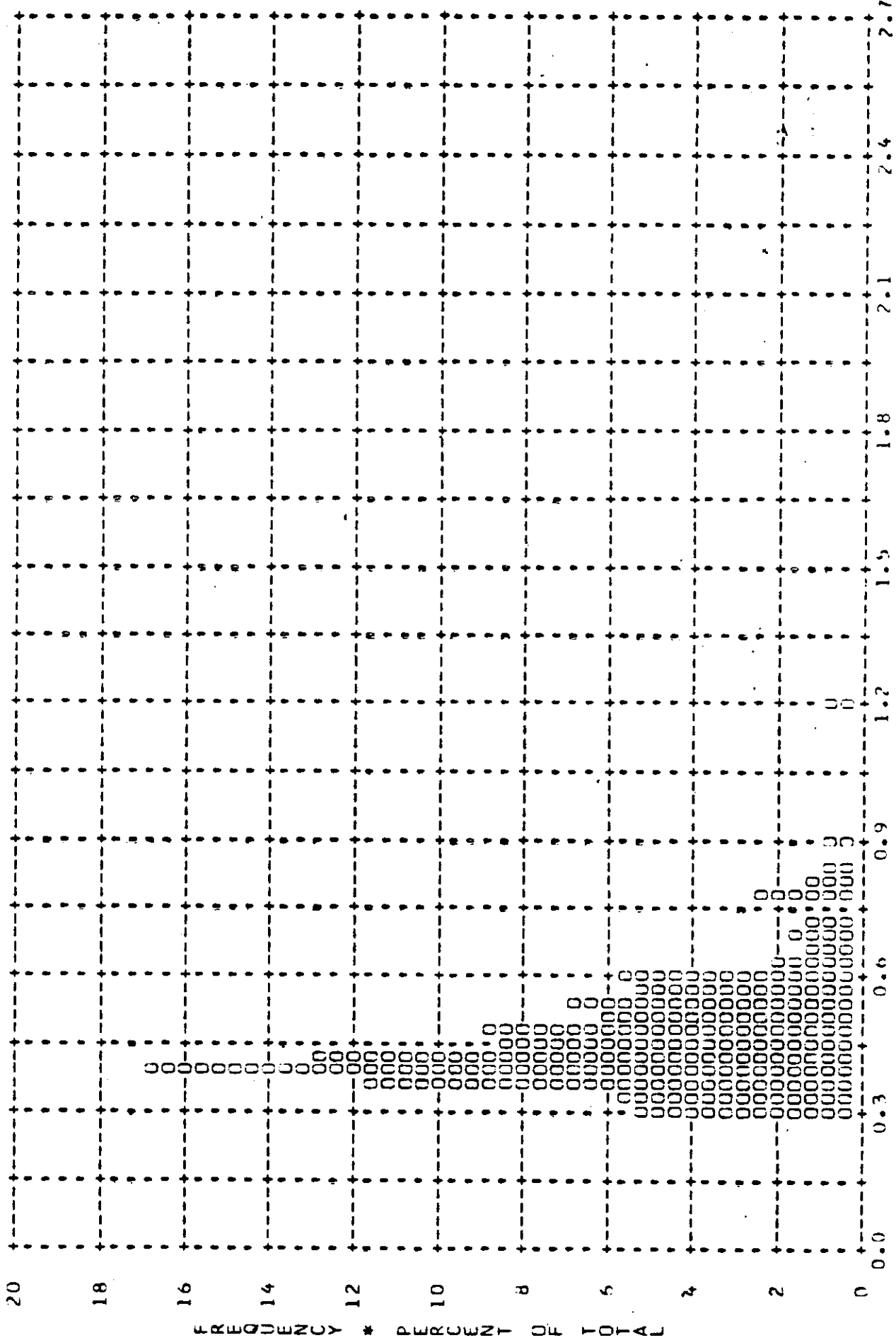


FIGURE A-7

~~TOP SECRET~~

CONTROL NO.

MISSION * 1036-1 * INSTR * FRWD * 11/28/56 PLOT OF D MAX * TERRAIN * PROCESSING * FULL
ARITH MEAN * 1.54 * MEDIAN * 1.51 * STD DEV * 0.32 * RANGE * 0.81 TO 2.40 WITH 222 SAMPLES

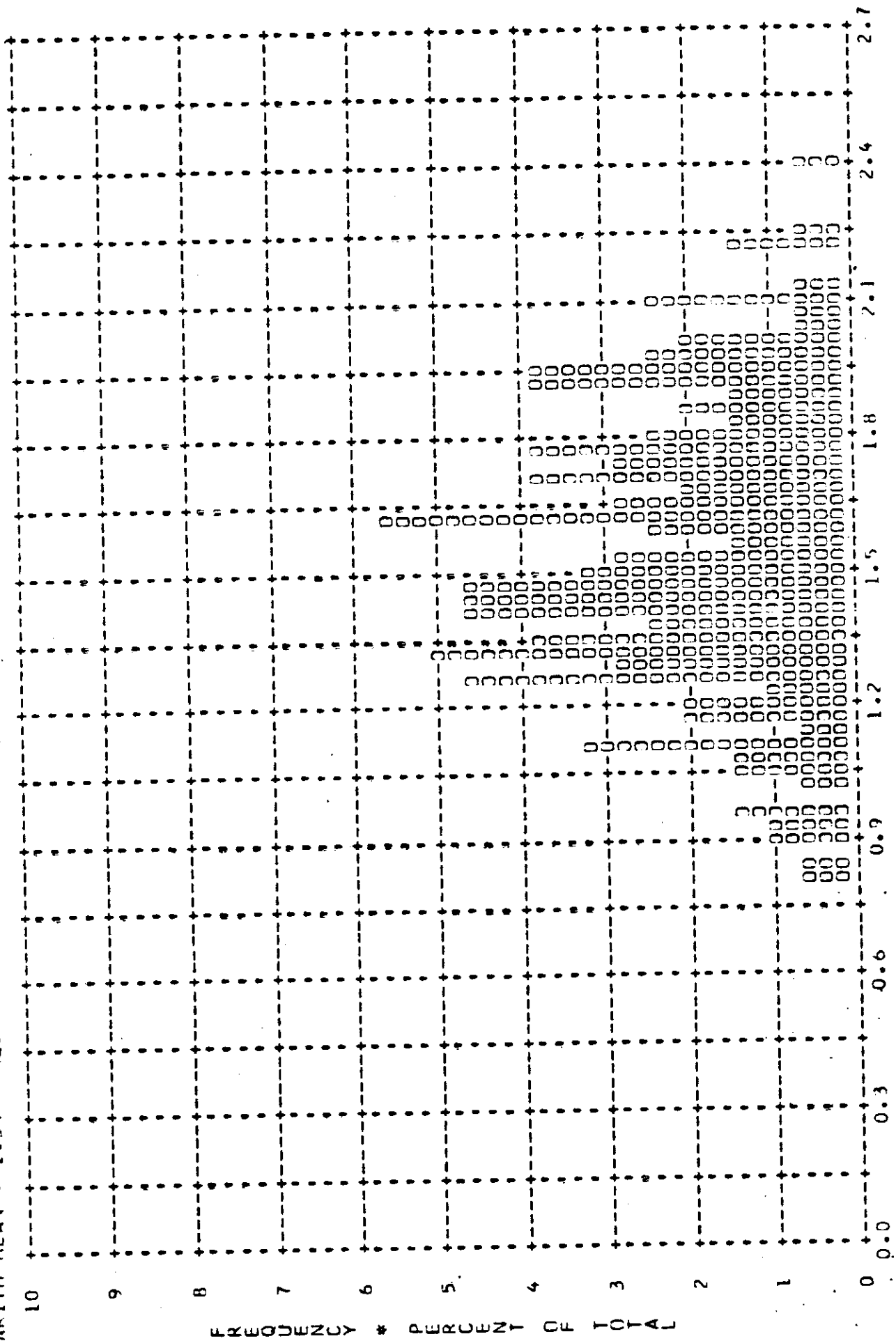


FIGURE A-8

144-5f-6044

- CONTROL NO.

MISSION * 1036-1 * INSTR * FRWD * 11/28/66 PLOT OF D MAX * CLOUD * PRUCESSING * FULL
ARITH MEAN * 2.29 * MEDIAN * 2.34 * STD DEV * 0.18 * RANGE * 1.10 TO 2.47 WITH 202 SAMPLES

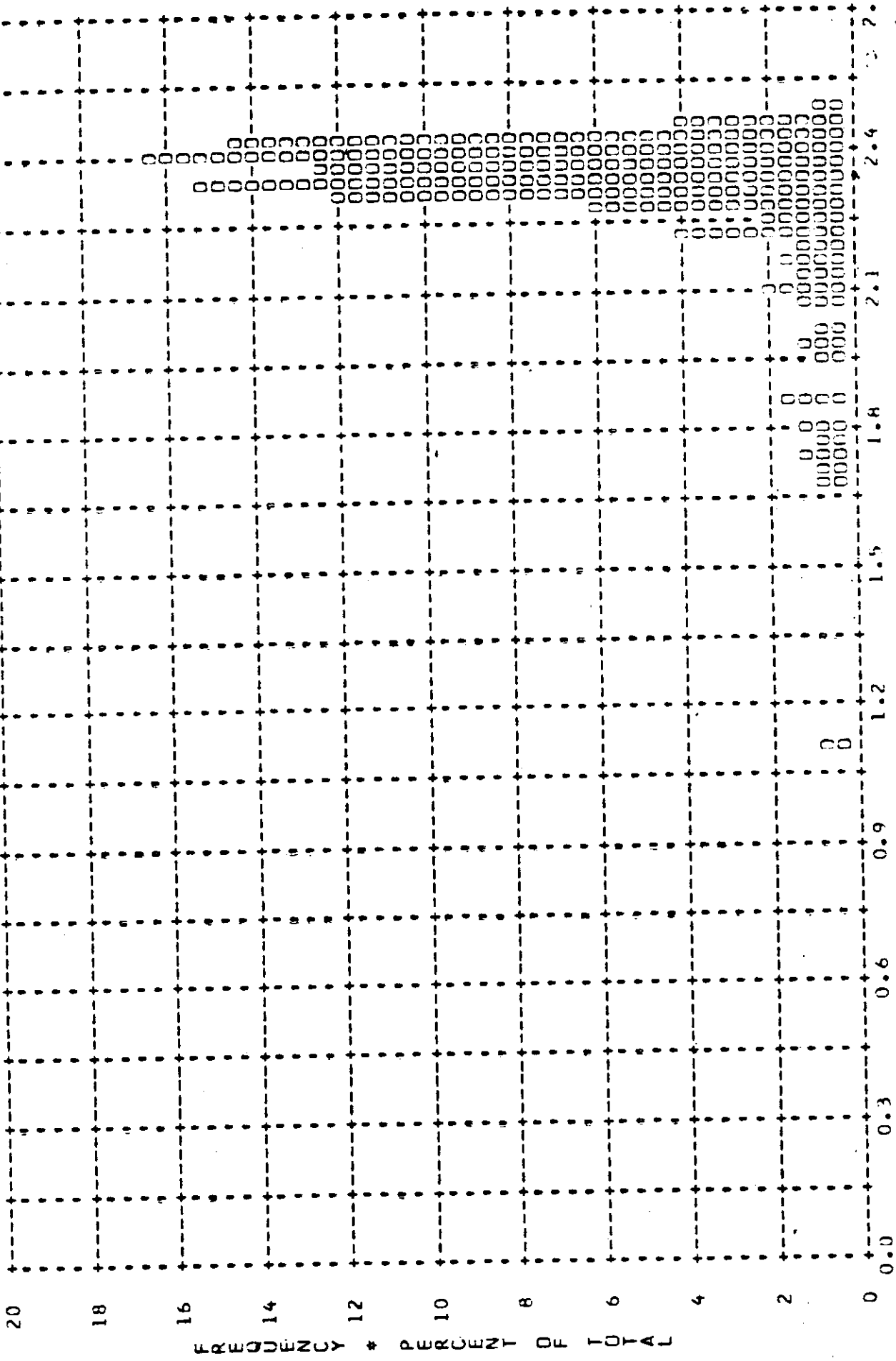


FIGURE A-9

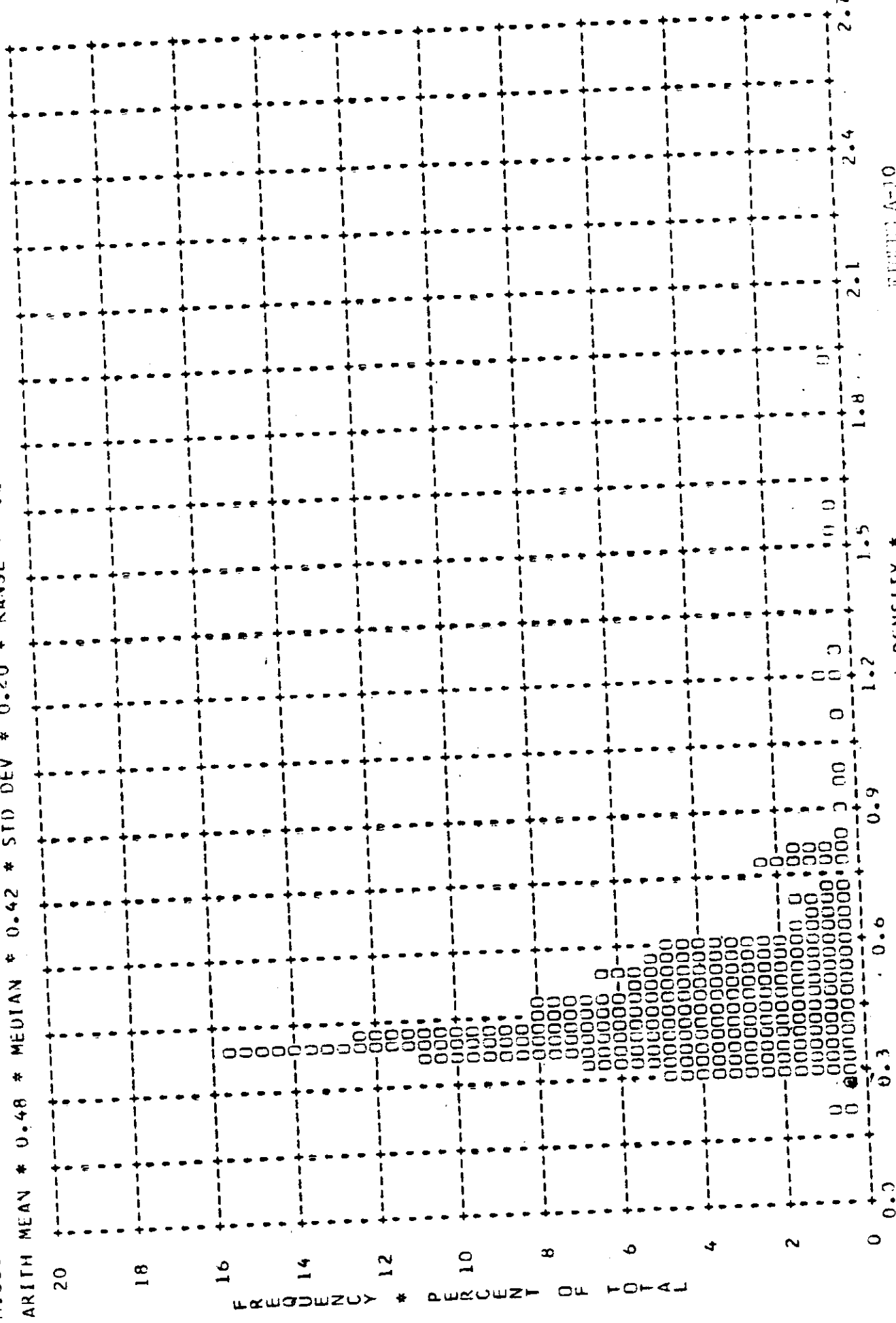
* DENSITY *

CONTROL NO.

~~TOP SECRET~~

CONTR. NO.

MISSION # 1036-1 * INSTR # FRWD * 11/28/66 PLOT OF D MIN * TERRAIN * PROCESSING * ALL LEVELS
ARITH MEAN * 0.48 * MEDIAN * 0.42 * STD DEV * 0.20 * RANGE * 0.20 TO 1.91 WITH 263 SAMPLES



FORM A-10

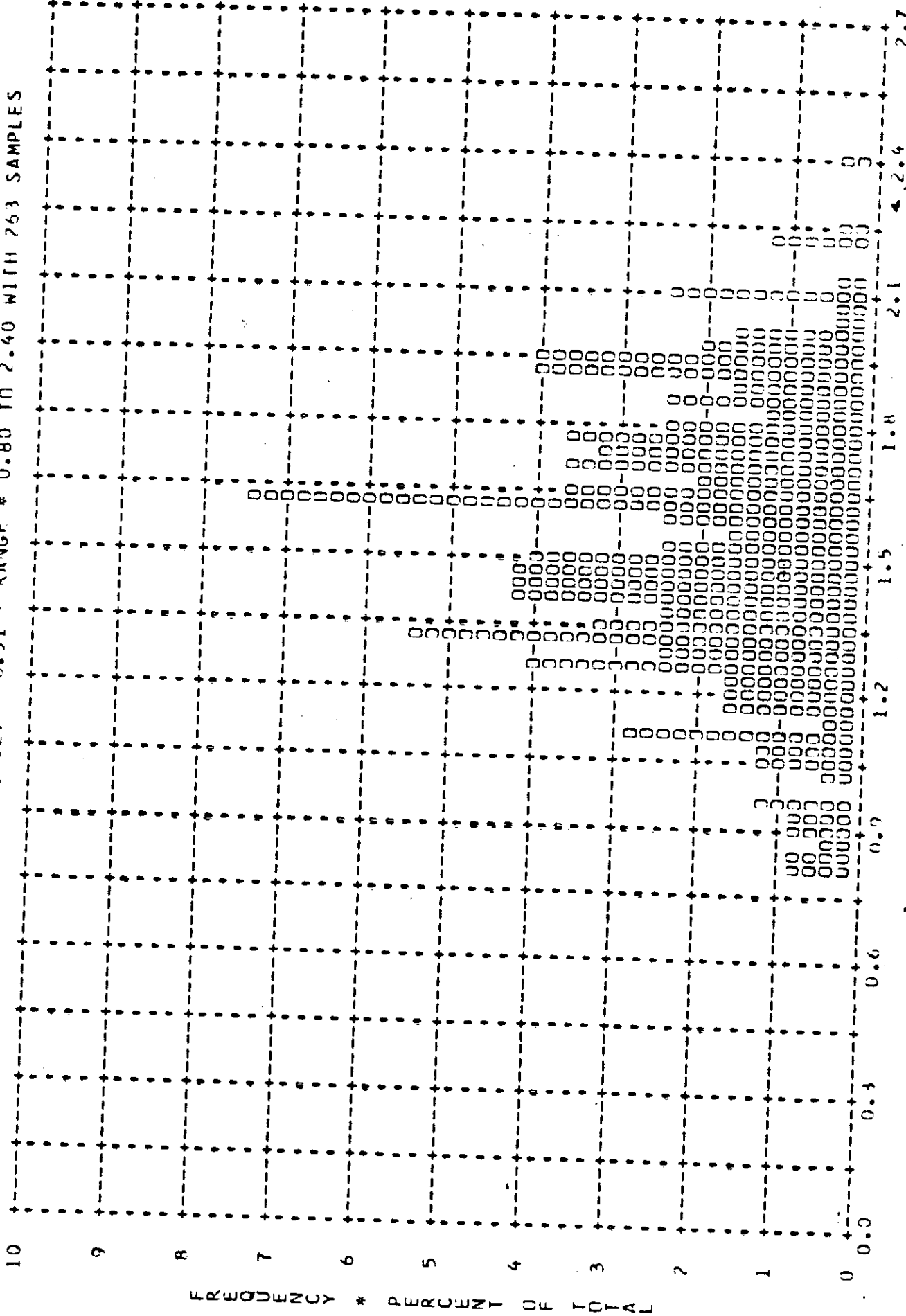
* DENSITY *

- CONTROL NO.

~~TOP SECRET~~

CONTROL NO.

MISSION # 1036-1 * INSTR * FRWD * 11/28/66 PLOT OF D MAX * TERRAIN * PROCESSING * ALL LEVELS
ARITH MEAN # 1.54 * MEDIAN # 1.53 * STD DEV * 0.31 * RANGE # 0.80 TO 2.40 WITH 263 SAMPLES



~~TOP SECRET~~

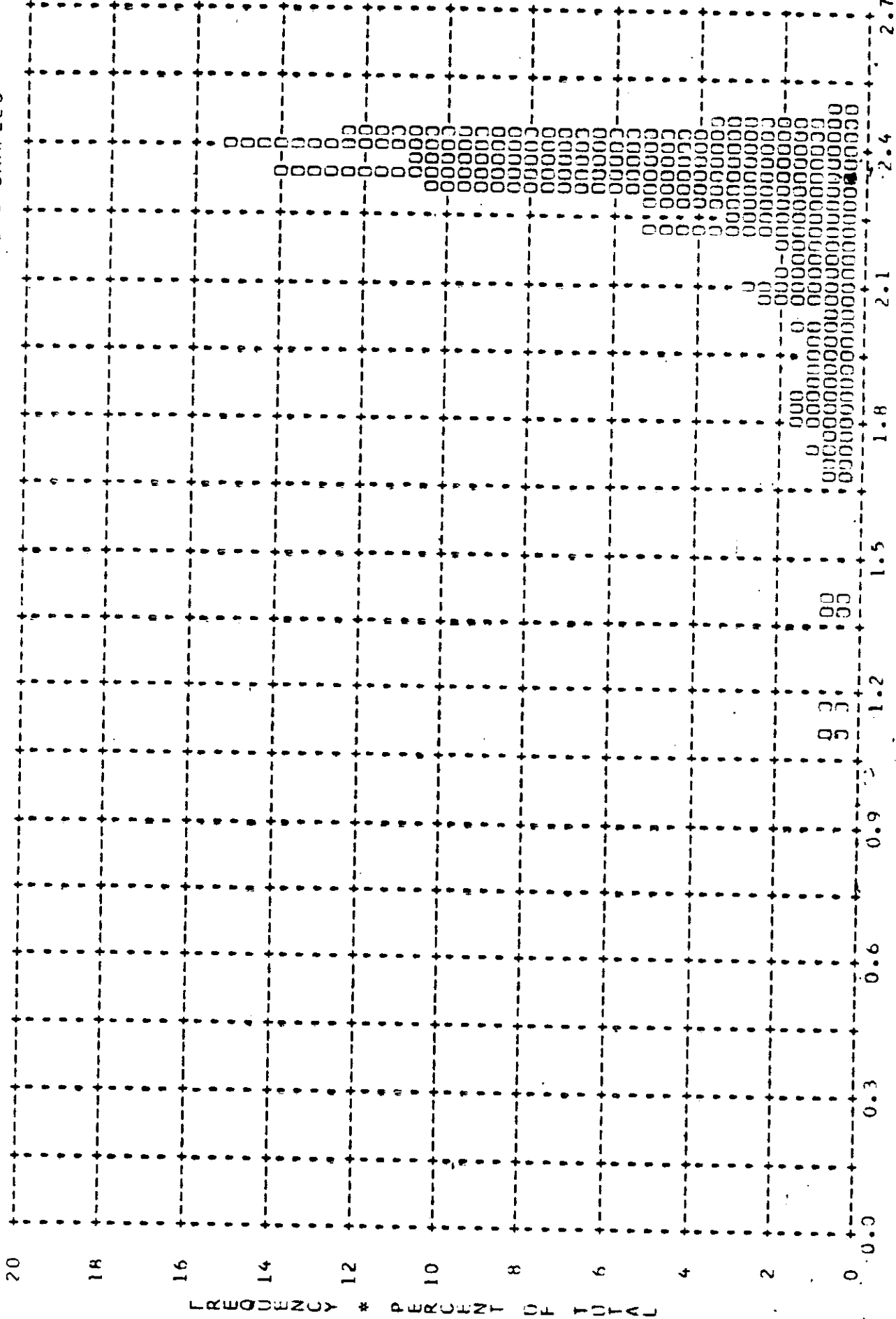
* DENSITY #

11/28/66

TOP SECRET

CONTROL NO.

MISSION # 1036-1 * INSTR # FRWD * 11/28/66 PLOT OF D MAX # CLOUD * PROCESSING * ALL LEVELS
ARITH MEAN # 2.26 * MEDIAN # 2.33 * STD DEV # 0.22 * RANGE # 1.10 TO 2.47 WITH 241 SAMPLES



FORM A-12

DENSITY #

~~TOP SECRET~~

- CONTROL NO. [REDACTED]

MISSION * 1036-1 * INSTRUMENT * AFT 11/28/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY			INTERMEDIATE			FULL			ALL LEVELS		
	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM
0.01	0	0	0	0	0	0	0	0	0	0	0	0
0.02	0	0	0	0	0	0	0	0	0	0	0	0
0.03	0	0	0	0	0	0	0	0	0	0	0	0
0.04	0	0	0	0	0	0	0	0	0	0	0	0
0.05	0	0	0	0	0	0	0	0	0	0	0	0
0.06	0	0	0	0	0	0	0	0	0	0	0	0
0.07	0	0	0	0	0	0	0	0	0	0	0	0
0.08	0	0	0	0	0	0	0	0	0	0	0	0
0.09	0	0	0	0	0	0	0	0	0	0	0	0
0.10	0	0	0	0	0	0	0	0	0	0	0	0
0.11	0	0	0	0	0	0	0	0	0	0	0	0
0.12	0	0	0	0	0	0	0	0	0	0	0	0
0.13	0	0	0	0	0	0	0	0	0	0	0	0
0.14	0	0	0	0	0	0	0	0	0	0	0	0
0.15	0	0	0	0	0	0	0	0	0	0	0	0
0.16	0	0	0	0	0	0	0	0	0	0	0	0
0.17	0	0	0	0	0	0	0	0	0	0	0	0
0.18	0	0	0	0	0	0	0	0	0	0	0	0
0.19	0	0	0	0	0	0	0	0	0	0	0	0
0.20	0	0	0	0	0	0	0	0	0	0	0	0
0.21	0	0	0	0	0	0	0	0	0	0	0	0
0.22	0	0	0	0	0	0	0	0	0	0	0	0
0.23	0	0	0	0	0	0	0	0	0	0	0	0
0.24	0	0	0	0	0	0	0	0	0	0	0	0
0.25	0	0	0	0	0	0	1	0	0	1	0	0
0.26	0	0	0	0	0	0	0	0	0	0	0	0
0.27	0	0	0	0	0	1	0	0	0	1	0	0
0.28	0	0	0	0	0	0	0	0	0	0	0	0
0.29	0	0	0	0	0	0	0	0	0	0	0	0
0.30	0	0	0	0	0	0	0	0	0	0	0	0
0.31	0	0	0	0	0	2	0	0	0	3	0	0
0.32	0	0	0	0	0	1	0	0	0	4	0	0
0.33	0	0	0	0	0	0	0	0	0	3	0	0
0.34	0	0	0	0	0	0	0	0	0	3	0	0
0.35	0	0	0	0	0	0	0	0	0	3	0	0
0.36	0	0	0	0	0	0	0	0	0	3	0	0
0.37	0	0	0	0	0	0	1	0	0	10	0	0
0.38	0	0	0	0	0	0	3	0	0	4	0	0
0.39	0	0	0	0	0	0	4	0	0	3	0	0
0.40	0	0	0	0	0	1	2	0	0	3	0	0
0.41	0	0	0	0	0	1	4	0	0	13	0	0
0.42	0	0	0	0	0	1	4	0	0	14	0	0
0.43	0	0	0	0	0	0	6	0	0	15	0	0
0.44	0	0	0	0	0	0	10	0	0	6	0	0
0.45	0	0	0	0	0	0	8	0	0	10	0	0
0.46	0	0	0	0	0	2	4	0	0	4	0	0
0.47	0	0	0	0	0	0	5	0	0	5	0	0
0.48	0	0	0	0	0	0	4	0	0	4	0	0
0.49	0	0	0	0	0	0	3	0	0	3	0	0
0.50	0	0	0	0	0	1	10	0	0	11	0	0
SUBTOTAL	0	0	0	10	0	0	112	0	0	122	0	0

~~TOP SECRET~~

- CONTROL NO. [REDACTED]

TABLE A-2

~~TOP SECRET~~

- CONTROL NO. [REDACTED]

MISSION * 1036-1 * INSTRUMENT * AFT 11/28/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY			INTERMEDIATE			FULL			ALL LEVELS		
	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM
0.51	0	0	0	1	0	0	11	0	0	12	0	0
0.52	0	0	0	1	0	0	4	0	0	5	0	0
0.53	0	0	0	0	0	0	6	0	0	6	0	0
0.54	0	0	0	0	0	0	8	0	0	8	0	0
0.55	0	0	0	1	0	0	3	1	0	4	1	0
0.56	0	0	0	0	0	0	8	0	0	8	0	0
0.57	0	0	0	1	0	0	8	0	0	9	0	0
0.58	0	0	0	0	0	0	4	0	0	4	0	0
0.59	0	0	0	0	0	0	4	0	0	4	0	0
0.60	0	0	0	0	0	0	8	0	0	8	0	0
0.61	0	0	0	0	0	0	4	0	0	4	0	0
0.62	0	0	0	0	0	0	7	0	0	7	0	0
0.63	0	0	0	1	0	0	2	1	0	3	1	0
0.64	0	0	0	0	0	0	10	2	0	10	2	0
0.65	0	0	0	0	0	0	0	0	0	0	0	0
0.66	0	0	0	0	0	0	2	1	0	2	1	0
0.67	0	0	0	0	0	0	2	0	0	2	0	0
0.68	0	0	0	0	0	0	2	0	0	2	0	0
0.69	0	0	0	0	1	0	2	1	0	2	1	0
0.70	0	0	0	0	0	0	2	1	0	2	1	0
0.71	0	0	0	0	0	0	2	1	0	2	1	0
0.72	0	0	0	0	0	0	2	1	0	2	1	0
0.73	0	0	0	0	0	0	3	0	0	4	0	0
0.74	0	0	0	1	0	0	4	1	0	4	1	0
0.75	0	0	0	0	0	0	2	0	0	2	0	0
0.76	0	0	0	0	0	0	2	0	0	2	0	0
0.77	0	0	0	0	0	0	2	0	0	2	0	0
0.78	0	0	0	0	0	0	2	0	0	2	0	0
0.79	0	0	0	0	0	0	1	0	0	1	0	0
0.80	0	0	0	0	0	0	1	0	0	1	0	0
0.81	0	0	0	0	0	0	0	0	0	0	0	0
0.82	0	0	0	0	0	0	1	2	0	1	2	0
0.83	0	0	0	0	0	0	0	0	0	0	0	0
0.84	0	0	0	0	0	0	1	1	0	1	1	0
0.85	0	0	0	0	0	0	1	1	0	1	1	0
0.86	0	0	0	2	0	0	0	0	0	2	0	0
0.87	0	0	0	0	0	0	0	1	0	0	1	0
0.88	0	0	0	0	0	0	0	0	0	0	0	0
0.89	0	0	0	0	2	0	0	1	0	0	1	0
0.90	0	0	0	0	0	0	0	0	0	0	0	0
0.91	0	0	0	0	0	0	1	2	0	1	2	0
0.92	0	0	0	0	0	0	0	1	0	0	1	0
0.93	0	0	0	0	0	0	0	0	0	0	0	0
0.94	0	0	0	0	0	0	1	0	0	1	0	0
0.95	0	0	0	1	0	0	0	0	0	1	0	0
0.96	0	0	0	0	0	0	1	0	0	1	0	0
0.97	0	0	0	0	0	0	0	1	0	0	1	0
0.98	0	0	0	0	0	0	0	3	0	0	3	0
0.99	0	0	0	0	0	0	0	1	0	0	1	0
1.00	0	0	0	0	0	0	0	2	0	0	2	0
SUBTOTAL	0	0	0	10	3	0	117	23	0	127	26	0

~~TOP SECRET~~

- CONTROL NO. [REDACTED]

TABLE A-2

~~TOP SECRET~~

- CONTROL NO. [REDACTED]

MISSION # 1036-1 * INSTRUMENT * AFT 11/28/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY			INTERMEDIATE			FULL			ALL LEVELS		
	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM
1.01	0	0	0	0	0	0	0	0	0	0	0	0
1.02	0	0	0	0	0	0	0	0	0	0	0	0
1.03	0	0	0	0	0	0	0	0	0	0	0	0
1.04	0	0	0	0	0	0	0	0	0	0	0	0
1.05	0	0	0	0	0	0	0	0	0	0	0	0
1.06	0	0	0	0	0	0	0	0	0	0	0	0
1.07	0	0	0	0	0	0	0	0	0	0	0	0
1.08	0	0	0	0	0	0	0	0	0	0	0	0
1.09	0	0	0	0	0	0	0	0	0	0	0	0
1.10	0	0	0	0	0	0	0	0	0	0	0	0
1.11	0	0	0	0	0	0	0	0	0	0	0	0
1.12	0	0	0	0	0	0	0	0	0	0	0	0
1.13	0	0	0	0	0	0	0	0	0	0	0	0
1.14	0	0	0	0	0	0	0	0	0	0	0	0
1.15	0	0	0	0	0	0	0	0	0	0	0	0
1.16	0	0	0	0	0	0	0	0	0	0	0	0
1.17	0	0	0	0	0	0	0	0	0	0	0	0
1.18	0	0	0	0	0	0	0	0	0	0	0	0
1.19	0	0	0	0	0	0	0	0	0	0	0	0
1.20	0	0	0	0	0	0	0	0	0	0	0	0
1.21	0	0	0	0	0	0	0	0	0	0	0	0
1.22	0	0	0	0	0	0	0	0	0	0	0	0
1.23	0	0	0	0	0	0	0	0	0	0	0	0
1.24	0	0	0	0	0	0	0	0	0	0	0	0
1.25	0	0	0	0	0	0	0	0	0	0	0	0
1.26	0	0	0	0	0	0	0	0	0	0	0	0
1.27	0	0	0	0	0	0	0	0	0	0	0	0
1.28	0	0	0	0	0	0	0	0	0	0	0	0
1.29	0	0	0	0	0	0	0	0	0	0	0	0
1.30	0	0	0	0	0	0	0	0	0	0	0	0
1.31	0	0	0	0	0	0	0	0	0	0	0	0
1.32	0	0	0	0	0	0	0	0	0	0	0	0
1.33	0	0	0	0	0	0	0	0	0	0	0	0
1.34	0	0	0	0	0	0	0	0	0	0	0	0
1.35	0	0	0	0	0	0	0	0	0	0	0	0
1.36	0	0	0	0	0	0	0	0	0	0	0	0
1.37	0	0	0	0	0	0	0	0	0	0	0	0
1.38	0	0	0	0	0	0	0	0	0	0	0	0
1.39	0	0	0	0	0	0	0	0	0	0	0	0
1.40	0	0	0	0	0	0	0	0	0	0	0	0
1.41	0	0	0	0	0	0	0	0	0	0	0	0
1.42	0	0	0	0	0	0	0	0	0	0	0	0
1.43	0	0	0	0	0	0	0	0	0	0	0	0
1.44	0	0	0	0	0	0	0	0	0	0	0	0
1.45	0	0	0	0	0	0	0	0	0	0	0	0
1.45	0	0	0	0	0	0	0	0	0	0	0	0
1.47	0	0	0	0	0	0	0	0	0	0	0	0
1.48	0	0	0	0	0	0	0	0	0	0	0	0
1.49	0	0	0	0	0	0	0	0	0	0	0	0
1.50	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	6	11	1	4	90	2	10	101	3

~~TOP SECRET~~

- CONTROL NO. [REDACTED]

TABLE A-2

~~TOP SECRET~~

- CONTROL NO. [REDACTED]

MISSION # 1036-1 * INSTRUMENT * AFT 11/28/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY			INTERMEDIATE			FULL			ALL LEVELS		
	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM
1.51	0	0	0	0	0	0	0	3	0	0	3	0
1.52	0	0	0	0	1	0	0	3	0	0	4	0
1.53	0	0	0	0	0	0	0	1	0	0	1	0
1.54	0	0	0	0	0	0	0	0	0	0	0	0
1.55	0	0	0	0	0	0	0	6	0	0	6	0
1.56	0	0	0	0	1	0	0	1	1	0	2	1
1.57	0	0	0	0	0	0	0	1	0	0	2	1
1.58	0	0	0	0	0	0	0	2	0	0	2	0
1.59	0	0	0	0	0	0	0	3	0	0	3	0
1.60	0	0	0	0	0	0	0	5	0	0	5	0
1.61	0	0	0	0	1	0	0	1	0	0	2	0
1.62	0	0	0	0	0	0	0	0	0	0	0	0
1.63	0	0	0	0	0	0	0	2	0	0	2	0
1.64	0	0	0	0	1	0	0	3	0	0	4	0
1.65	0	0	0	0	0	0	0	1	0	0	1	0
1.66	0	0	0	0	0	0	0	1	0	0	1	0
1.67	0	0	0	0	0	0	0	1	0	0	1	0
1.68	0	0	0	0	0	0	0	2	0	0	3	0
1.69	0	0	0	0	0	0	0	3	0	0	5	0
1.70	0	0	0	0	0	0	0	5	0	0	5	0
1.71	0	0	0	0	0	0	0	2	0	0	2	0
1.72	0	0	0	0	1	0	0	7	0	0	8	0
1.73	0	0	0	0	0	0	0	3	0	0	3	0
1.74	0	0	0	0	0	0	0	3	0	0	3	0
1.75	0	0	0	0	0	0	0	3	0	0	3	0
1.76	0	0	0	0	1	0	0	0	0	0	1	0
1.77	0	0	0	0	0	0	0	1	2	0	1	2
1.78	0	0	0	0	0	0	0	1	0	0	1	0
1.79	0	0	0	0	0	0	0	5	0	0	5	0
1.80	0	0	0	0	1	0	0	3	0	0	4	0
1.81	0	0	0	0	1	0	0	0	0	0	7	0
1.82	0	0	0	0	0	0	0	4	0	0	4	0
1.83	0	0	0	0	0	0	0	4	0	0	5	0
1.84	0	0	0	0	0	0	0	4	0	0	5	0
1.85	0	0	0	0	1	0	0	1	0	0	1	0
1.86	0	0	0	0	0	0	0	0	0	0	0	0
1.87	0	0	0	0	0	0	0	2	0	0	2	0
1.88	0	0	0	0	1	0	0	2	1	0	3	1
1.89	0	0	0	0	0	0	0	0	0	0	0	0
1.90	0	0	0	0	1	0	0	9	1	1	10	2
1.91	0	0	0	0	0	0	0	2	1	1	2	2
1.92	0	0	0	0	0	0	0	1	1	0	1	2
1.93	0	0	0	0	0	0	0	2	0	0	2	1
1.94	0	0	0	0	1	0	0	0	0	0	1	0
1.95	0	0	0	0	0	0	0	0	0	0	0	0
1.96	0	0	0	0	0	0	0	4	1	0	4	1
1.97	0	0	0	0	0	0	0	0	0	0	0	0
1.98	0	0	0	0	0	0	0	0	0	0	0	0
1.99	0	0	0	0	0	0	0	0	0	0	0	0
2.00	0	0	0	0	0	0	0	1	0	0	1	0
SUBTOTAL	0	0	0	1	13	9	0	112	13	1	125	22

~~TOP SECRET~~

CONTROL NO. [REDACTED]

TABLE A-2

~~TOP SECRET~~

- CONTROL NO. [REDACTED]

MISSION # 1036-1 * INSTRUMENT * AFT 11/28/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY			INTERMEDIATE			FULL			ALL LEVELS		
	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM
2.01	0	0	0	0	0	0	0	0	0	0	0	0
2.02	0	0	0	0	0	0	0	0	0	0	0	0
2.03	0	0	0	0	0	0	0	0	1	0	0	0
2.04	0	0	0	0	0	0	0	0	1	0	0	0
2.05	0	0	0	0	0	0	0	0	1	0	0	0
2.06	0	0	0	0	0	0	0	0	0	0	0	0
2.07	0	0	0	0	0	0	0	0	0	0	0	0
2.08	0	0	0	0	0	0	0	0	1	0	0	0
2.09	0	0	0	0	0	0	0	0	1	0	0	0
2.10	0	0	0	0	0	0	0	0	0	0	0	0
2.11	0	0	0	0	0	0	0	0	0	0	0	0
2.12	0	0	0	0	0	0	0	0	0	0	0	0
2.13	0	0	0	0	0	0	0	0	0	0	0	0
2.14	0	0	0	0	0	0	0	0	0	0	0	0
2.15	0	0	0	0	0	0	0	0	0	0	0	0
2.16	0	0	0	0	0	0	0	0	0	0	0	0
2.17	0	0	0	0	0	0	0	0	0	0	0	0
2.18	0	0	0	0	0	0	0	0	0	0	0	0
2.19	0	0	0	0	0	0	0	0	0	0	0	0
2.20	0	0	0	0	0	0	0	0	0	0	0	0
2.21	0	0	0	0	0	0	0	0	0	0	0	0
2.22	0	0	0	0	0	0	0	0	0	0	0	0
2.23	0	0	0	0	0	0	0	0	0	0	0	0
2.24	0	0	0	0	0	0	0	0	0	0	0	0
2.25	0	0	0	0	0	0	0	0	0	0	0	0
2.26	0	0	0	0	0	0	0	0	0	0	0	0
2.27	0	0	0	0	0	0	0	0	0	0	0	0
2.28	0	0	0	0	0	0	0	0	0	0	0	0
2.29	0	0	0	0	0	0	0	0	0	0	0	0
2.30	0	0	0	0	0	0	0	0	0	0	0	0
2.31	0	0	0	0	0	0	0	0	0	0	0	0
2.32	0	0	0	0	0	0	0	0	0	0	0	0
2.33	0	0	0	0	0	0	0	0	0	0	0	0
2.34	0	0	0	0	0	0	0	0	0	0	0	0
2.35	0	0	0	0	0	0	0	0	0	0	0	0
2.36	0	0	0	0	0	0	0	0	0	0	0	0
2.37	0	0	0	0	0	0	0	0	0	0	0	0
2.38	0	0	0	0	0	0	0	0	0	0	0	0
2.39	0	0	0	0	0	0	0	0	0	0	0	0
2.40	0	0	0	0	0	0	0	0	0	0	0	0
2.41	0	0	0	0	0	0	0	0	0	0	0	0
2.42	0	0	0	0	0	0	0	0	0	0	0	0
2.43	0	0	0	0	0	0	0	0	0	0	0	0
2.44	0	0	0	0	0	0	0	0	0	0	0	0
2.45	0	0	0	0	0	0	0	0	0	0	0	0
2.46	0	0	0	0	0	0	0	0	0	0	0	0
2.47	0	0	0	0	0	0	0	0	0	0	0	0
2.48	0	0	0	0	0	0	0	0	0	0	0	0
2.49	0	0	0	0	0	0	0	0	0	0	0	0
2.50	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	0	16	0	8	203	0	8	219

~~TOP SECRET~~

- CONTROL NO. [REDACTED]

TABLE A-2

~~TOP SECRET~~

CONTROL NO. [REDACTED]

MISSION * 1036-1 * INSTRUMENT * AFT 11/28/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY			INTERMEDIATE			FULL			ALL LEVELS		
	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM
2.51	0	0	0	0	0	0	0	0	0	0	0	0
2.52	0	0	0	0	0	0	0	0	0	0	0	0
2.53	0	0	0	0	0	0	0	0	0	0	0	0
2.54	0	0	0	0	0	0	0	0	0	0	0	0
2.55	0	0	0	0	0	0	0	0	0	0	0	0
2.56	0	0	0	0	0	0	0	0	0	0	0	0
2.57	0	0	0	0	0	0	0	0	0	0	0	0
2.58	0	0	0	0	0	0	0	0	0	0	0	0
2.59	0	0	0	0	0	0	0	0	0	0	0	0
2.60	0	0	0	0	0	0	0	0	0	0	0	0
2.61	0	0	0	0	0	0	0	0	0	0	0	0
2.62	0	0	0	0	0	0	0	0	0	0	0	0
2.63	0	0	0	0	0	0	0	0	0	0	0	0
2.64	0	0	0	0	0	0	0	0	0	0	0	0
2.65	0	0	0	0	0	0	0	0	0	0	0	0
2.66	0	0	0	0	0	0	0	0	0	0	0	0
2.67	0	0	0	0	0	0	0	0	0	0	0	0
2.68	0	0	0	0	0	0	0	0	0	0	0	0
2.69	0	0	0	0	0	0	0	0	0	0	0	0
2.70	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	27	27	26	233	233	218	260	260	244

MISSION 1036-1 INSTR - AFT 11/28/66 PROCESSING AND EXPOSURE ANALYSIS

PROCESS LEVEL	SAMPLE SIZE	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	0	0 PC	0 PC	0 PC	0 PC	0 PC
INTERMEDIATE	27	0 PC	19 PC	52 PC	26 PC	4 PC
FULL	233	14 PC	0 PC	83 PC	3 PC	0 PC
ALL LEVELS	260	12 PC	2 PC	80 PC	5 PC	0 PC

PROCESS LEVEL	BASE + FOG	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	0.01-0.09	0.01-0.13	0.14-0.39	0.40-0.90	-----	0.91 AND UP
INTERMED	0.10-0.17	0.01-0.20	0.21-0.39	0.40-0.90	0.91-1.34	1.35 AND UP
FULL	0.18 AND UP	0.01-0.39	-----	0.40-0.90	0.91-1.69	1.70 AND UP

~~TOP SECRET~~

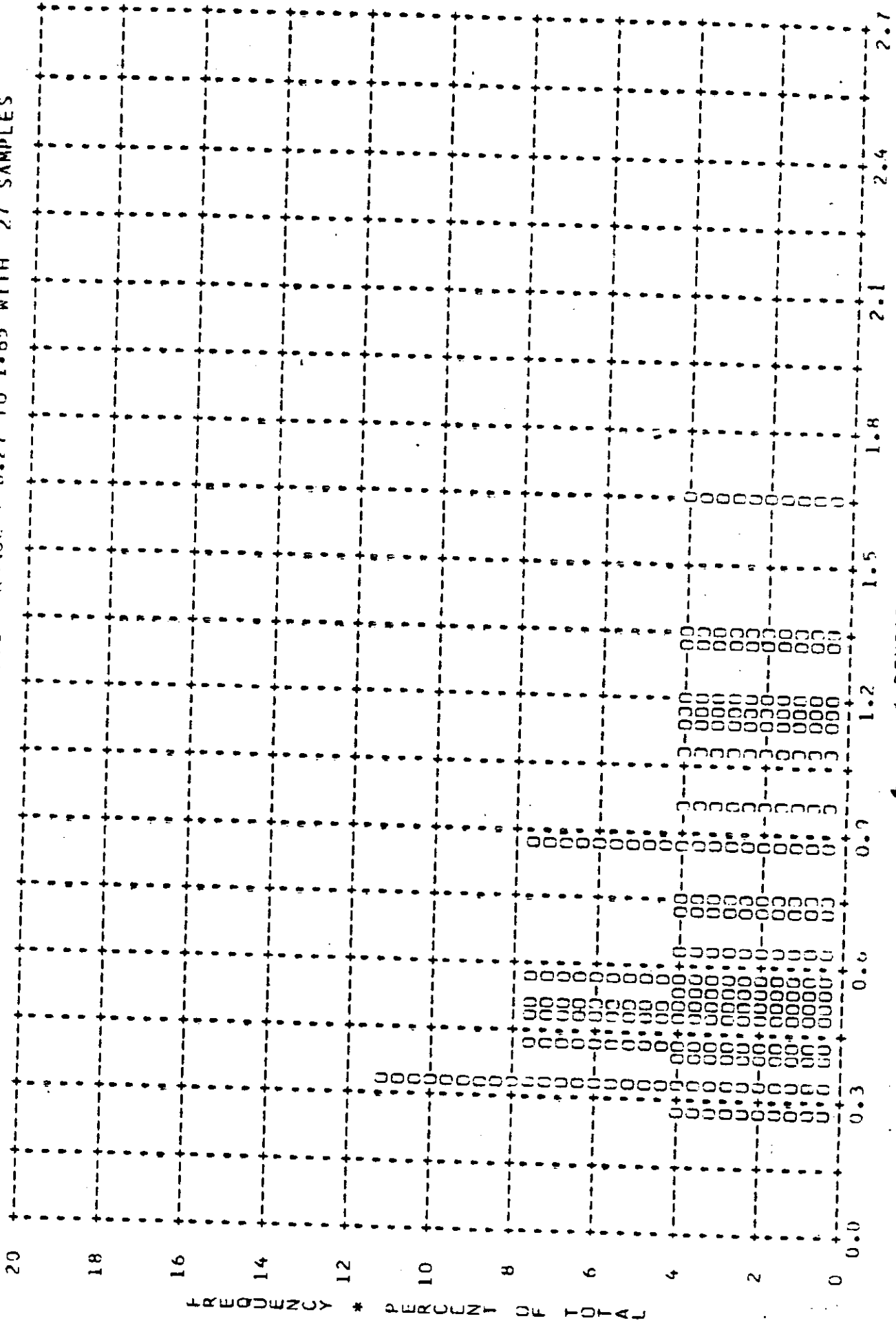
CONTROL NO. [REDACTED]

TABLE A-2

~~TOP SECRET~~

- CONT. OF NO.

MISSION * 1036-1 * INSTR * AFT * 11/28/66 PLOT OF D MIN * TERRAIN * PROCESSING * INTERMEDIATE
ARITH MEAN * 0.72 * MEDIAN * 0.57 * STD DEV * 0.38 * RANGE * 0.27 TO 1.65 WITH 27 SAMPLES



~~TOP SECRET~~

- CONTROL NO.

MISSION * 1036-1 * INSTR * AFT * 11/28/66 PLOT OF D MAX * TERRAIN * PROCESSING * INTERMEDIATE
ARITH MEAN * 1.47 * MEDIAN * 1.50 * STD DEV * 0.33 * RANGE * 0.69 TO 1.94 WITH 27 SAMPLES

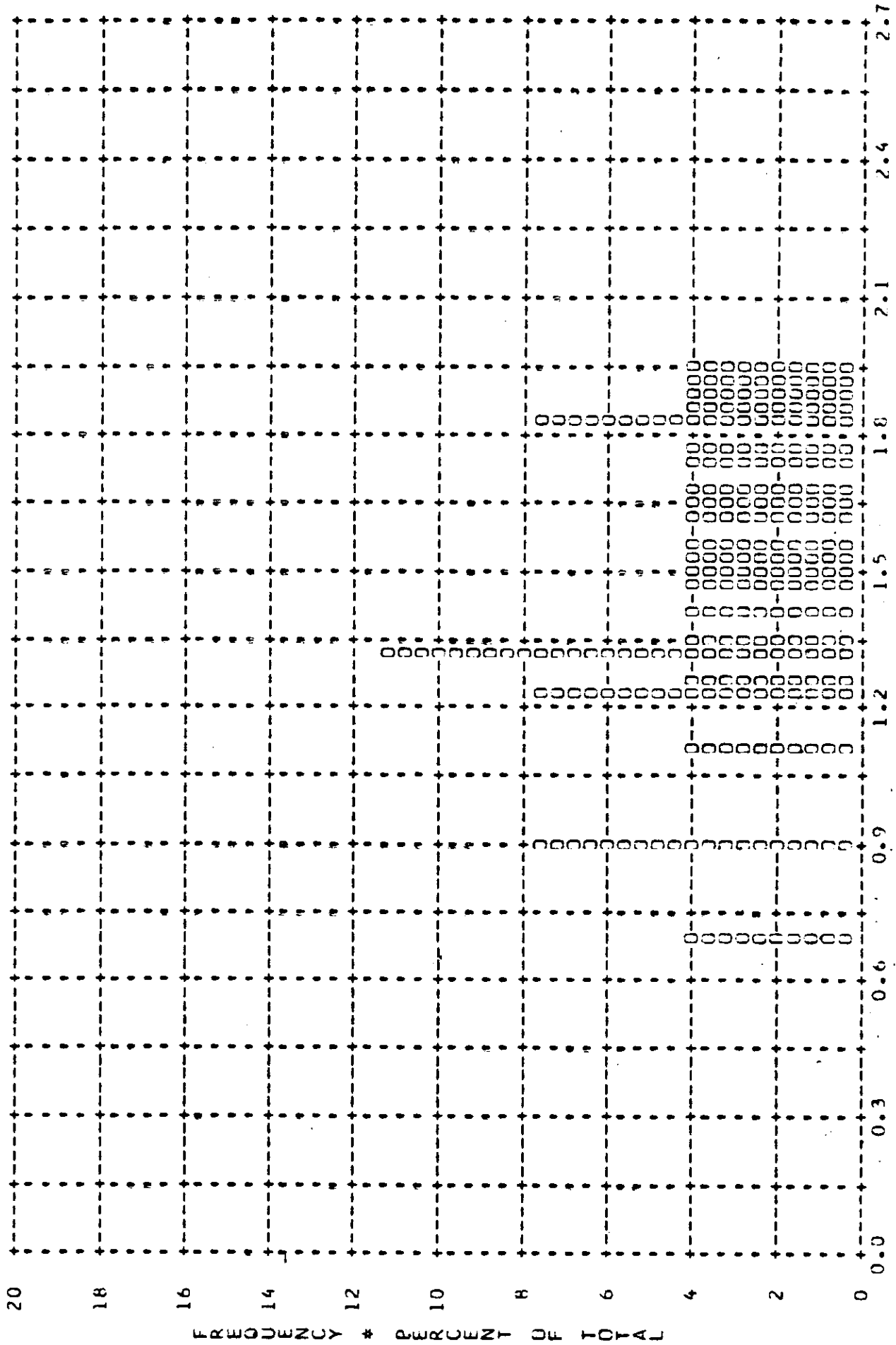


FIGURE A-14

~~TOP SECRET~~

NO.

MISSION # 1036-1 * INSTR # APT * 11/28/66 PLOT OF U MAX * CLJUD * PROCESSING * INTERMEDIATE
ARITH MEAN # 2.04 * MEDIAN # 2.14 * STD DEV # 0.22 * RANGE # 1.50 TO 2.30 WITH 26 SAMPLES

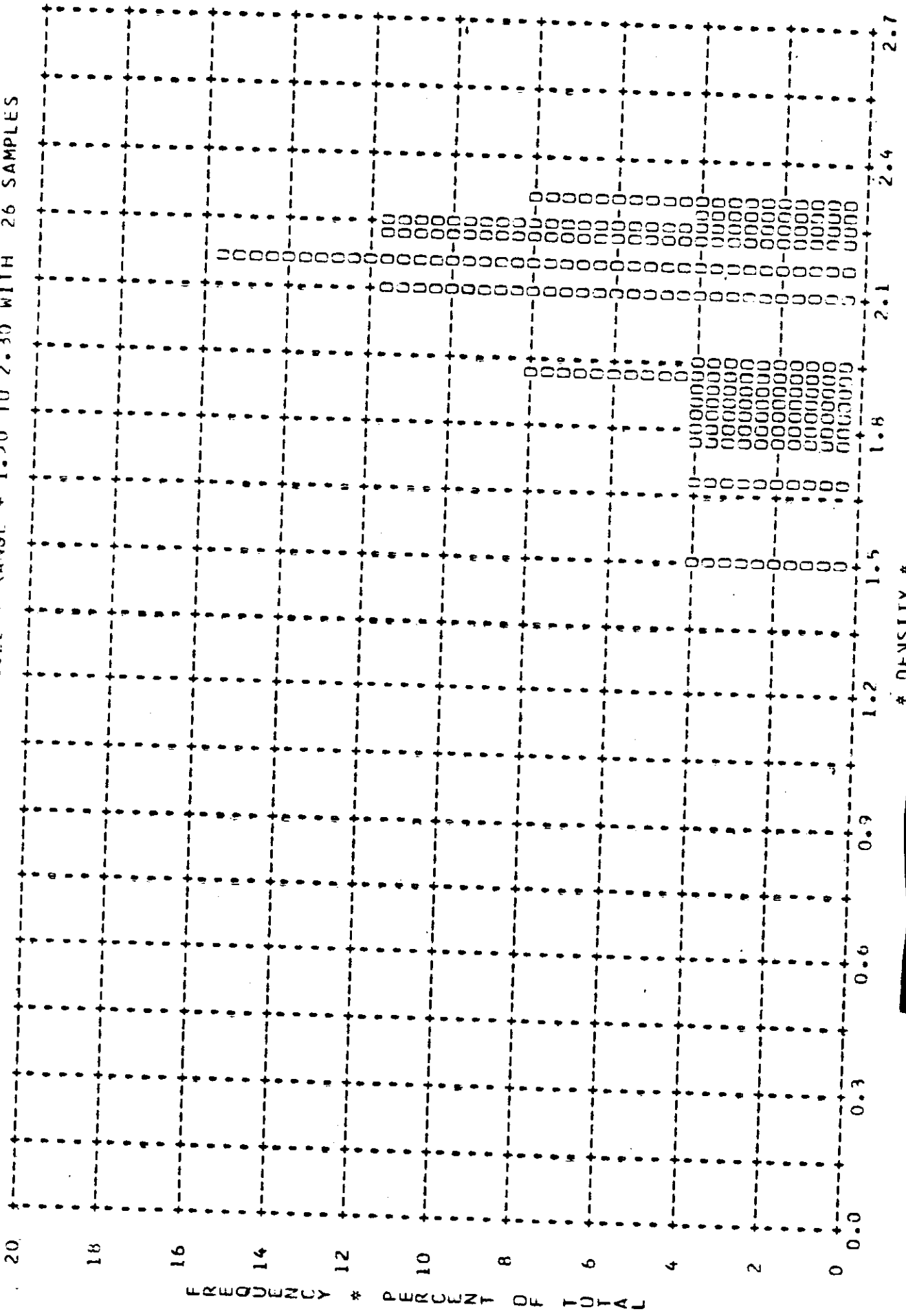


FIGURE A-15

~~TOP SECRET~~

- CONTROL NO.

MISSION * 1036-1 * INSTR * AFT * 11/28/66 PLOT OF D MIN * TERRAIN * PROCESSING * FULL
ARITH MEAN * 0.53 * MEDIAN * 0.51 * STD DEV * 0.16 * RANGE * 0.24 TO 1.30 WITH 233 SAMPLES

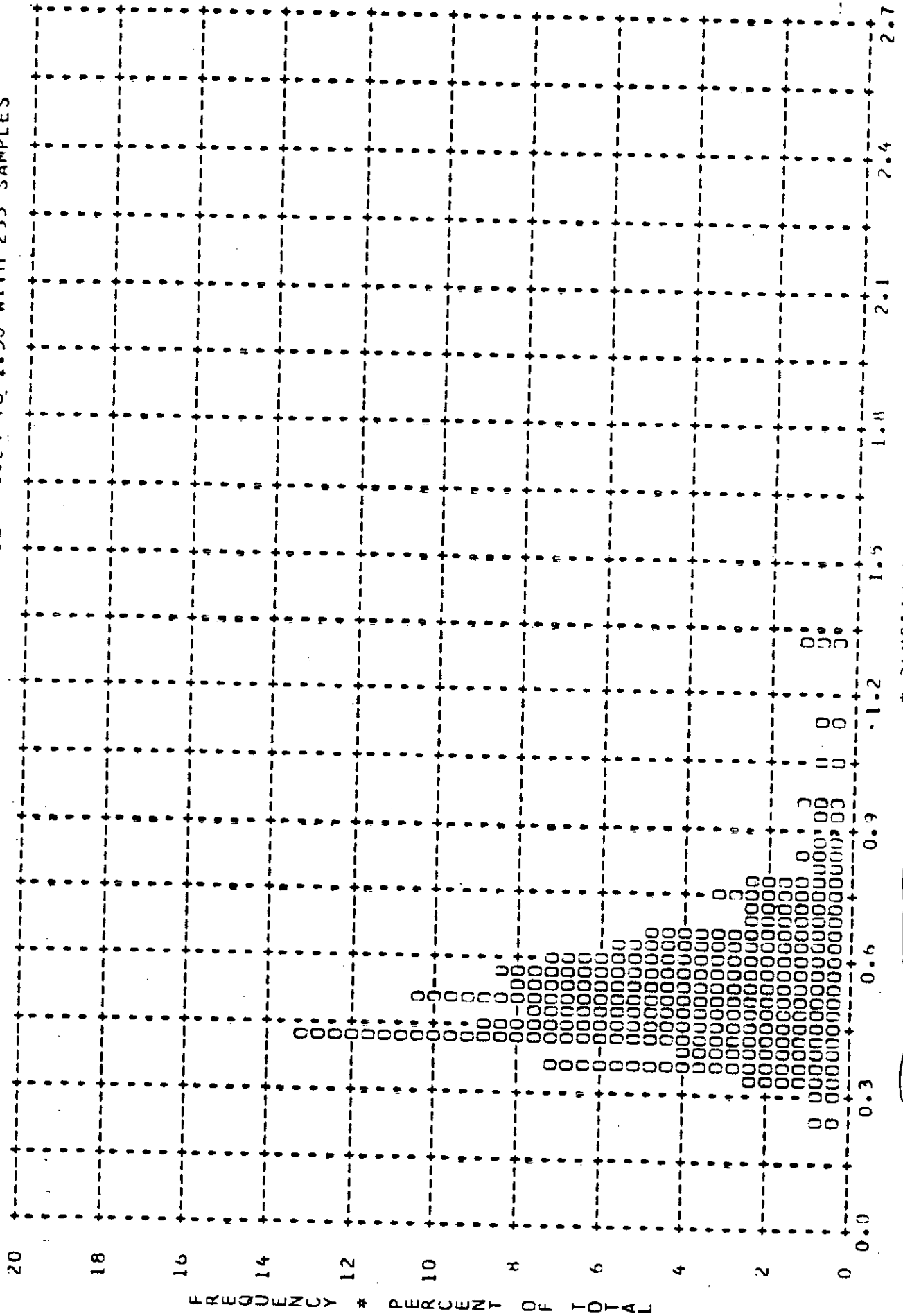


FIGURE A-16

* DENSITY *

~~TOP SECRET~~

- CONTROL NO.

MISSION * 1036-1 * INSTR * APT * 11/28/66 PLOT OF U MAX * TERRAIN * PROCESSING * FULL
ARITH MEAN * 1.49 * MEDIAN * 1.52 * STD DEV * 0.34 * RANGE * 0.55 TO 2.25 WITH 233 SAMPLES

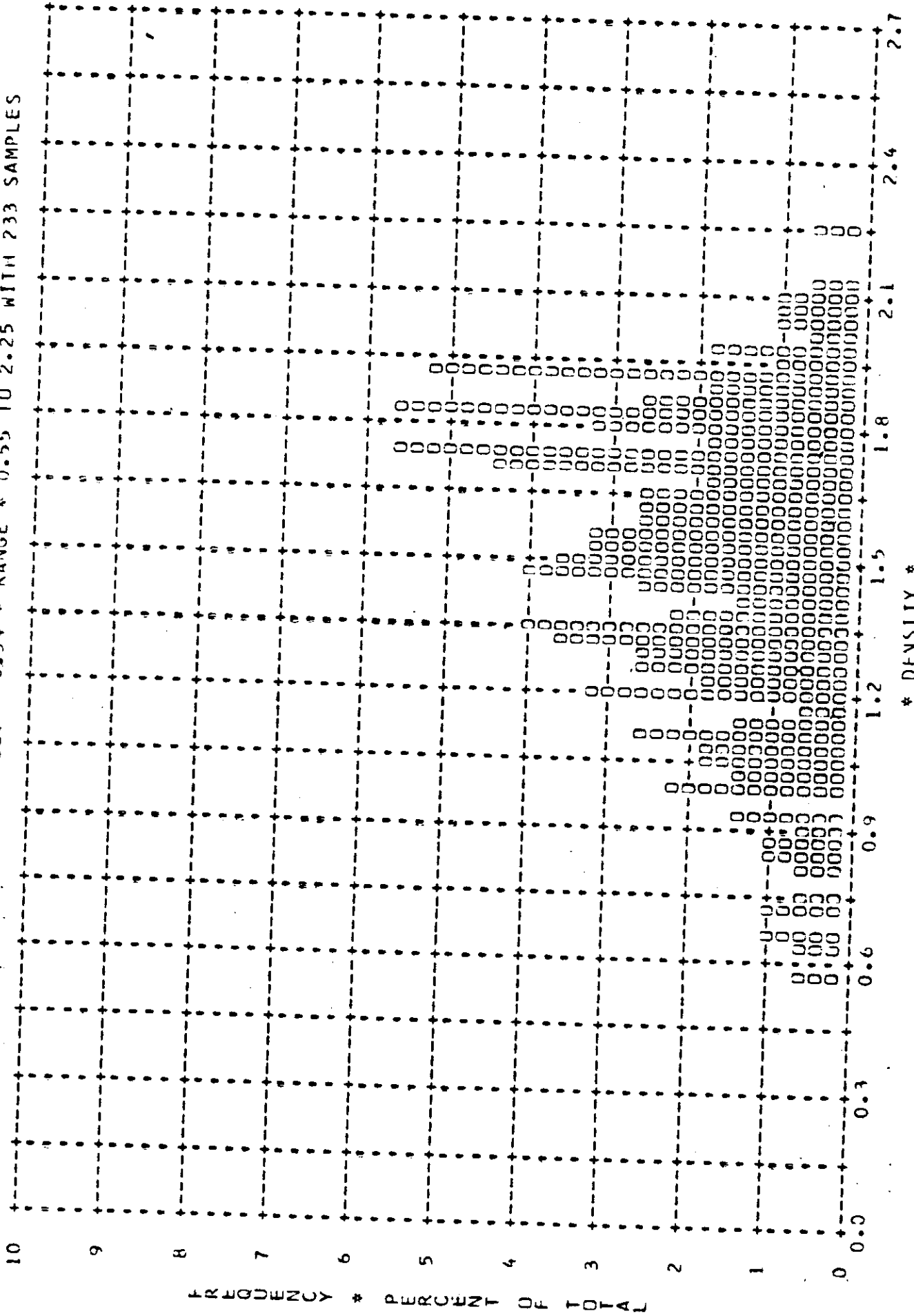


FIGURE A-17

TOP SECRET

CONTROL NO.

MISSION * 1036-1 * INSTR * AFT * 11/28/66 PLOT OF D MAX * CLOUD * PROCESSING * FULL
ARITH MEAN * 2.26 * MEDIAN * 2.30 * STD DEV * 0.16 * RANGE * 1.20 TO 2.43 WITH 218 SAMPLES

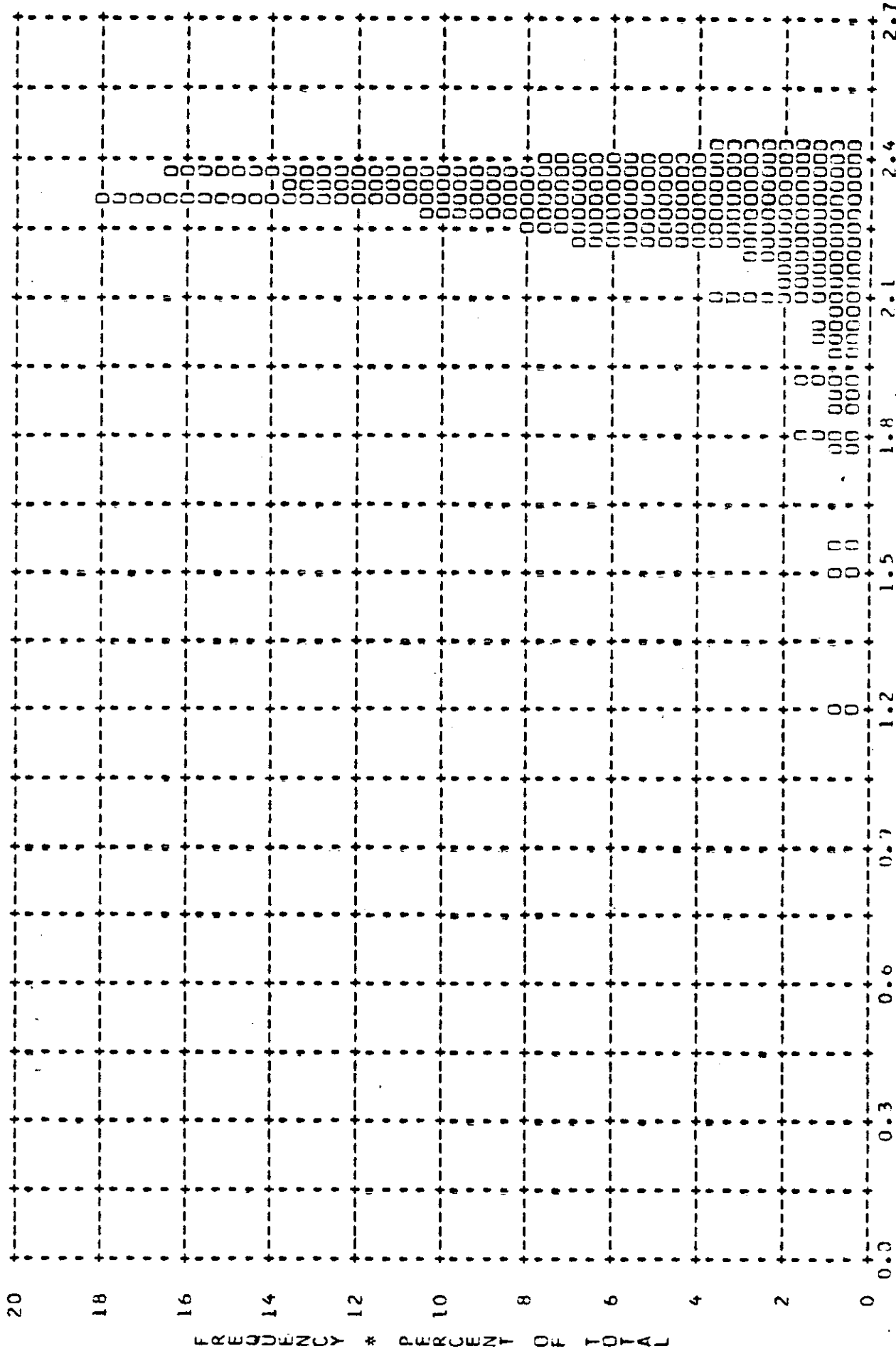
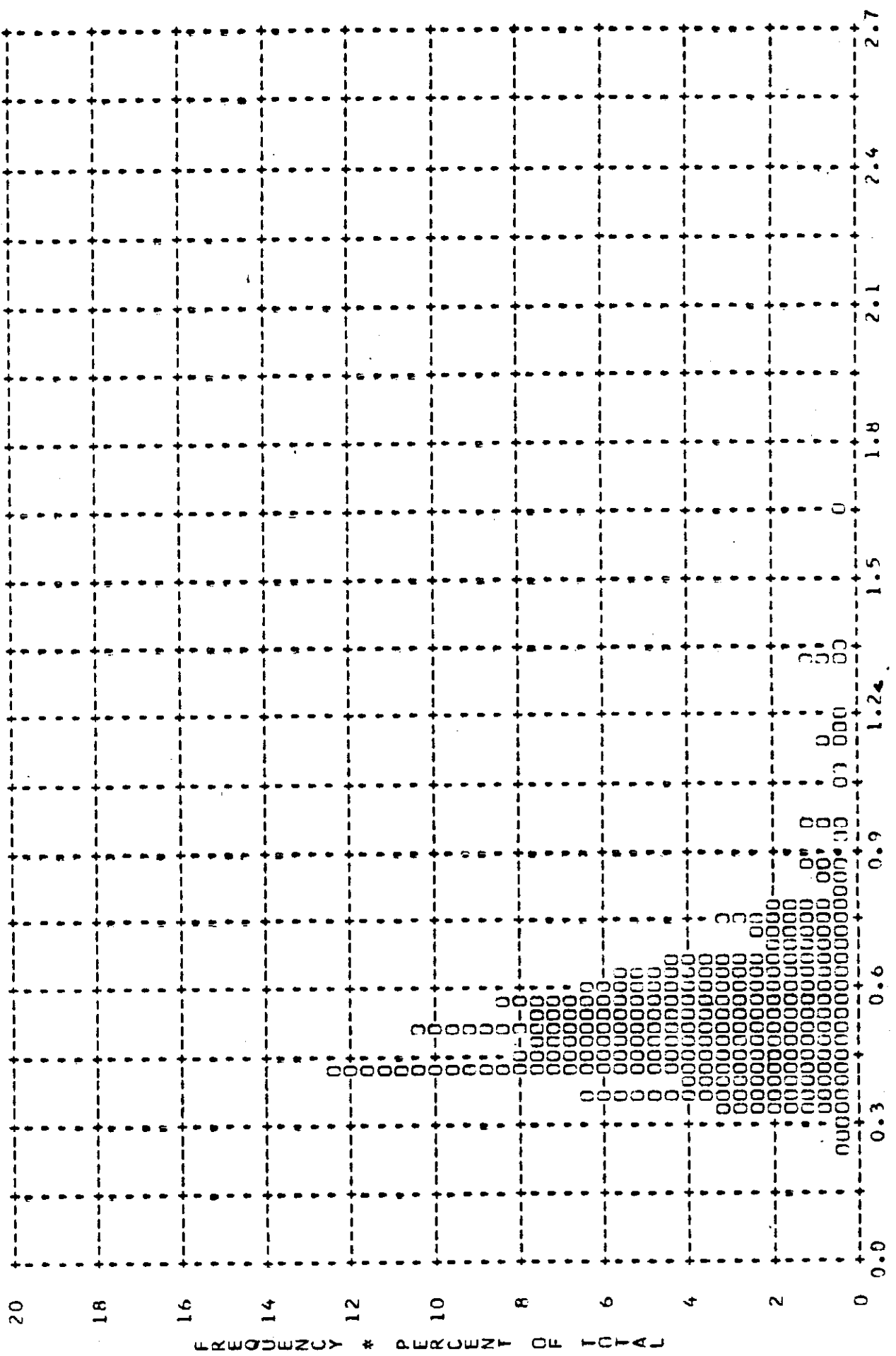


FIGURE A-18

~~TOP SECRET~~

- CONTROL NO.

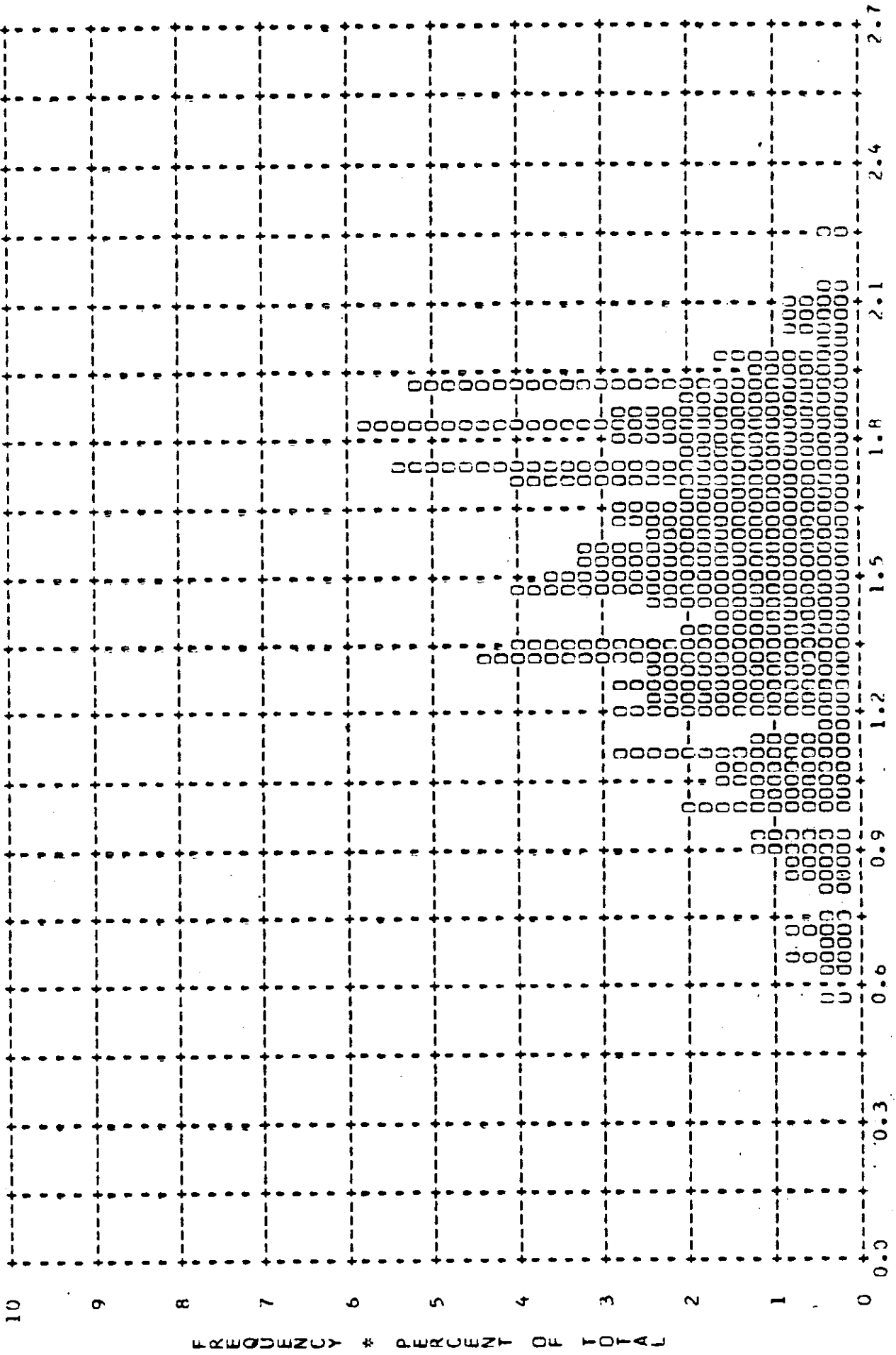
MISSION # 1036-1 * INSTR * AFT # 11/28/66 PLOT OF D MIN * TERRAIN * PROCESSING * ALL LEVELS
ARITH MEAN * 0.55 * MEDIAN * 0.51 * STD DEV * 0.20 * RANGE * 0.24 TO 1.65 WITH 260 SAMPLES



~~TOP SECRET~~

- CONTROL NO.

MISSION * 1036-1 * INSTR * AFT * 11/28/66 PLDT OF D MAX * TERRAIN * PROCESSING * ALL LEVELS
ARITH MEAN * 1.49 * MEDIAN * 1.52 * STD DEV * 0.34 * RANGE * 0.55 TO 2.25 WITH 260 SAMPLES



~~TOP SECRET~~

CONTROL NO.

MISSION * 1036-1 * INSTR * AFT * 11/28/66 PLOT 7F D MAX * CLOUD * PROCESSING * ALL LEVELS
ARITH MEAN * 2.23 * MEDIAN * 2.29 * STD DEV * 0.18 * RANGE * 1.20 TO 2.43 WITH 244 SAMPLES

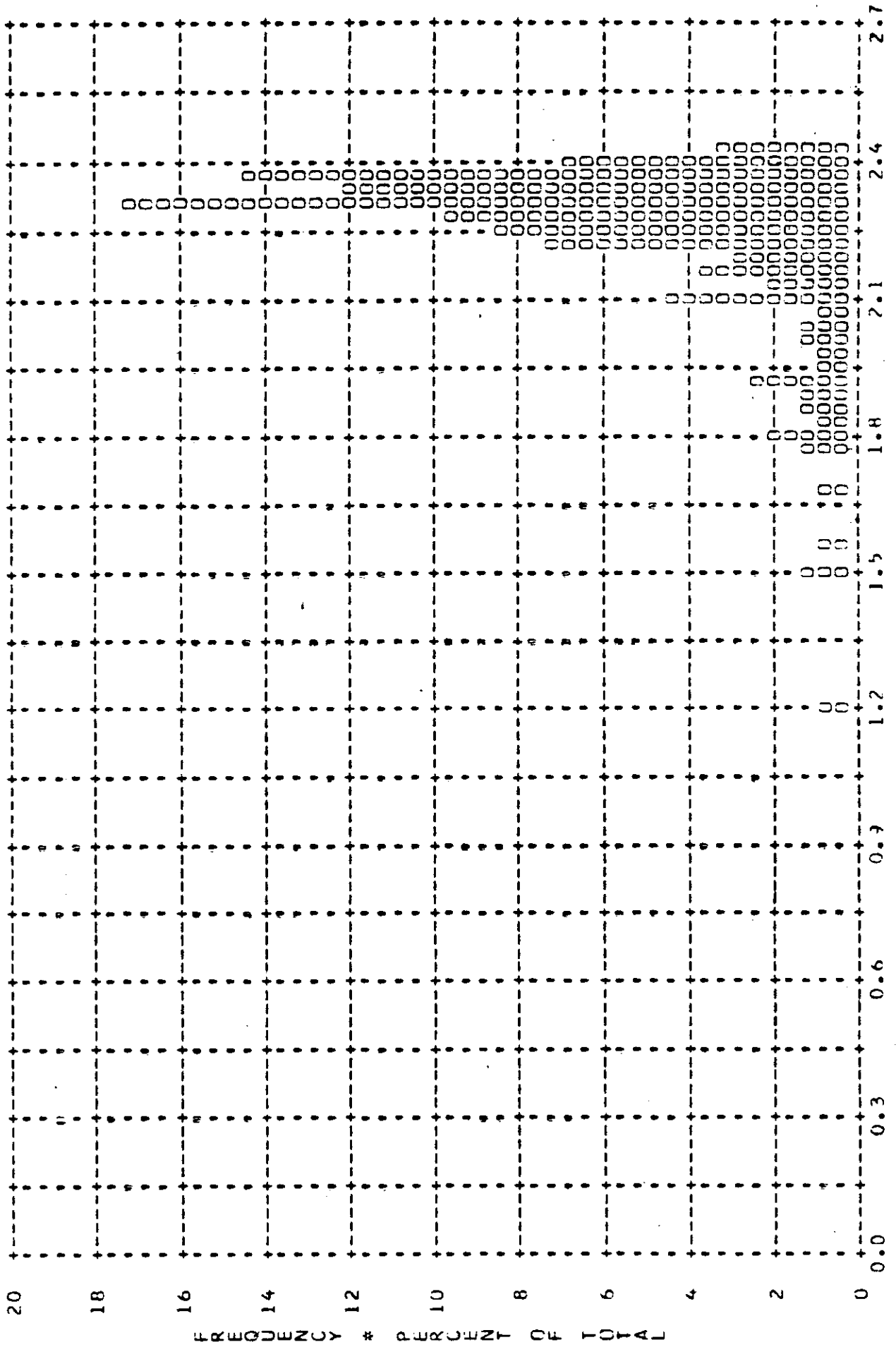


FIGURE A-21

~~TOP SECRET~~

- CONTROL NO. [REDACTED]

MISSION * 1036-2 * INSTRUMENT * FRWD 11/28/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY			INTERMEDIATE			FULL			ALL LEVELS		
	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM
0.01	0	0	0	0	0	0	0	0	0	0	0	0
0.02	0	0	0	0	0	0	0	0	0	0	0	0
0.03	0	0	0	0	0	0	0	0	0	0	0	0
0.04	0	0	0	0	0	0	0	0	0	0	0	0
0.05	0	0	0	0	0	0	0	0	0	0	0	0
0.06	0	0	0	0	0	0	0	0	0	0	0	0
0.07	0	0	0	0	0	0	0	0	0	0	0	0
0.08	0	0	0	0	0	0	0	0	0	0	0	0
0.09	0	0	0	0	0	0	0	0	0	0	0	0
0.10	0	0	0	0	0	0	0	0	0	0	0	0
0.11	0	0	0	0	0	0	0	0	0	0	0	0
0.12	0	0	0	0	0	0	0	0	0	0	0	0
0.13	0	0	0	0	0	0	0	0	0	0	0	0
0.14	0	0	0	0	0	0	0	0	0	0	0	0
0.15	0	0	0	0	0	0	0	0	0	0	0	0
0.16	0	0	0	0	0	0	0	0	0	0	0	0
0.17	0	0	0	0	0	0	0	0	0	0	0	0
0.18	0	0	0	0	0	0	0	0	0	0	0	0
0.19	0	0	0	0	0	0	0	0	0	0	0	0
0.20	0	0	0	0	0	0	0	0	0	0	0	0
0.21	0	0	0	0	0	0	0	0	0	0	0	0
0.22	0	0	0	0	0	0	0	0	0	0	0	0
0.23	0	0	0	0	0	0	0	0	0	0	0	0
0.24	0	0	0	0	0	0	0	0	0	0	0	0
0.25	0	0	0	0	0	0	0	0	0	0	0	0
0.26	0	0	0	0	0	0	0	0	0	0	0	0
0.27	0	0	0	0	1	1	2	0	0	0	2	1
0.28	0	0	0	0	3	3	6	0	0	0	9	1
0.29	0	0	0	0	1	1	5	0	0	0	6	0
0.30	0	0	0	0	2	2	11	0	0	0	11	0
0.31	0	0	0	0	2	2	14	0	0	0	16	0
0.32	0	0	0	0	1	1	9	0	0	0	10	0
0.33	0	0	0	0	1	1	7	0	0	0	9	0
0.34	0	0	0	0	3	3	9	0	0	0	9	0
0.35	0	0	0	0	0	0	9	0	0	0	12	0
0.36	0	0	0	0	0	0	11	0	0	0	11	0
0.37	0	0	0	0	1	1	8	0	0	0	9	0
0.38	0	0	0	0	2	2	11	0	0	0	13	0
0.39	0	0	0	0	2	2	12	0	0	0	14	0
0.40	0	0	0	0	0	0	12	0	0	0	14	0
0.41	0	0	0	0	1	1	3	0	0	0	4	0
0.42	0	0	0	0	1	1	11	0	0	0	12	0
0.43	0	0	0	0	0	0	4	0	0	0	4	0
0.44	0	0	0	0	1	1	5	0	0	0	5	0
0.45	0	0	0	0	1	1	3	0	0	0	4	0
0.46	0	0	0	0	2	2	1	0	0	0	3	0
0.47	0	0	0	0	2	2	2	0	0	0	2	0
0.48	0	0	0	0	0	0	5	0	0	0	7	0
0.49	0	0	0	0	1	1	4	0	0	0	5	0
0.50	0	0	0	0	0	0	5	0	0	0	5	0
SUBTOTAL	0	0	0	25	0	0	159	2	0	184	2	0

~~TOP SECRET~~

CONTROL NO. [REDACTED]

TABLE A-3

~~TOP SECRET~~

- CONTROL NO. [REDACTED]

MISSION # 1036-2 * INSTRUMENT * FRWD 11/28/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY			INTERMEDIATE			FULL			ALL LEVELS		
	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM
0.51	0	0	0	1	0	0	2	0	0	3	0	0
0.52	0	0	0	2	0	0	10	0	0	12	0	0
0.53	0	0	0	1	0	0	1	0	0	2	0	0
0.54	0	0	0	0	0	0	1	0	0	2	0	0
0.55	0	0	0	0	0	0	3	1	0	3	1	0
0.56	0	0	0	0	0	0	5	0	0	5	0	0
0.57	0	0	0	2	0	0	1	0	0	3	0	0
0.58	0	0	0	0	0	0	0	0	0	0	0	0
0.59	0	0	0	1	0	0	6	0	0	7	0	0
0.60	0	0	0	2	0	0	0	0	0	2	0	0
0.61	0	0	0	0	0	0	1	0	0	1	0	0
0.62	0	0	0	0	0	0	1	0	0	1	0	0
0.63	0	0	0	2	0	0	4	0	0	6	0	0
0.64	0	0	0	2	0	0	2	2	0	4	2	0
0.65	0	0	0	0	0	0	0	2	0	0	2	0
0.66	0	0	0	0	0	0	1	1	0	1	1	0
0.67	0	0	0	0	0	0	2	0	0	2	0	0
0.68	0	0	0	0	0	0	1	0	0	1	0	0
0.69	0	0	0	0	0	0	1	0	0	0	1	0
0.70	0	0	0	0	0	0	2	0	0	2	0	0
0.71	0	0	0	0	0	0	0	2	0	0	2	0
0.72	0	0	0	2	0	0	2	3	0	4	3	0
0.73	0	0	0	0	0	0	2	0	0	2	0	0
0.74	0	0	0	3	0	0	1	2	0	4	2	0
0.75	0	0	0	0	0	0	0	3	0	0	3	0
0.76	0	0	0	0	0	0	3	1	0	3	1	0
0.77	0	0	0	0	0	0	2	1	0	5	1	0
0.78	0	0	0	3	0	0	2	1	0	1	1	0
0.79	0	0	0	0	0	0	2	1	0	3	1	0
0.80	0	0	0	1	0	0	2	2	0	3	2	0
0.81	0	0	0	0	0	0	2	0	0	2	0	0
0.82	0	0	0	0	0	0	2	0	0	2	0	0
0.83	0	0	0	0	0	0	0	1	0	1	1	0
0.84	0	0	0	0	0	0	2	2	0	2	2	0
0.85	0	0	0	0	0	0	2	3	0	2	3	0
0.86	0	0	0	0	0	0	0	4	0	0	4	0
0.87	0	0	0	0	0	0	0	2	0	0	2	0
0.88	0	0	0	0	0	0	1	2	0	1	2	0
0.89	0	0	0	0	0	0	0	2	0	0	2	0
0.90	0	0	0	0	0	0	0	4	0	0	4	0
0.91	0	0	0	0	0	0	0	0	0	0	0	0
0.92	0	0	0	1	0	0	0	2	0	1	2	0
0.93	0	0	0	0	0	0	0	1	0	0	1	0
0.94	0	0	0	0	0	0	0	2	0	0	2	0
0.95	0	0	0	1	0	0	1	1	0	2	1	0
0.96	0	0	0	0	0	0	1	2	0	1	2	0
0.97	0	0	0	0	0	0	0	2	0	0	2	0
0.98	0	0	0	0	0	0	0	1	0	0	1	0
0.99	0	0	0	0	0	0	0	0	0	0	0	0
1.00	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	25	1	0	51	63	0	86	54	0

~~TOP SECRET~~

- CONTROL NO. [REDACTED]

TABLE A-3

~~TOP SECRET~~

- CONTROL NO. [REDACTED]

MISSION * 1036-2 * INSTRUMENT * FRWD 11/28/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY			INTERMEDIATE			FULL			ALL LEVELS		
	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM
1.01	0	0	0	0	0	0	0	1	0	0	0	0
1.02	0	0	0	0	0	0	0	1	0	0	1	0
1.03	0	0	0	0	0	0	0	1	1	0	1	0
1.04	0	0	0	0	0	0	0	1	1	0	2	0
1.05	0	0	0	0	0	0	0	2	2	0	2	0
1.06	0	0	0	0	0	0	0	2	2	0	2	0
1.07	0	0	0	0	0	0	0	2	2	0	2	0
1.08	0	0	0	0	0	0	0	2	2	0	2	0
1.09	0	0	0	0	0	0	0	2	2	0	2	0
1.10	0	0	0	0	1	0	0	2	7	0	1	8
1.11	0	0	0	0	1	0	0	0	0	0	1	0
1.12	0	0	0	0	0	0	0	6	0	0	6	0
1.13	0	0	0	0	0	0	0	0	0	0	0	0
1.14	0	0	0	0	0	0	0	0	0	0	0	0
1.15	0	0	0	0	1	0	0	2	0	0	3	0
1.16	0	0	0	0	0	0	0	1	0	0	1	0
1.17	0	0	0	0	0	0	0	0	3	0	3	1
1.18	0	0	0	0	0	0	0	0	3	0	3	1
1.19	0	0	0	0	0	0	0	0	3	0	3	0
1.20	0	0	0	0	0	0	0	0	3	0	3	0
1.21	0	0	0	0	0	0	0	0	2	0	4	0
1.22	0	0	0	0	0	0	0	0	2	0	4	0
1.23	0	0	0	0	0	0	0	0	4	0	5	0
1.24	0	0	0	0	0	0	0	0	0	0	1	0
1.25	0	0	0	0	0	0	0	0	2	0	2	0
1.26	0	0	0	0	0	0	0	0	1	0	1	0
1.27	0	0	0	0	0	0	0	0	3	0	3	0
1.28	0	0	0	0	0	0	0	0	1	0	1	0
1.29	0	0	0	0	0	0	0	0	4	0	4	0
1.30	0	0	0	0	0	0	0	0	1	0	1	0
1.31	0	0	0	0	0	0	0	0	1	0	1	0
1.32	0	0	0	0	1	0	0	2	1	0	3	1
1.33	0	0	0	0	0	0	0	0	0	0	1	0
1.34	0	0	0	0	1	0	0	1	0	0	1	0
1.35	0	0	0	0	3	0	0	1	1	0	2	1
1.36	0	0	0	0	0	0	0	0	0	0	4	0
1.37	0	0	0	0	0	0	0	0	5	0	5	0
1.38	0	0	0	0	0	0	0	0	1	0	9	0
1.39	0	0	0	0	2	0	0	0	5	0	9	0
1.40	0	0	0	0	4	0	0	0	5	0	9	0
1.41	0	0	0	0	0	0	0	0	5	0	6	0
1.42	0	0	0	0	0	0	0	0	1	0	1	0
1.43	0	0	0	0	0	0	0	0	0	0	0	0
1.44	0	0	0	0	0	0	0	0	0	0	0	0
1.45	0	0	0	0	2	1	0	4	1	0	4	2
1.46	0	0	0	0	1	0	0	3	0	0	4	0
1.47	0	0	0	0	0	0	0	3	0	0	4	0
1.48	0	0	0	0	0	0	0	3	0	0	3	0
1.49	0	0	0	0	1	0	0	0	3	0	1	4
1.50	0	0	0	0	0	0	0	0	1	0	0	7
SUBTOTAL	0	0	0	1	27	2	4	92	5	5	11	9

~~TOP SECRET~~

- CONTROL NO. [REDACTED]

TABLE A-3

TOP SECRET

- CONTROL NO. [REDACTED]

MISSION # 1036-2 * INSTRUMENT * FRWD 11/28/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY			INTERMEDIATE			FULL			ALL LEVELS		
	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM
1.51	0	0	0	0	0	0	0	2	0	0	0	0
1.52	0	0	0	0	2	0	0	1	0	0	0	0
1.53	0	0	0	0	0	0	0	3	0	0	0	0
1.54	0	0	0	0	1	0	0	3	0	0	0	0
1.55	0	0	0	0	1	0	0	3	0	0	0	0
1.56	0	0	0	0	3	0	0	0	0	0	0	0
1.57	0	0	0	0	0	0	0	0	0	0	0	0
1.58	0	0	0	0	0	0	0	1	0	0	0	0
1.59	0	0	0	0	1	0	0	4	0	0	0	0
1.60	0	0	0	0	0	0	0	1	0	0	0	0
1.61	0	0	0	0	0	0	0	1	0	0	0	0
1.62	0	0	0	0	2	0	0	0	0	0	0	0
1.63	0	0	0	0	0	0	0	1	0	0	0	0
1.64	0	0	0	0	1	0	0	1	1	0	0	0
1.65	0	0	0	0	0	0	0	1	1	1	0	0
1.66	0	0	0	0	1	0	0	2	0	0	0	0
1.67	0	0	0	0	1	0	0	2	0	0	0	0
1.68	0	0	0	0	1	0	0	5	0	0	0	0
1.69	0	0	0	0	0	2	0	0	1	0	0	0
1.70	0	0	0	0	1	0	0	4	1	1	0	0
1.71	0	0	0	0	0	0	0	2	1	1	0	0
1.72	0	0	0	0	1	0	0	1	1	0	0	0
1.73	0	0	0	0	0	0	0	1	1	0	0	0
1.74	0	0	0	0	0	0	0	2	0	0	0	0
1.75	0	0	0	0	0	0	0	0	0	0	0	0
1.76	0	0	0	0	2	0	0	2	1	0	0	0
1.77	0	0	0	0	0	0	0	1	0	0	0	0
1.78	0	0	0	0	0	0	0	3	2	0	0	0
1.79	0	0	0	0	1	0	0	1	1	0	0	0
1.80	0	0	0	0	0	0	0	1	1	1	0	0
1.81	0	0	0	0	0	0	0	1	1	1	0	0
1.82	0	0	0	0	0	0	0	3	0	0	0	0
1.83	0	0	0	0	1	0	0	0	0	0	0	0
1.84	0	0	0	0	0	1	0	1	0	0	0	0
1.85	0	0	0	0	0	1	0	0	3	0	0	0
1.86	0	0	0	0	0	1	0	0	0	0	0	0
1.87	0	0	0	0	0	0	0	0	0	0	0	0
1.88	0	0	0	0	0	1	0	2	0	0	0	0
1.89	0	0	0	0	0	0	0	0	4	0	0	0
1.90	0	0	0	0	0	0	0	0	1	0	0	0
1.91	0	0	0	0	0	0	0	0	2	0	0	0
1.92	0	0	0	0	0	0	0	0	1	0	0	0
1.93	0	0	0	0	0	1	0	0	2	0	0	0
1.94	0	0	0	0	0	1	0	0	2	0	0	0
1.95	0	0	0	0	0	1	0	0	0	1	0	0
1.96	0	0	0	0	1	1	0	0	2	0	0	0
1.97	0	0	0	0	0	0	0	0	0	1	0	0
1.98	0	0	0	0	0	0	0	1	2	0	0	0
1.99	0	0	0	0	0	0	0	0	0	0	0	0
2.00	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	22	14	0	65	35	0	87	49

TOP SECRET

- CONTROL NO. [REDACTED]

TABLE A-3

~~TOP SECRET~~

- CONTROL NO. [REDACTED]

MISSION * 1036-2 * INSTRUMENT * FRWD 11/26/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY			INTERMEDIATE			FULL			ALL LEVELS		
	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM
2.01	0	0	0	0	0	0	0	0	2	0	0	2
2.02	0	0	0	0	0	0	0	0	1	0	0	4
2.03	0	0	0	0	0	0	0	0	2	0	0	1
2.04	0	0	0	0	0	0	0	0	2	0	0	2
2.05	0	0	0	0	0	0	0	1	2	0	0	2
2.06	0	0	0	0	0	0	0	0	3	0	0	3
2.07	0	0	0	0	0	0	0	0	0	0	0	0
2.08	0	0	0	0	0	0	0	0	5	0	0	6
2.09	0	0	0	0	0	0	0	0	1	0	0	1
2.10	0	0	0	0	0	0	1	0	16	0	0	17
2.11	0	0	0	0	0	0	0	0	1	0	0	1
2.12	0	0	0	0	0	0	2	0	9	0	0	11
2.13	0	0	0	0	0	0	2	0	1	0	0	3
2.14	0	0	0	0	0	0	1	0	3	0	0	4
2.15	0	0	0	0	0	0	2	0	5	0	0	7
2.16	0	0	0	0	1	1	0	0	3	0	1	4
2.17	0	0	0	0	0	0	0	0	1	0	0	1
2.18	0	0	0	0	0	0	1	0	3	0	0	4
2.19	0	0	0	0	0	0	0	0	0	0	0	0
2.20	0	0	0	0	0	0	1	0	2	0	1	2
2.21	0	0	0	0	0	0	0	0	3	0	0	3
2.22	0	0	0	0	0	0	0	0	9	0	0	11
2.23	0	0	0	0	0	0	0	0	4	0	0	4
2.24	0	0	0	0	0	0	0	0	6	0	0	7
2.25	0	0	0	0	0	0	1	0	2	0	0	3
2.26	0	0	0	0	0	0	1	0	4	0	0	5
2.27	0	0	0	0	0	0	1	0	6	0	0	8
2.28	0	0	0	0	0	0	2	0	5	0	0	5
2.29	0	0	0	0	0	0	0	0	15	0	0	19
2.30	0	0	0	0	0	4	0	0	2	0	0	2
2.31	0	0	0	0	0	0	0	0	2	0	0	2
2.32	0	0	0	0	0	0	0	0	2	0	0	2
2.33	0	0	0	0	0	0	0	0	2	0	0	2
2.34	0	0	0	0	0	0	0	0	2	0	0	2
2.35	0	0	0	0	0	0	0	0	2	0	0	2
2.36	0	0	0	0	0	0	0	0	2	0	0	2
2.37	0	0	0	0	0	0	0	0	0	0	0	0
2.38	0	0	0	0	0	0	0	0	3	0	0	3
2.39	0	0	0	0	0	0	0	0	2	0	0	2
2.40	0	0	0	0	0	0	0	0	1	0	0	1
2.41	0	0	0	0	0	0	0	0	0	0	0	0
2.42	0	0	0	0	0	0	0	0	0	0	0	0
2.43	0	0	0	0	0	0	0	0	0	0	0	0
2.44	0	0	0	0	0	0	0	0	0	0	0	0
2.45	0	0	0	0	0	0	0	0	0	0	0	0
2.46	0	0	0	0	0	0	0	0	0	0	0	0
2.47	0	0	0	0	0	0	0	0	0	0	0	0
2.48	0	0	0	0	0	0	0	0	0	0	0	0
2.49	0	0	0	0	0	0	0	0	0	0	0	0
2.50	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	1	24	0	2	161	0	3	185

~~TOP SECRET~~

- CONTROL NO. [REDACTED]

TABLE A-3

~~TOP SECRET~~

- CONTROL NO. [REDACTED]

MISSION * 1036-2 * INSTRUMENT * FRWD 11/28/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY			INTERMEDIATE			FULL			ALL LEVELS		
	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM
2.51	0	0	0	0	0	0	0	0	0	0	0	0
2.52	0	0	0	0	0	0	0	0	0	0	0	0
2.53	0	0	0	0	0	0	0	0	0	0	0	0
2.54	0	0	0	0	0	0	0	0	0	0	0	0
2.55	0	0	0	0	0	0	0	0	0	0	0	0
2.56	0	0	0	0	0	0	0	0	0	0	0	0
2.57	0	0	0	0	0	0	0	0	0	0	0	0
2.58	0	0	0	0	0	0	0	0	0	0	0	0
2.59	0	0	0	0	0	0	0	0	0	0	0	0
2.60	0	0	0	0	0	1	0	0	0	0	0	1
2.61	0	0	0	0	0	0	0	0	0	0	0	0
2.62	0	0	0	0	0	0	0	0	0	0	0	0
2.63	0	0	0	0	0	0	0	0	0	0	0	0
2.64	0	0	0	0	0	0	0	0	0	0	0	0
2.65	0	0	0	0	0	0	0	0	0	0	0	0
2.66	0	0	0	0	0	0	0	0	0	0	0	0
2.67	0	0	0	0	0	0	0	0	0	0	0	0
2.68	0	0	0	0	0	0	0	0	0	0	0	0
2.69	0	0	0	0	0	0	0	0	0	0	0	0
2.70	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	0	1	0	0	0	0	0	1
TOTAL	0	0	0	51	51	41	224	224	201	275	275	242

MISSION 1036-2 INSTR - FRWD 11/28/66 PROCESSING AND EXPOSURE ANALYSIS

PROCESS LEVEL	SAMPLE SIZE	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	0	0 PC	0 PC	0 PC	0 PC	0 PC
INTERMEDIATE	51	0 PC	33 PC	61 PC	6 PC	0 PC
FULL	224	46 PC	0 PC	51 PC	3 PC	0 PC
ALL LEVELS	275	38 PC	6 PC	53 PC	3 PC	0 PC

PROCESS LEVEL	BASE + FOG	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	0.01-0.09	0.01-0.13	0.14-0.39	0.40-0.90	-----	0.91 AND UP
INTERMED	0.10-0.17	0.01-0.20	0.21-0.39	0.40-0.90	0.91-1.34	1.35 AND UP
FULL	0.18 AND UP	0.01-0.39	-----	0.40-0.90	0.91-1.69	1.70 AND UP

~~TOP SECRET~~

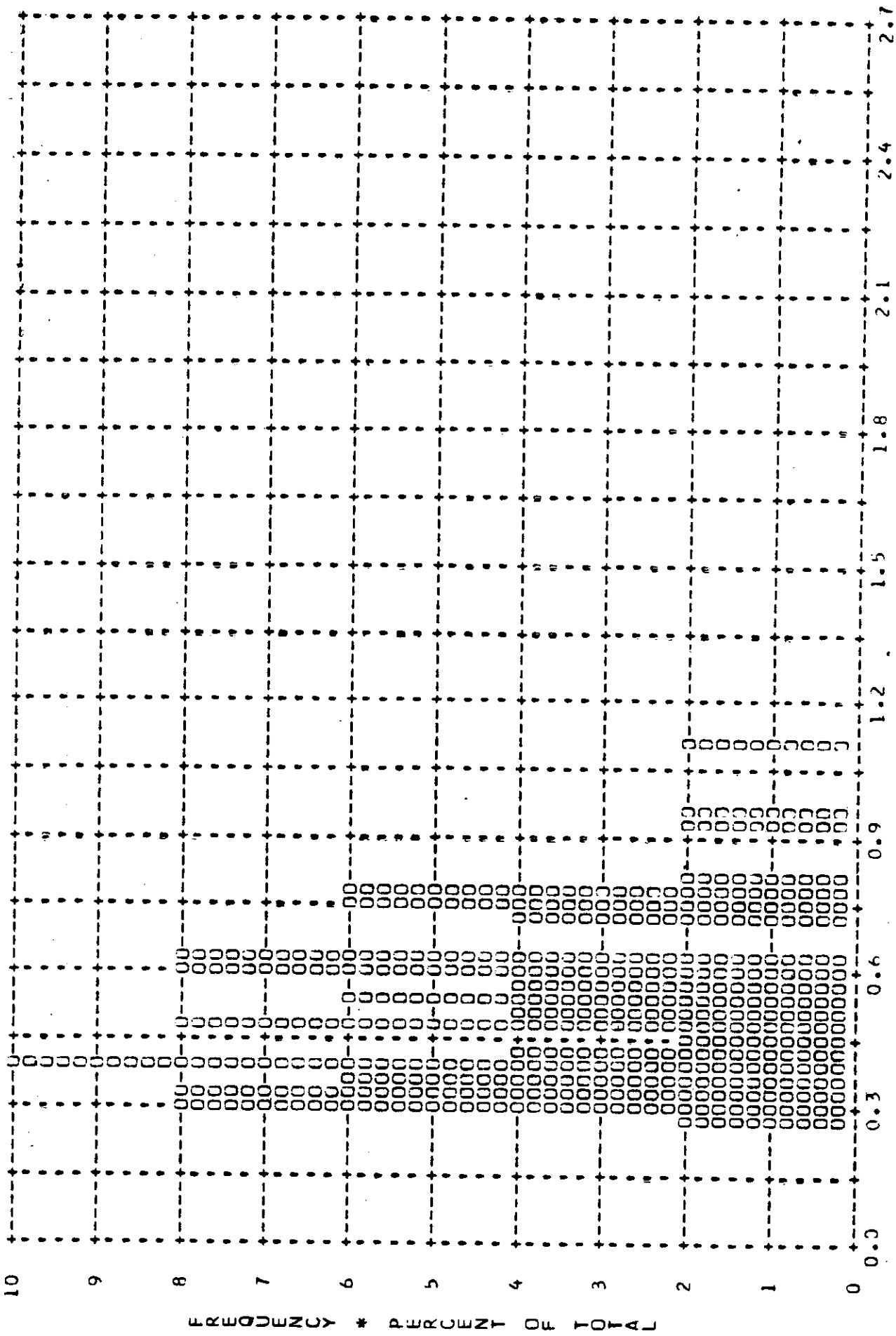
- CONTROL NO. [REDACTED]

TABLE A-3

TOP SECRET

CONTROL NO.

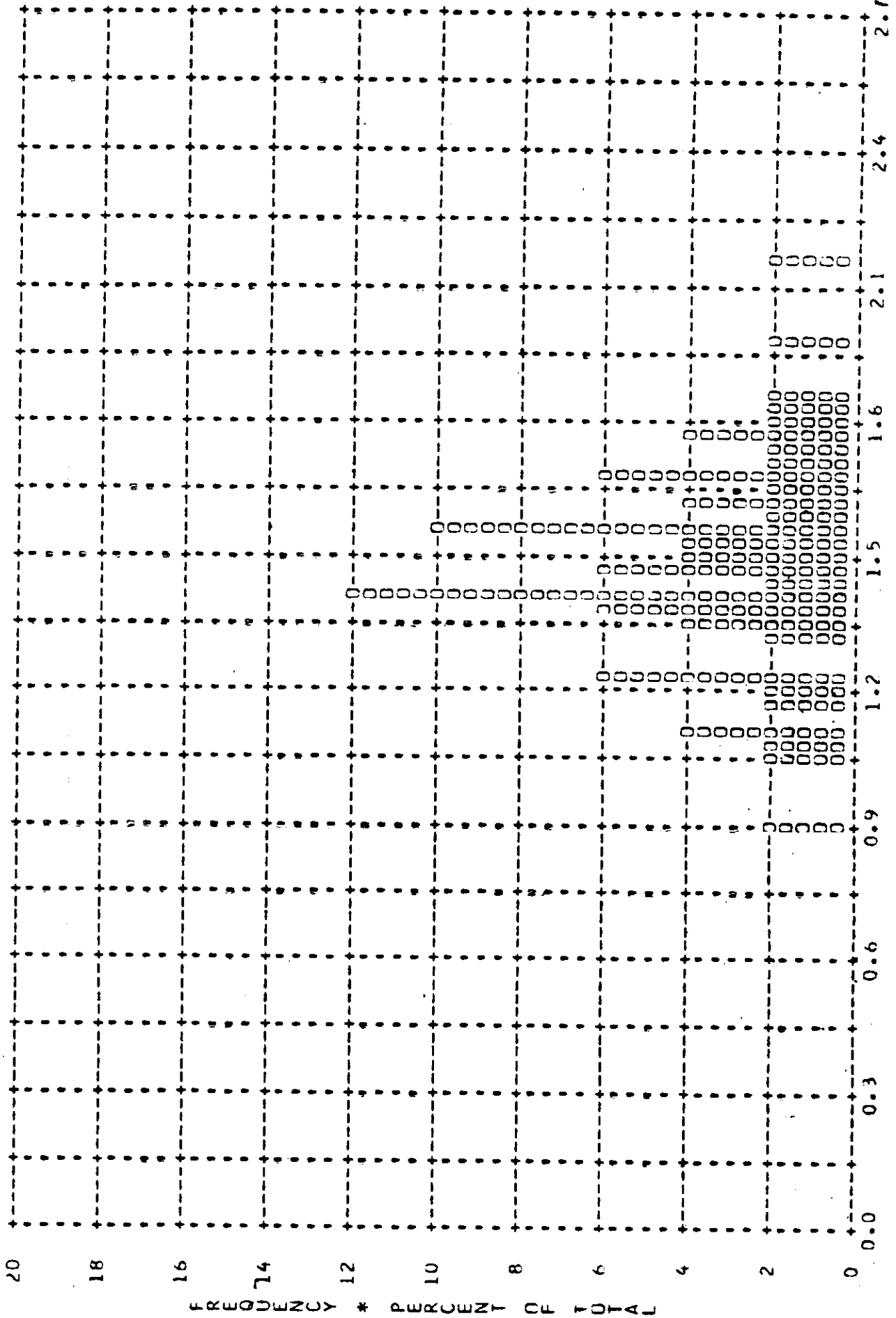
MISSION * 1036-2 * INSTR * FRWD * 11/28/66 PLOT OF 0 MIN * TERRAIN * PROCESSING * INTERMEDIATE
ARITH MEAN * 0.53 * MEDIAN * 0.51 * STD DIV * 0.20 * RANGE * 0.27 TO 1.10 WITH 51 SAMPLES



~~TOP SECRET~~

CONTROL NO.

MISSION * 1036-2 * INSTR * FRWD * 11/28/66 PLOT OF D MAX * TERRAIN * PROCESSING * INTERMEDIATE
ARITH MEAN * 1.48 * MEDIAN * 1.47 * STD DEV * 0.25 * RANGE * 0.30 TO 2.16 WITH 51 SAMPLES



~~TOP SECRET~~

- CONTROL NO.

MISSION * 1036-2 * INSTR * FRWD * 11/28/66 PLOT OF D MAX * CLOUD * PROCESSING * INTERMEDIATE
AKITH MEAN * 2.05 * MEDIAN * 2.12 * STD DEV * 0.26 * RANGE * 1.18 TO 2.60 WITH 41 SAMPLES

	0.0	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7
10								UU		
9								UU		
8								UU		
7							UU			
6							UU			
5							UU			
4							UU			
3							UU			
2							UU			
1							UU			
0							UU			

FREQUENCY * PERCENT OF TOTAL

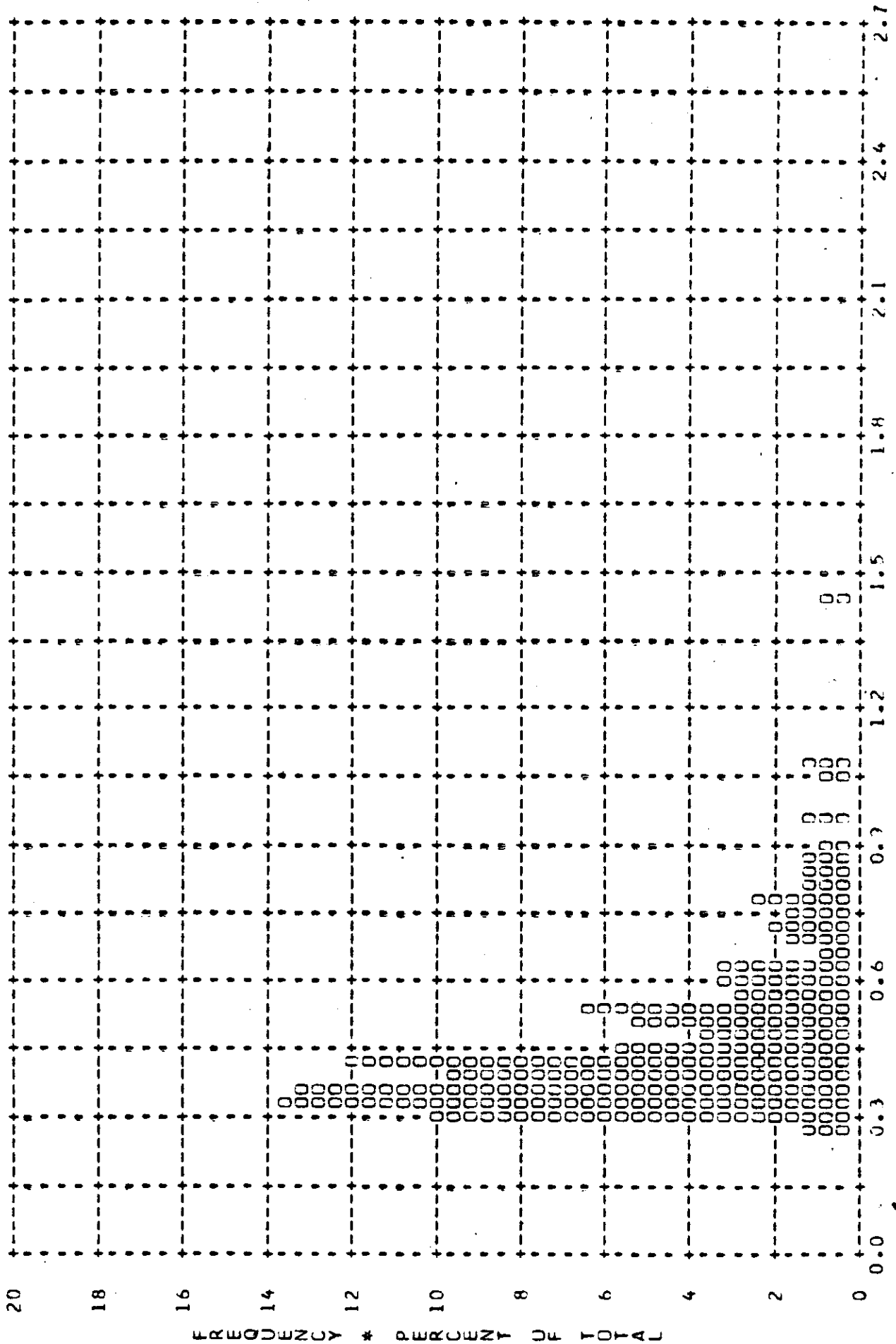
* DENSITY *

FORM A-24

~~TOP SECRET~~

CONTROL NO.

MISSION * 1036-2 * INSTR * FRWD * 11/28/66 PLOT OF D MIN * TERRAIN * PROCESSING * FULL
ARITH MEAN * 0.46 * MEDIAN * 0.40 * STD DEV * 0.18 * RANGE * 0.26 TO 1.43 WITH 224 SAMPLES



~~TOP SECRET~~

- CONTROL NO.

MISSION # 1036-2 * INSTR # FRWD * 11/28/66 PLUT OF U MAX * TERRAIN * PROCESSING * FULL
ARITH MEAN # 1.26 * MEDIAN # 1.28 * STD DEV # 0.36 * RANGE # 0.50 TO 2.20 WITH 224 SAMPLES

	0.0	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7
10										
9										
8										
7										
6										
5										
4										
3										
2										
1										
0										

FREQUENCY * PERCENT OF TOTAL

~~TOP SECRET~~

- CONTROL NO.

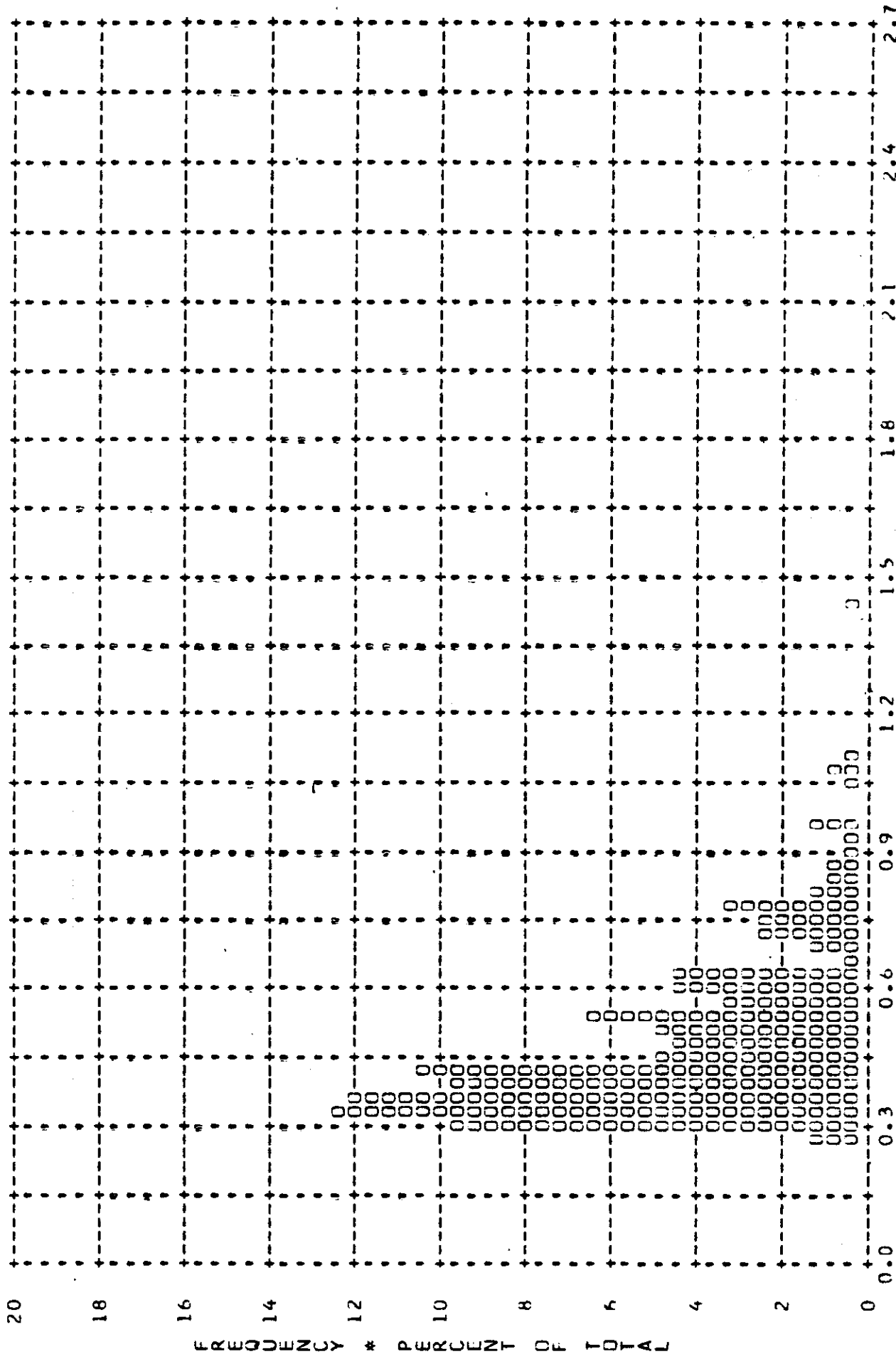
MISSION * 1036-2 * INSTR * FRWD * 11/28/66 PLOT OF D MAX * CLOUD * PROCESSING * FULL
ARITH MEAN * 2.13 * MEDIAN * 2.18 * STD DEV * 0.20 * RANGE * 1.29 TO 2.40 WITH 201 SAMPLES

FREQUENCY	PERCENT OF TOTAL	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7
20										
18										
16										
14										
12										
10										
8										
6										
4										
2										
0										

~~TOP SECRET~~

CONTROL NO.

MISSION # 1036-2 * INSTR # FRWD # 11/28/66 PLOT OF D MIN * TERRAIN * PROCESSING * ALL LEVELS
ARITH MEAN # 0.47 * MEDIAN # 0.42 * STD DEV # 0.18 * RANGE # 0.26 TO 1.43 WITH 275 SAMPLES



DENSITY

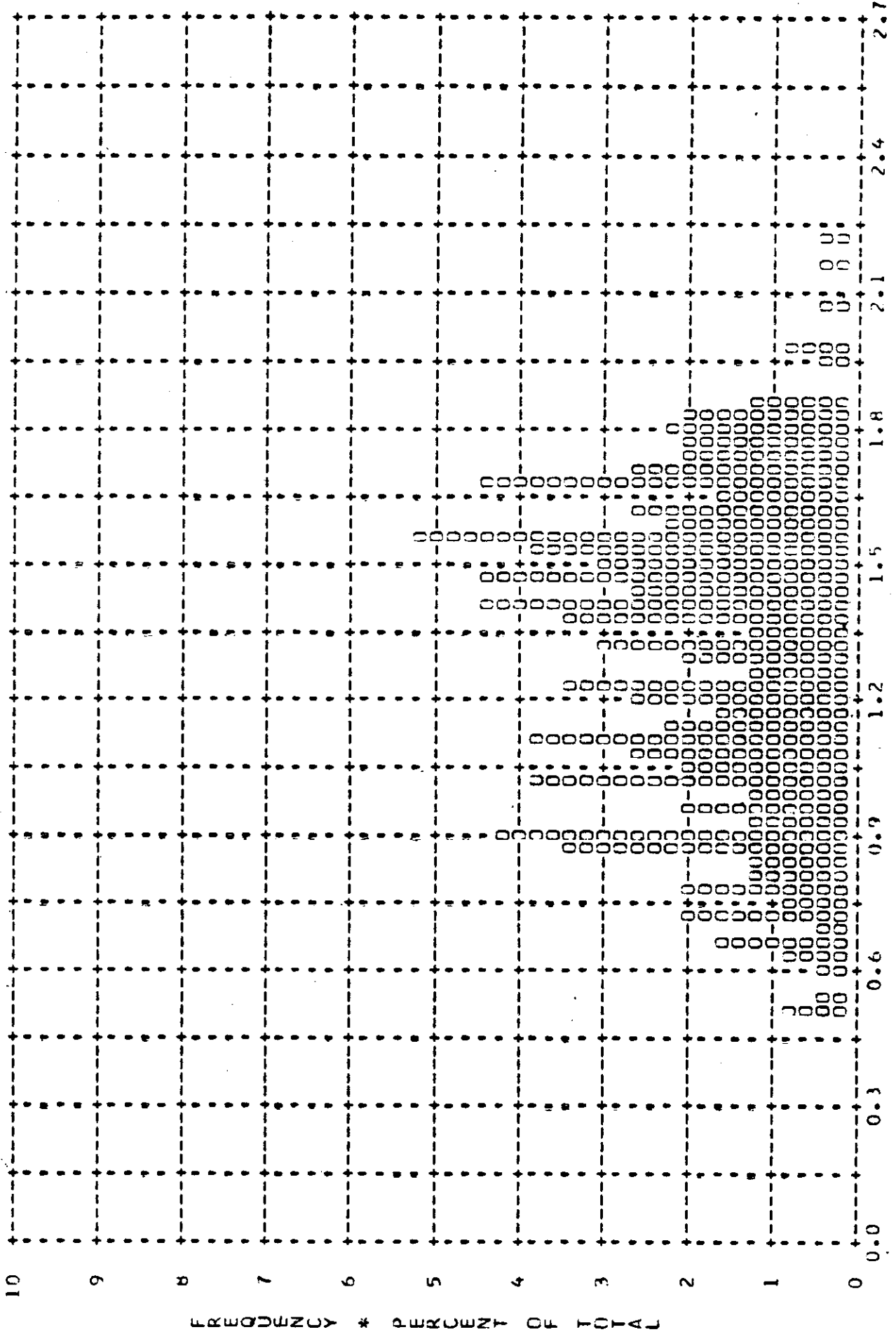
CONTROL NO.

PL 11/28/66

~~TOP SECRET~~

- CONTROL NO.

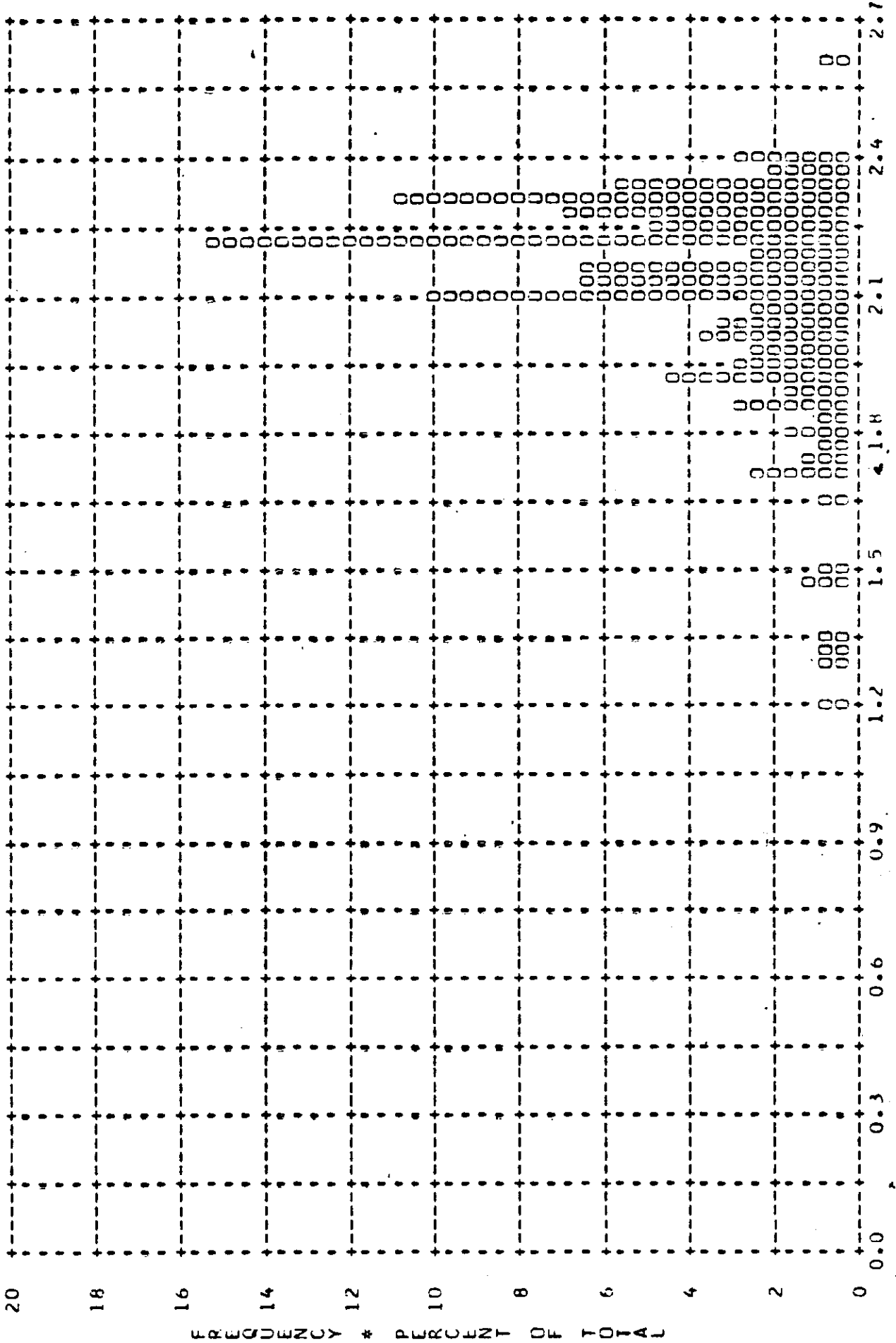
MISSION * 1036-2 * INSTR * FRWD * 11/28/66 PLOT OF D MAX * TERRAIN * PROCESSING * ALL LEVELS
ARITH MEAN * 1.30 * MEDIAN * 1.36 * STD DEV * 0.35 * RANGE * 0.50 TO 2.20 WITH 275 SAMPLES



~~TOP SECRET~~

CONTROL NO.

MISSION * 1036-2 * INSTR * FRWD * 11/28/66 PLOT OF D MAX * CLOUD * PROCESSING * ALL LEVELS
ARITH MEAN * 2.12 * MEDIAN * 2.16 * STD DEV * 0.21 * RANGE * 1.18 TO 2.60 WITH 242 SAMPLES



~~TOP SECRET~~

- CONTROL NO. [REDACTED]

MISSION * 1036-2 * INSTRUMENT * AFT 11/28/66 DENSITY FREQ DISTR

DENSITY VALJE	PRIMARY			INTERMEDIATE			FULL			ALL LEVELS		
	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM
0.01	0	0	0	0	0	0	0	0	0	0	0	0
0.02	0	0	0	0	0	0	0	0	0	0	0	0
0.03	0	0	0	0	0	0	0	0	0	0	0	0
0.04	0	0	0	0	0	0	0	0	0	0	0	0
0.05	0	0	0	0	0	0	0	0	0	0	0	0
0.06	0	0	0	0	0	0	0	0	0	0	0	0
0.07	0	0	0	0	0	0	0	0	0	0	0	0
0.08	0	0	0	0	0	0	0	0	0	0	0	0
0.09	0	0	0	0	0	0	0	0	0	0	0	0
0.10	0	0	0	0	0	0	0	0	0	0	0	0
0.11	0	0	0	0	0	0	0	0	0	0	0	0
0.12	0	0	0	0	0	0	0	0	0	0	0	0
0.13	0	0	0	0	0	0	0	0	0	0	0	0
0.14	0	0	0	0	0	0	0	0	0	0	0	0
0.15	0	0	0	0	0	0	0	0	0	0	0	0
0.16	0	0	0	0	0	0	0	0	0	0	0	0
0.17	0	0	0	0	0	0	0	0	0	0	0	0
0.18	0	0	0	0	0	0	0	0	0	0	0	0
0.19	0	0	0	0	0	0	0	0	0	0	0	0
0.20	0	0	0	0	0	0	0	0	0	0	0	0
0.21	0	0	0	0	0	0	0	0	0	0	0	0
0.22	0	0	0	0	0	0	0	0	0	0	0	0
0.23	0	0	0	0	0	0	0	0	0	0	0	0
0.24	0	0	0	0	0	0	0	0	0	0	0	0
0.25	0	0	0	0	0	0	0	0	0	0	0	0
0.26	0	0	0	0	0	0	0	0	0	0	0	0
0.27	0	0	0	0	0	0	0	0	0	0	0	0
0.28	0	0	0	0	0	0	1	0	0	0	2	0
0.29	0	0	0	0	0	0	2	0	0	0	2	0
0.30	0	0	0	0	0	0	3	0	0	0	3	0
0.31	0	0	0	0	0	0	6	0	0	0	6	0
0.32	0	0	0	0	0	0	11	0	0	0	13	0
0.33	0	0	0	0	0	0	11	0	0	0	9	0
0.34	0	0	0	0	0	0	11	0	0	0	9	0
0.35	0	0	0	0	0	0	3	0	0	0	7	0
0.36	0	0	0	0	0	0	1	0	0	0	2	0
0.37	0	0	0	0	0	0	1	0	0	0	4	0
0.38	0	0	0	0	0	0	2	0	0	0	12	0
0.39	0	0	0	0	0	0	1	0	0	0	10	0
0.40	0	0	0	0	0	0	1	0	0	0	16	0
0.41	0	0	0	0	0	0	1	0	0	0	8	0
0.42	0	0	0	0	0	0	1	0	0	0	15	0
0.43	0	0	0	0	0	0	5	0	0	0	5	0
0.44	0	0	0	0	0	0	9	0	0	0	10	0
0.45	0	0	0	0	0	0	5	0	0	0	8	0
0.46	0	0	0	0	0	0	4	0	0	0	11	0
0.47	0	0	0	0	0	0	1	0	0	0	7	0
0.48	0	0	0	0	0	0	1	0	0	0	10	0
0.49	0	0	0	0	0	0	0	0	0	0	3	0
0.50	0	0	0	0	0	0	14	0	0	0	16	0
SUBTOTAL	0	0	0	27	1	0	171	1	0	198	2	0

~~TOP SECRET~~

- CONTROL NO. [REDACTED]

TABLE A-4

~~TOP SECRET~~

- CONTROL NO. [REDACTED]

MISSION * 1036-2 * INSTRUMENT * AFT 11/28/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY			INTERMEDIATE			FULL			ALL LEVELS		
	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM
0.51	0	0	0	0	0	0	0	0	0	0	0	0
0.52	0	0	0	1	0	0	0	0	0	0	0	0
0.53	0	0	0	1	0	0	3	1	0	0	5	0
0.54	0	0	0	1	0	0	3	1	0	0	2	0
0.55	0	0	0	1	0	0	3	1	0	0	4	0
0.56	0	0	0	1	0	0	3	1	0	0	5	0
0.57	0	0	0	1	0	0	3	1	0	0	6	0
0.58	0	0	0	2	0	0	1	0	0	0	5	0
0.59	0	0	0	1	0	0	2	0	0	0	4	0
0.60	0	0	0	1	0	0	2	0	0	0	3	0
0.61	0	0	0	1	0	0	1	0	0	0	2	0
0.62	0	0	0	1	0	0	6	0	0	0	7	0
0.63	0	0	0	1	0	0	1	0	0	0	1	0
0.64	0	0	0	2	0	0	1	0	0	0	1	0
0.65	0	0	0	2	0	0	3	0	0	0	3	0
0.66	0	0	0	0	0	0	4	0	0	0	1	0
0.67	0	0	0	0	0	0	1	0	0	0	1	0
0.68	0	0	0	0	0	0	1	0	0	0	1	0
0.69	0	0	0	0	0	0	2	0	0	0	2	0
0.70	0	0	0	0	0	0	0	0	0	0	0	0
0.71	0	0	0	0	0	0	0	0	0	0	0	0
0.72	0	0	0	0	0	0	0	0	0	0	0	0
0.73	0	0	0	0	0	0	0	0	0	0	0	0
0.74	0	0	0	0	0	0	2	0	0	0	2	0
0.75	0	0	0	0	0	0	1	0	0	0	1	0
0.76	0	0	0	0	0	0	1	0	0	0	1	0
0.77	0	0	0	0	0	0	0	0	0	0	0	0
0.78	0	0	0	0	0	0	4	0	0	0	4	0
0.79	0	0	0	0	0	0	0	0	0	0	0	0
0.80	0	0	0	0	0	0	0	0	0	0	0	0
0.81	0	0	0	0	0	0	0	0	0	0	0	0
0.82	0	0	0	2	0	0	1	0	0	0	3	0
0.83	0	0	0	0	0	0	0	0	0	0	0	0
0.84	0	0	0	0	0	0	0	0	0	0	0	0
0.85	0	0	0	0	0	0	0	0	0	0	0	0
0.86	0	0	0	0	0	0	0	0	0	0	0	0
0.87	0	0	0	0	0	0	0	0	0	0	0	0
0.88	0	0	0	1	0	0	0	0	0	0	0	0
0.89	0	0	0	0	0	0	0	0	0	0	0	0
0.90	0	0	0	0	0	0	0	0	0	0	0	0
0.91	0	0	0	0	0	0	0	0	0	0	0	0
0.92	0	0	0	0	0	0	0	0	0	0	0	0
0.93	0	0	0	0	0	0	0	0	0	0	0	0
0.94	0	0	0	0	0	0	0	0	0	0	0	0
0.95	0	0	0	0	0	0	0	0	0	0	0	0
0.96	0	0	0	0	0	0	0	0	0	0	0	0
0.97	0	0	0	0	0	0	0	0	0	0	0	0
0.98	0	0	0	0	0	0	0	0	0	0	0	0
0.99	0	0	0	0	0	0	0	0	0	0	0	0
1.00	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	18	3	0	52	36	0	70	39	0

~~TOP SECRET~~

CONTROL NO. [REDACTED]

TABLE A-4

~~TOP SECRET~~

CONTROL NO. [REDACTED]

MISSION * 1036-2 * INSTRUMENT * AFT 11/28/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY			INTERMEDIATE			FULL			ALL LEVELS		
	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM
1.01	0	0	0	1	0	0	0	2	0	1	2	0
1.02	0	0	0	0	1	0	0	2	0	0	3	0
1.03	0	0	0	0	0	0	0	1	0	0	1	0
1.04	0	0	0	0	0	0	0	1	0	0	1	0
1.05	0	0	0	0	0	0	0	1	0	0	1	0
1.06	0	0	0	0	0	0	0	1	0	0	1	0
1.07	0	0	0	0	0	0	0	1	0	0	1	0
1.08	0	0	0	0	0	0	0	1	0	0	1	0
1.09	0	0	0	0	0	0	0	1	0	0	1	0
1.10	0	0	0	1	0	0	0	3	0	0	3	0
1.11	0	0	0	0	0	0	0	5	0	1	5	0
1.12	0	0	0	0	0	0	0	2	0	0	2	0
1.13	0	0	0	1	0	0	0	0	0	1	0	0
1.14	0	0	0	0	0	0	0	0	0	1	0	0
1.15	0	0	0	0	0	0	0	2	0	1	2	0
1.16	0	0	0	0	0	0	0	0	0	1	0	0
1.17	0	0	0	0	0	0	0	0	0	1	0	0
1.18	0	0	0	0	0	0	0	1	0	1	1	0
1.19	0	0	0	0	0	0	0	1	0	1	1	0
1.20	0	0	0	0	0	0	0	4	0	0	4	0
1.21	0	0	0	0	0	0	0	0	0	0	0	0
1.22	0	0	0	0	1	0	0	0	0	0	0	0
1.23	0	0	0	0	0	0	0	2	0	0	2	0
1.24	0	0	0	0	0	0	0	5	0	0	5	0
1.25	0	0	0	0	1	0	0	3	0	0	3	0
1.26	0	0	0	0	1	0	0	0	0	0	0	0
1.27	0	0	0	0	0	0	0	0	0	0	0	0
1.28	0	0	0	0	0	0	0	1	0	0	1	0
1.29	0	0	0	0	1	0	0	5	0	0	5	0
1.30	0	0	0	0	0	0	0	4	0	0	4	0
1.31	0	0	0	0	0	0	0	0	0	0	0	0
1.32	0	0	0	0	1	0	0	0	0	0	0	0
1.33	0	0	0	0	1	0	0	4	0	0	4	0
1.34	0	0	0	0	0	0	0	0	0	0	0	0
1.35	0	0	0	0	3	0	0	1	0	0	1	0
1.36	0	0	0	0	3	0	0	3	0	0	3	0
1.37	0	0	0	0	1	0	0	0	0	0	0	0
1.38	0	0	0	0	1	0	0	0	0	0	0	0
1.39	0	0	0	0	1	0	0	4	0	0	4	0
1.40	0	0	0	0	2	0	0	4	0	0	4	0
1.41	0	0	0	0	1	0	0	0	0	0	0	0
1.42	0	0	0	0	0	0	0	3	0	0	3	0
1.43	0	0	0	0	0	0	0	4	0	0	4	0
1.44	0	0	0	0	1	0	0	2	0	0	2	0
1.45	0	0	0	0	1	0	0	0	0	0	0	0
1.46	0	0	0	0	3	0	0	3	0	0	3	0
1.47	0	0	0	0	0	0	0	0	0	0	0	0
1.48	0	0	0	0	0	0	0	0	0	0	0	0
1.49	0	0	0	0	1	0	0	1	0	0	1	0
1.50	0	0	0	0	2	0	0	5	0	0	5	0
SUBTOTAL	0	0	0	3	27	0	1	99	0	4	126	0

~~TOP SECRET~~

CONTROL NO. [REDACTED]

TABLE A-4

~~TOP SECRET~~

- CONTROL NO. [REDACTED]

MISSION * 1036-2 * INSTRUMENT * AFT 11/28/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY			INTERMEDIATE			FULL			ALL LEVELS		
	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM
1.51	0	0	0	0	0	0	0	2	0	0	2	0
1.52	00	00	00	00	2	00	00	00	00	00	2	00
1.53	00	00	00	00	1	00	00	2	00	00	3	00
1.54	00	00	00	00	0	1	00	00	00	00	4	1
1.55	00	00	00	00	0	0	00	3	1	00	4	1
1.56	00	00	00	00	3	00	00	3	00	00	6	00
1.57	00	00	00	00	1	00	00	2	00	00	3	00
1.58	00	00	00	00	1	00	00	3	00	00	4	00
1.59	00	00	00	00	2	00	00	2	00	00	4	00
1.60	00	00	00	00	1	00	00	7	00	00	8	00
1.61	00	00	00	00	0	00	00	6	00	00	6	00
1.62	00	00	00	00	2	00	00	3	00	00	4	00
1.63	00	00	00	00	1	00	00	0	00	00	2	00
1.64	00	00	00	00	0	00	00	0	00	00	5	00
1.65	00	00	00	00	1	00	00	2	00	00	3	00
1.66	00	00	00	00	0	00	00	2	00	00	2	00
1.67	00	00	00	00	0	00	00	2	00	00	2	00
1.68	00	00	00	00	0	00	00	2	00	00	2	00
1.69	00	00	00	00	0	00	00	1	00	00	1	00
1.70	00	00	00	00	0	00	00	3	00	00	3	00
1.71	00	00	00	00	0	00	00	4	00	00	4	00
1.72	00	00	00	00	0	00	00	4	00	00	4	00
1.73	00	00	00	00	0	00	00	2	00	00	2	00
1.74	00	00	00	00	0	00	00	4	00	00	4	00
1.75	00	00	00	00	0	00	00	0	00	00	0	00
1.76	00	00	00	00	1	00	00	0	00	00	3	00
1.77	00	00	00	00	0	00	00	0	00	00	0	00
1.78	00	00	00	00	0	00	00	0	00	00	0	00
1.79	00	00	00	00	0	00	00	2	00	00	2	00
1.80	00	00	00	00	0	00	00	2	00	00	2	00
1.81	00	00	00	00	0	00	00	0	00	00	0	00
1.82	00	00	00	00	0	00	00	2	00	00	2	00
1.83	00	00	00	00	0	00	00	2	00	00	2	00
1.84	00	00	00	00	0	00	00	2	00	00	2	00
1.85	00	00	00	00	0	00	00	1	00	00	1	00
1.86	00	00	00	00	0	00	00	1	00	00	1	00
1.87	00	00	00	00	0	00	00	2	00	00	2	00
1.88	00	00	00	00	0	00	00	0	00	00	0	00
1.89	00	00	00	00	0	00	00	1	00	00	1	00
1.90	00	00	00	00	0	00	00	3	00	00	3	00
1.91	00	00	00	00	0	00	00	1	00	00	1	00
1.92	00	00	00	00	0	00	00	1	00	00	1	00
1.93	00	00	00	00	0	00	00	1	00	00	1	00
1.94	00	00	00	00	0	00	00	1	00	00	1	00
1.95	00	00	00	00	0	00	00	2	00	00	2	00
1.96	00	00	00	00	0	00	00	0	00	00	0	00
1.97	00	00	00	00	0	00	00	1	00	00	1	00
1.98	00	00	00	00	0	00	00	0	00	00	0	00
1.99	00	00	00	00	0	00	00	0	00	00	0	00
2.00	00	00	00	00	0	5	00	0	8	00	13	00
SUBTOTAL	0	0	0	0	17	18	0	86	31	0	103	49

~~TOP SECRET~~

- CONTROL NO. [REDACTED]

TABLE A-4

~~TOP SECRET~~ [REDACTED]

- CONTROL NO. [REDACTED]

MISSION * 1036-2 * INSTRUMENT * APT 11/28/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY			INTERMEDIATE			FULL			ALL LEVELS		
	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM
2.01	0	0	0	0	0	0	0	0	1	0	0	1
2.02	0	0	0	0	0	0	0	0	1	0	0	1
2.03	0	0	0	0	0	0	0	0	1	0	0	1
2.04	0	0	0	0	0	0	0	0	0	0	0	0
2.05	0	0	0	0	0	0	0	0	3	0	0	4
2.06	0	0	0	0	0	0	0	0	3	0	1	4
2.07	0	0	0	0	0	0	0	0	0	0	0	1
2.08	0	0	0	0	0	0	0	0	3	0	0	4
2.09	0	0	0	0	0	0	0	0	1	0	0	2
2.10	0	0	0	0	0	0	0	0	9	0	1	3
2.11	0	0	0	0	0	0	0	0	0	0	0	0
2.12	0	0	0	0	0	0	0	0	3	0	0	3
2.13	0	0	0	0	0	0	0	0	0	0	0	1
2.14	0	0	0	0	0	0	0	0	0	0	0	4
2.15	0	0	0	0	0	0	0	0	6	0	0	10
2.16	0	0	0	0	0	0	0	0	2	0	0	2
2.17	0	0	0	0	0	0	0	0	2	0	0	3
2.18	0	0	0	0	0	0	0	0	4	0	0	5
2.19	0	0	0	0	0	0	0	0	1	0	0	2
2.20	0	0	0	0	0	0	0	0	2	0	0	4
2.21	0	0	0	0	0	0	0	0	6	0	0	6
2.22	0	0	0	0	0	0	0	0	8	0	0	9
2.23	0	0	0	0	0	0	0	0	6	0	0	7
2.24	0	0	0	0	0	0	0	0	6	0	0	7
2.25	0	0	0	0	0	0	0	0	6	0	0	7
2.26	0	0	0	0	0	0	0	0	7	0	0	7
2.27	0	0	0	0	0	0	0	0	3	0	0	3
2.28	0	0	0	0	0	0	0	0	4	0	0	5
2.29	0	0	0	0	0	0	0	0	5	0	0	5
2.30	0	0	0	0	0	0	0	0	18	0	0	16
2.31	0	0	0	0	0	0	0	0	5	0	0	10
2.32	0	0	0	0	0	0	0	0	10	0	0	10
2.33	0	0	0	0	0	0	0	0	5	0	0	5
2.34	0	0	0	0	0	0	0	0	6	0	0	5
2.35	0	0	0	0	0	0	0	0	4	0	0	3
2.36	0	0	0	0	0	0	0	0	3	0	0	2
2.37	0	0	0	0	0	0	0	0	2	0	0	2
2.38	0	0	0	0	0	0	0	0	0	0	0	0
2.39	0	0	0	0	0	0	0	0	0	0	0	0
2.40	0	0	0	0	0	0	0	0	1	0	0	1
2.41	0	0	0	0	0	0	0	0	0	0	0	0
2.42	0	0	0	0	0	0	0	0	0	0	0	0
2.43	0	0	0	0	0	0	0	0	0	0	0	0
2.44	0	0	0	0	0	0	0	0	0	0	0	0
2.45	0	0	0	0	0	0	0	0	0	0	0	0
2.46	0	0	0	0	0	0	0	0	0	0	0	0
2.47	0	0	0	0	0	0	0	0	0	0	0	0
2.48	0	0	0	0	0	0	0	0	0	0	0	0
2.49	0	0	0	0	0	0	0	0	0	0	0	0
2.50	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	0	25	0	2	163	0	2	168

~~TOP SECRET~~ [REDACTED]

- CONTROL NO. [REDACTED]

TABLE A-4

~~TOP SECRET~~ [REDACTED]

CONTROL NO. [REDACTED]

MISSION # 1036-2 * INSTRUMENT * AFT 11/28/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY			INTERMEDIATE			FULL			ALL LEVELS		
	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM	MIN	MAX	LIM
2.51	0	0	0	0	0	0	0	0	0	0	0	0
2.52	0	0	0	0	0	0	0	0	0	0	0	0
2.53	0	0	0	0	0	0	0	0	0	0	0	0
2.54	0	0	0	0	0	0	0	0	0	0	0	0
2.55	0	0	0	0	0	0	0	0	0	0	0	0
2.56	0	0	0	0	0	0	0	0	0	0	0	0
2.57	0	0	0	0	0	0	0	0	0	0	0	0
2.58	0	0	0	0	0	0	0	0	0	0	0	0
2.59	0	0	0	0	0	0	0	0	0	0	0	0
2.60	0	0	0	0	0	0	0	0	0	0	0	0
2.61	0	0	0	0	0	0	0	0	0	0	0	0
2.62	0	0	0	0	0	0	0	0	0	0	0	0
2.63	0	0	0	0	0	0	0	0	0	0	0	0
2.64	0	0	0	0	0	0	0	0	0	0	0	0
2.65	0	0	0	0	0	0	0	0	0	0	0	0
2.66	0	0	0	0	0	0	0	0	0	0	0	0
2.67	0	0	0	0	0	0	0	0	0	0	0	0
2.68	0	0	0	0	0	0	0	0	0	0	0	0
2.69	0	0	0	0	0	0	0	0	0	0	0	0
2.70	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	48	48	43	224	224	194	272	272	237

MISSION 1036-2 INSTR - AFT 11/28/66 PROCESSING AND EXPOSURE ANALY.

PROCESS LEVEL	SAMPLE SIZE	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	0	0 PC	0 PC	0 PC	0 PC	0 PC
INTERMEDIATE	48	0 PC	25 PC	65 PC	10 PC	0 PC
FULL	224	34 PC	0 PC	63 PC	2 PC	0 PC
ALL LEVELS	272	28 PC	4 PC	64 PC	4 PC	0 PC

PROCESS LEVEL	BASE + FOG	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	0.01-0.09	0.01-0.13	0.14-0.39	0.40-0.90	-----	0.91 AND
INTERMED	0.10-0.17	0.01-0.20	0.21-0.39	0.40-0.90	0.91-1.34	1.35 AND
FULL	0.18 AND UP	0.01-0.39	-----	0.40-0.90	0.91-1.69	1.70 AND

~~TOP SECRET~~ [REDACTED]

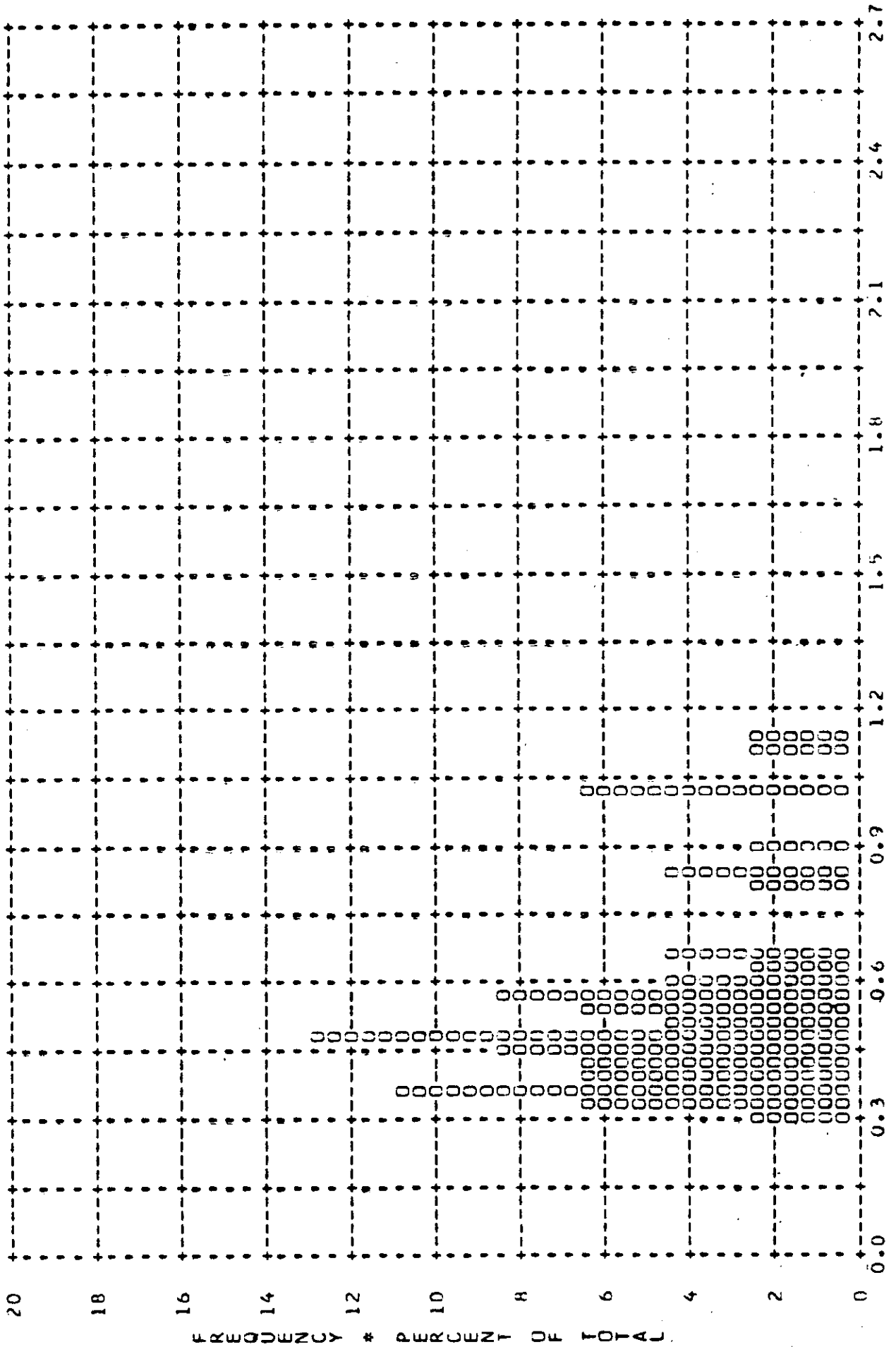
CONTROL NO. [REDACTED]

TABLE A-4

~~TOP SECRET~~

CON. KJL NO.

MISSION * 1036-2 * INSTR * AFI * 11/28/66 PLOT OF D MIN * TERRAIN * PROCESSING * INTERMEDIATE
ARITH MEAN * 0.55 * MEDIAN * 0.48 * STD DEV * 0.22 * RANGE * 0.28 TO 1.13 WITH 48 SAMPLES



~~TOP SECRET~~

* DENSITY *

CONTROL NO.

~~TOP SECRET~~

CONTROL NO.

MISSION # 1036-2 * INSTR # AFT # 11/28/66 PLJT OF D MAX # TERRAIN # PROCESSING # INTERMEDIATE
ARITH MEAN # 1.40 * MEDIAN # 1.45 * STD DLV # 0.23 * RANGE # 0.50 TO 1.76 WITH 48 SAMPLES

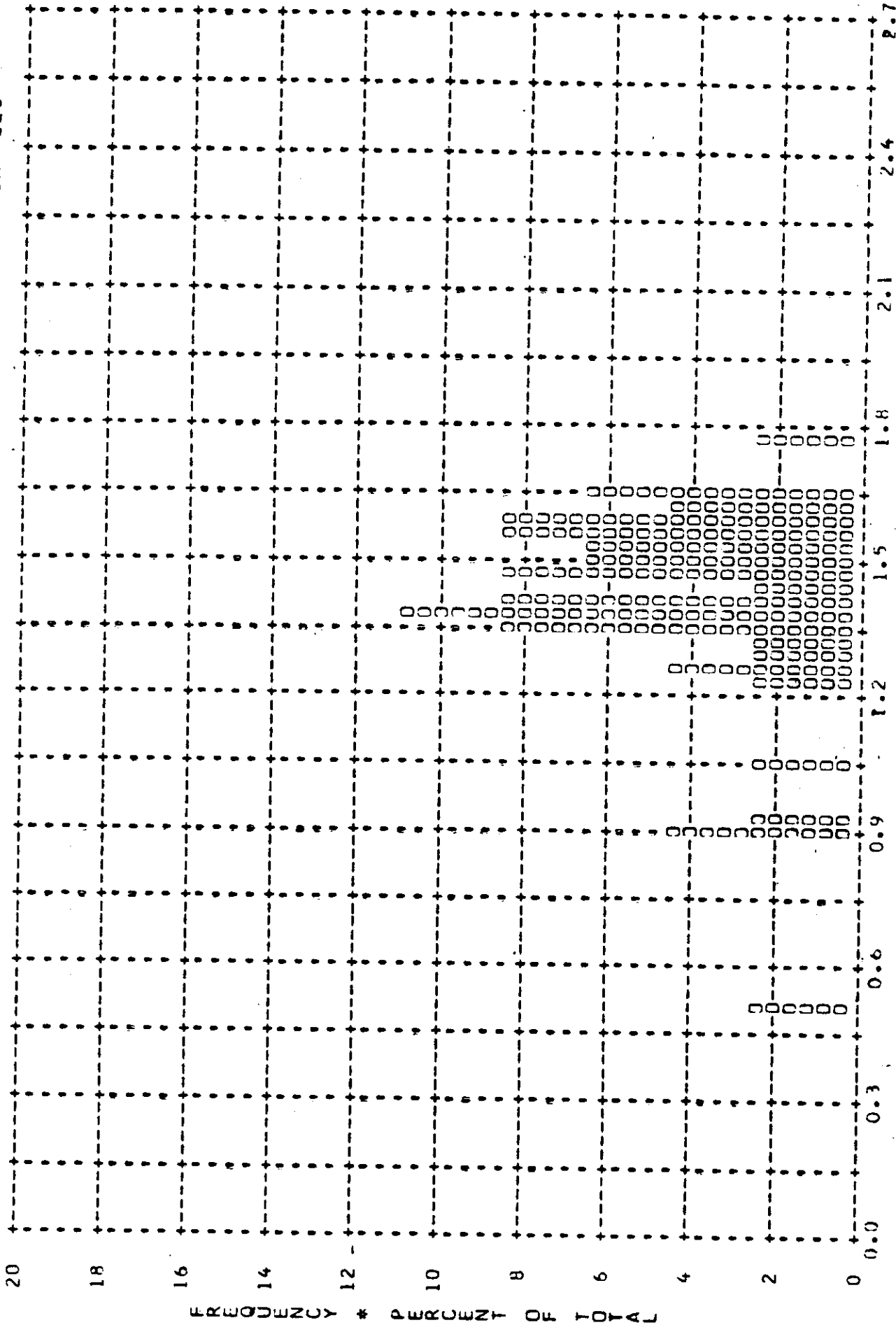


FIGURE A-32

* DENSITY *

CONTROL NO.

~~TOP SECRET~~

MISSION * 1036-2 * INSTR * APT * 11/28/66 PLOT OF U MAX * CLOUD * PROCESSING * INTERMEDIATE
ARITH MEAN * 2.03 * MEDIAN * 2.08 * STD DEV * 0.17 * RANGE * 1.54 TO 2.28 WITH 43 SAMPLES

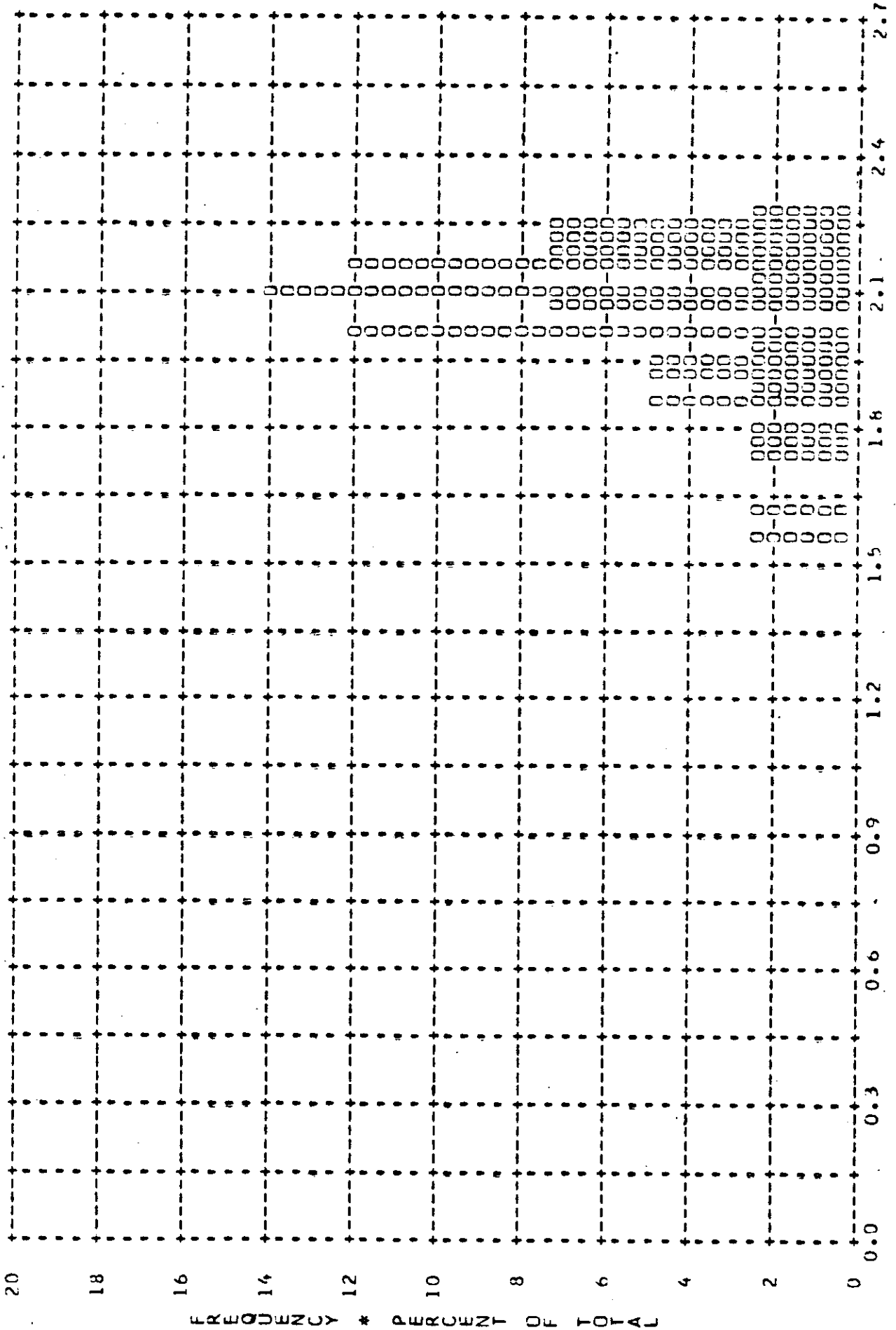
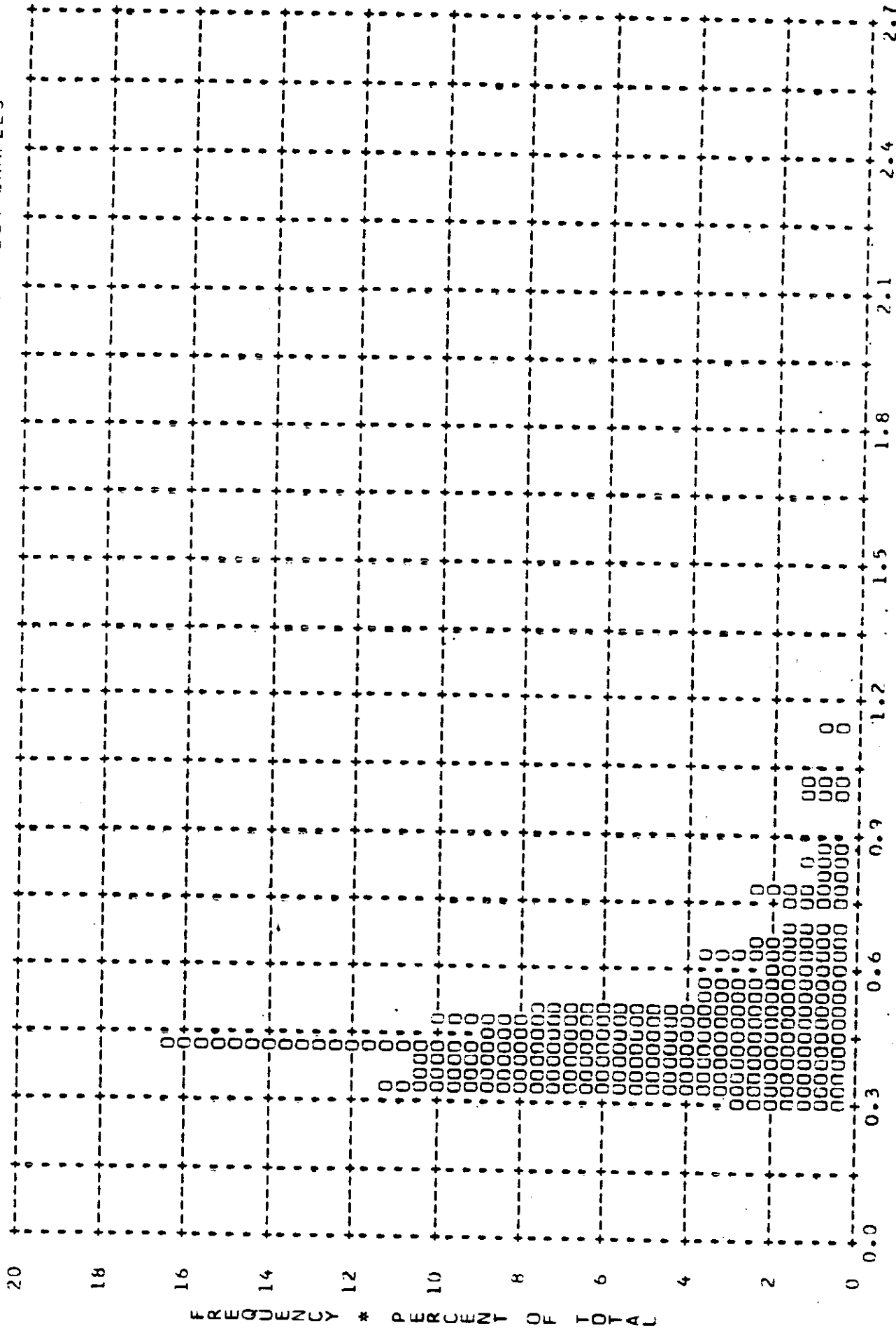


FIGURE A-33

~~TOP SECRET~~

- CONTROL NO.

MISSION * 1036-2 * INSTR * AFT * 11/28/66 PLOT OF D MIN * TERRAIN * PROCESSING * FULL
ARITH MEAN * 0.47 * MEDIAN * 0.42 * STD DEV * 0.15 * RANGE * 0.28 TO 1.14 WITH 224 SAMPLES



~~TOP SECRET~~

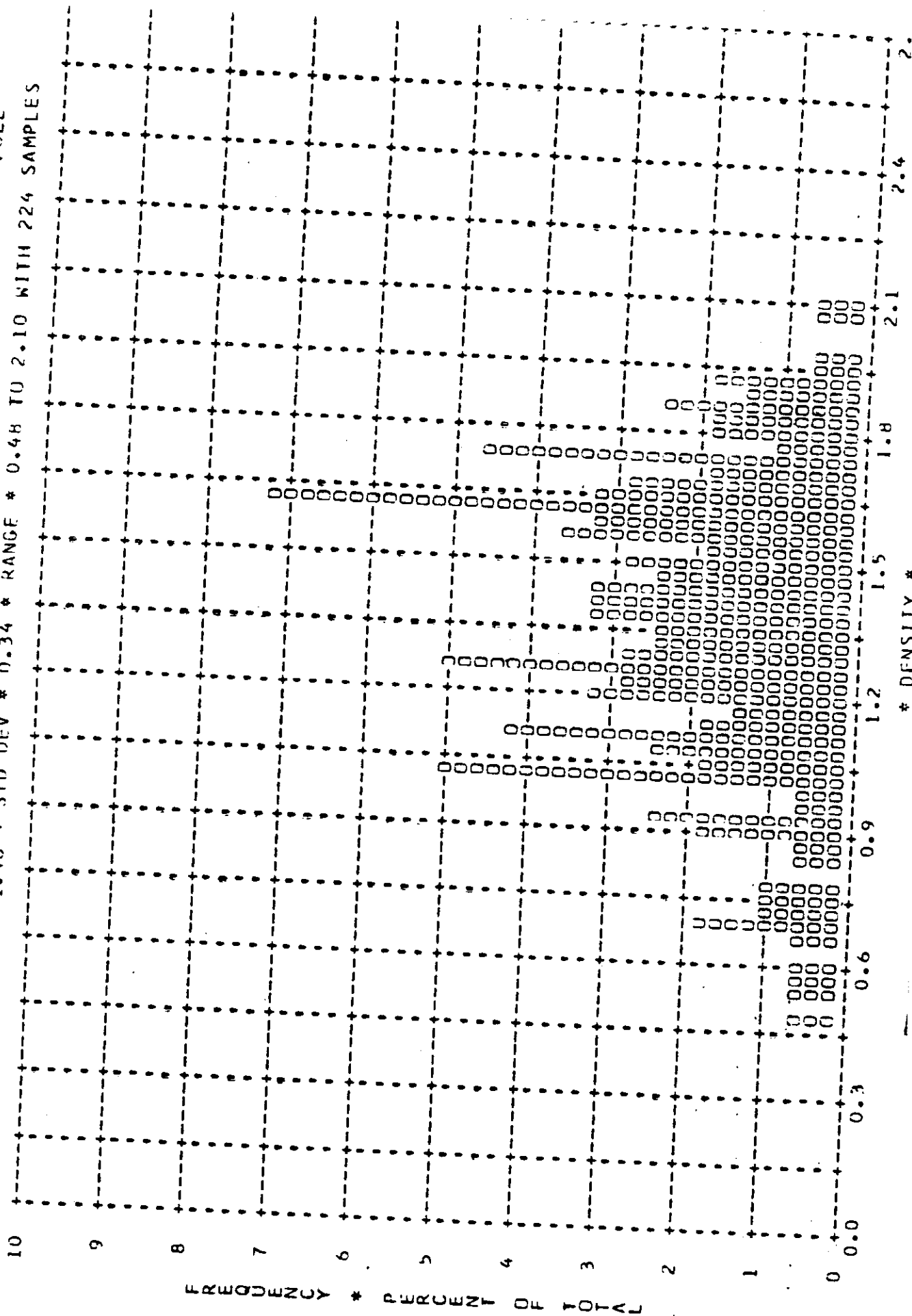
- CONTROL NO.

* DENSITY *

~~TOP SECRET~~

- CONTROL NO.

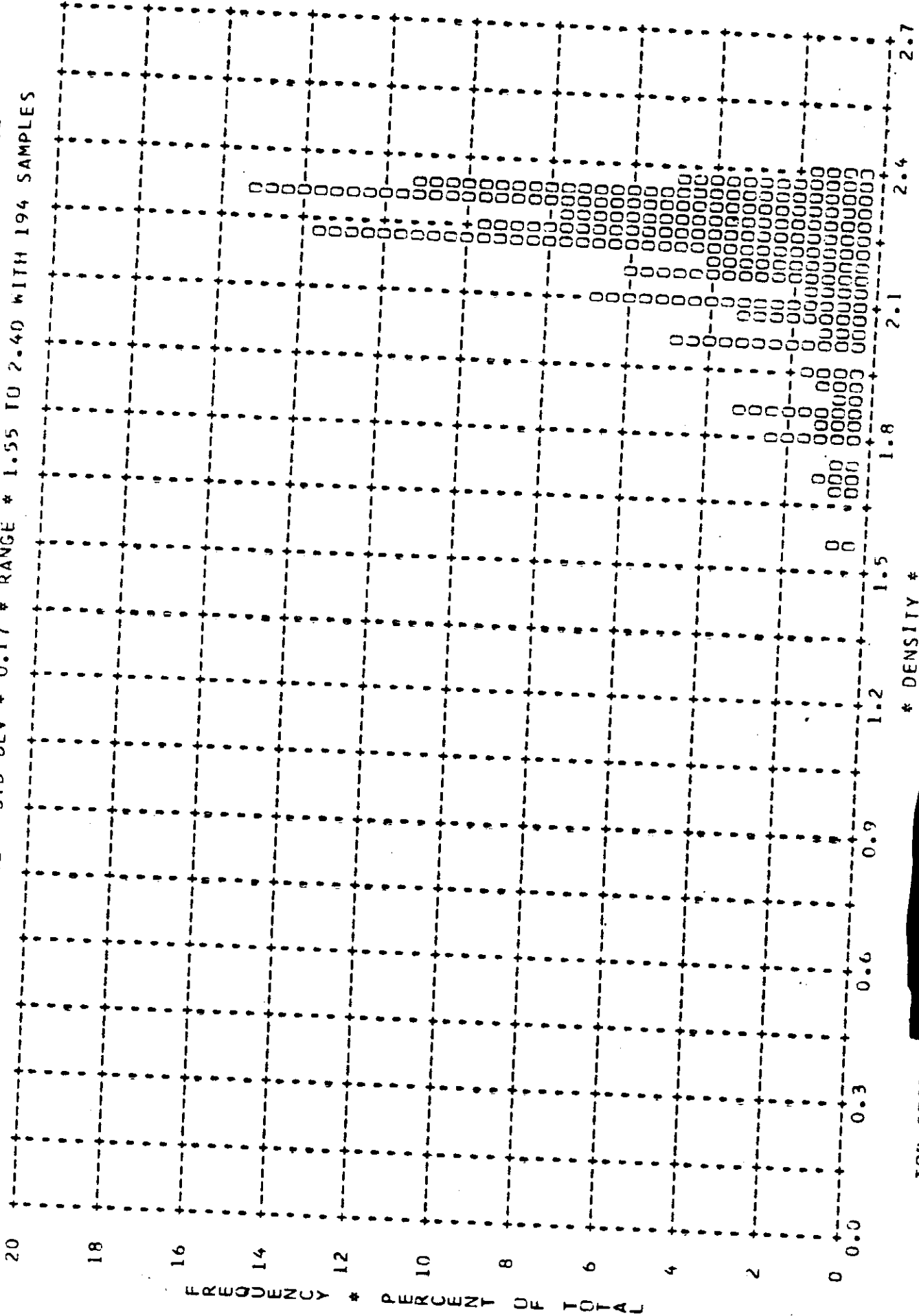
MISSION * 1036-2 * INSTR * AFT * 11/28/66 PLOT OF D MAX * TERRAIN * PROCESSING * FULL
ARITH MEAN * 1.36 * MEDIAN * 1.40 * STD DEV * 0.34 * RANGE * 0.48 TO 2.10 WITH 224 SAMPLES



~~TOP SECRET~~

[REDACTED] - CONTROL NO.

MISSION * 1036-2 * INSTR * AFT * 11/28/66 PLOT OF U MAX * CLOUD * PROCESSING * FULL
ARITH MEAN * 2.18 * MEDIAN * 2.22 * STD DEV * 0.17 * RANGE * 1.55 TO 2.40 WITH 194 SAMPLES



* DENSITY #

[REDACTED] - CONTROL NO.

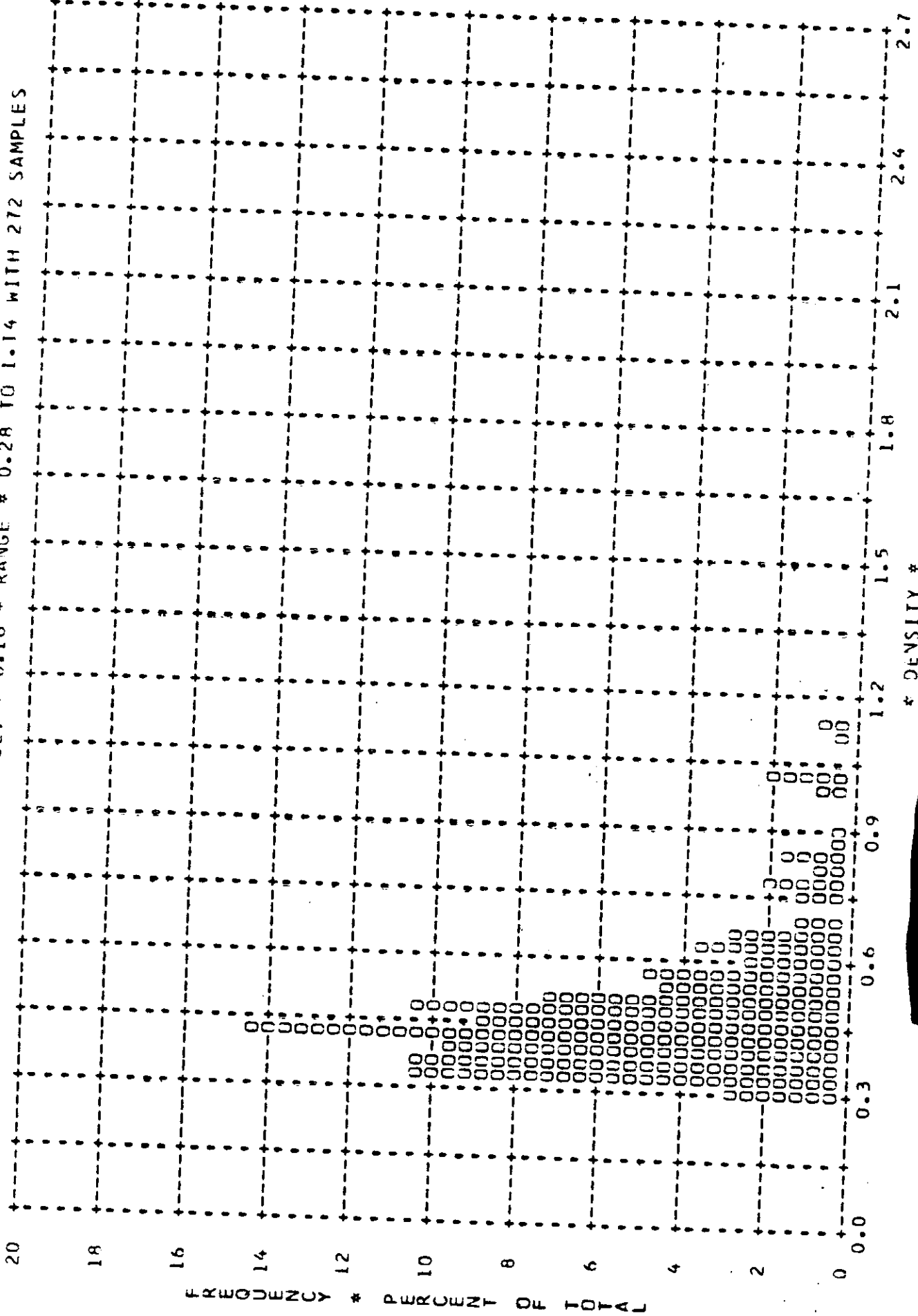
~~TOP SECRET~~

FIGURE A-36

~~TOP SECRET~~

CONTROL NO. [REDACTED]

MISSION * 1036-2 * INSTR * AFT * 11/78/66 PLOT OF D MIN * TERRAIN * PROCESSING * ALL LEVELS
ARITH MEAN * 0.48 * MEDIAN * 0.44 * STD DEV * 0.16 * RANGE * 0.28 TO 1.14 WITH 272 SAMPLES



* DENSITY #

~~TOP SECRET~~

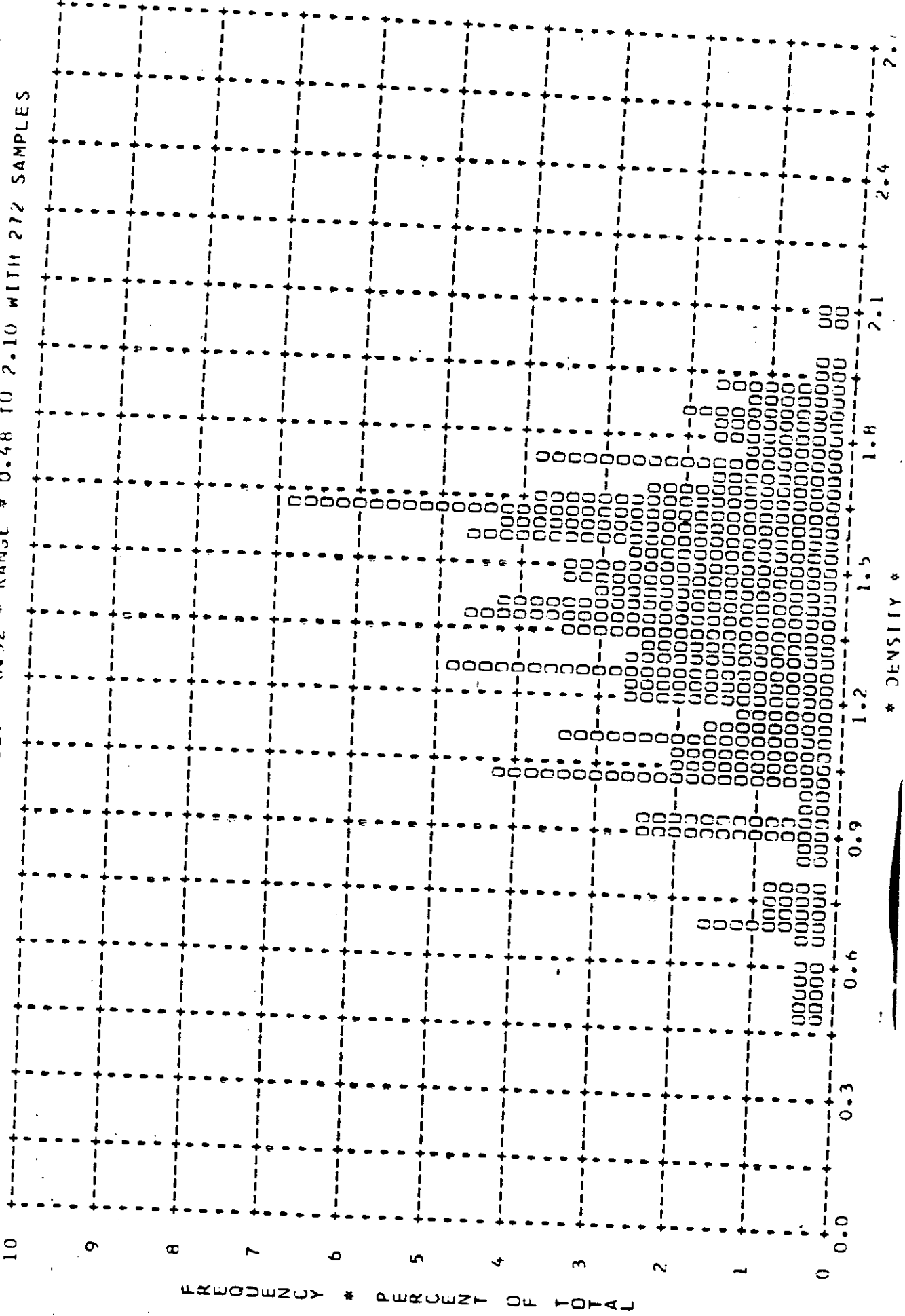
CONTROL NO. [REDACTED]

FIGURE A-37

TOP SECRET

CONTRDOL VO.

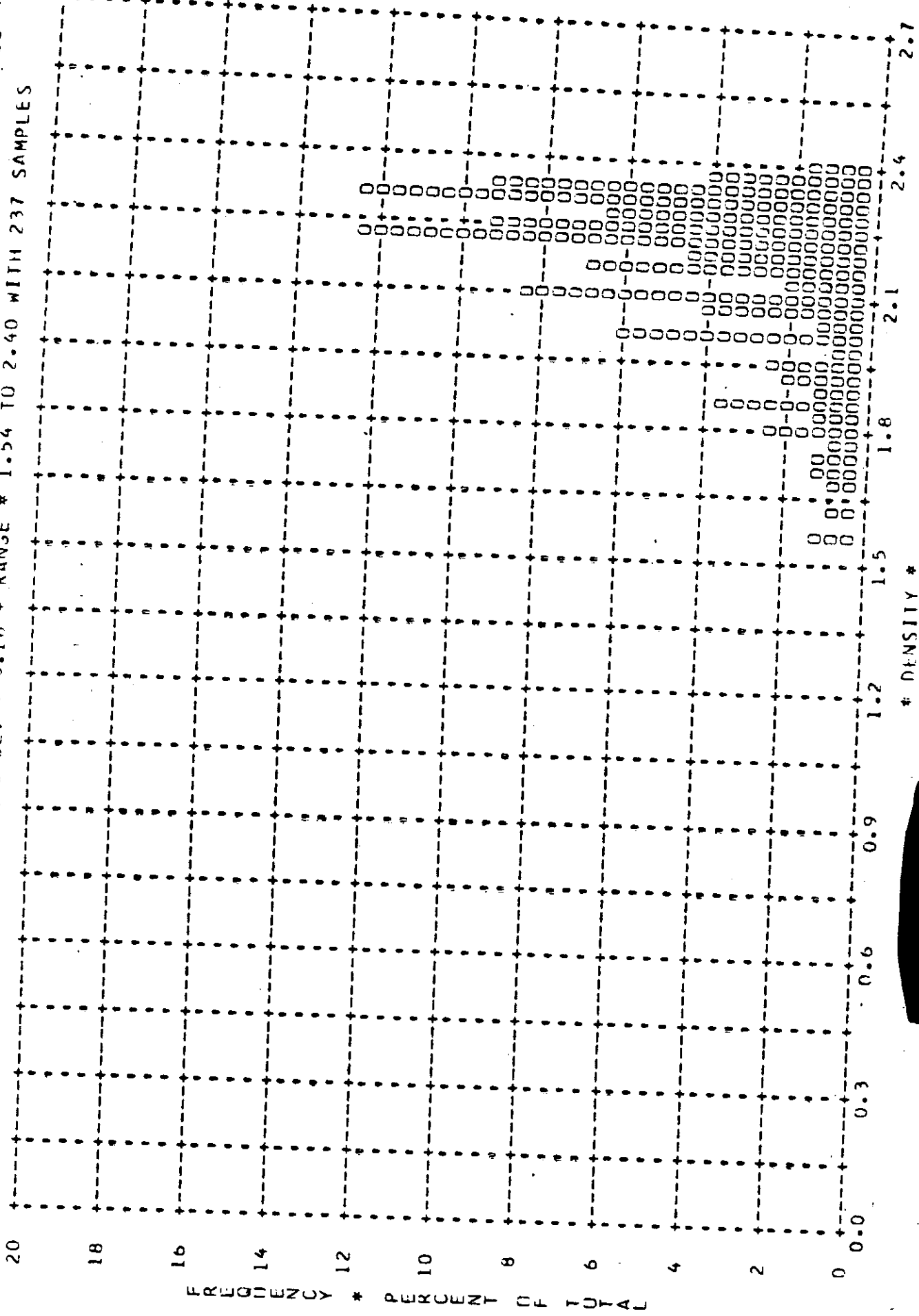
MISSION * 1036-2 * INSTR * AFI * 11/28/66 PLOT OF D MAX * TERRAIN * PROCESSING * ALL LEVELS
ARITH MEAN * 1.37 * MEDIAN * 1.40 * STD DEV * 0.32 * RANGE * 0.48 TO 2.10 WITH 272 SAMPLES



~~TOP SECRET~~

[REDACTED] - CONTROL NO.

MISSION * 1036-2 * INSTR * AFT * 11/28/66 PLOT OF D MAX * CLOUD * PROCESSING * ALL LEVELS *
 ARITH MEAN * 2.15 * MEDIAN * 2.20 * STD DEV * 0.14 * RANGE * 1.54 TO 2.40 WITH 237 SAMPLES



* DENSITY *

[REDACTED] - CONTROL NO.

~~TOP SECRET~~

FIGURE A-39

Distribution:

Copy No.

To

[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]