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CORONA J

PERFORMANCE EVALUATION REPORT

MISSION 1030-1 and 1030-2

FTV 1622, J-29

17 MAY 1967

Approved: [redacted]
Advanced Projects

Approved [redacted]

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FOREWORD

This report details the performance of the payload system during the operational phase of the [redacted] Flight Test Vehicle 1622.

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 1030-1 and 1030-2 which was launched on 9 March 1966.

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INTRODUCTION

This report presents the final performance evaluation of Missions 1030-1 and 1030-2 of the Corona Program. The purpose of this report is to define the performance characteristics of the J-29 payload system, 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 and MTF/AIM resolution 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 1030, placed into orbit by Flight Test Vehicle #1622 and LV-2A booster #452, 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 equipments. Figure 1-1 presents an inboard profile of the J-29 payload system. This Corona "J" system is designed to acquire search and reconnaissance photography of selected areas of the earth from orbital altitudes. The planned mission was a 5 day Phase I and a 4 day Phase 2 with no deactivate.

B. MISSION DESCRIPTION

The payload was launched from Vandenberg Air Force Base (VAFB) at 2202:03 Z (1402:03 PST) on 9 March 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 a[redacted] under central control of the Satellite Test Center at Sunnyvale, California. The actual mission consisted of 2 five day photo operations.

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

ORBIT PARAMETERS

Parameter	Orbit 1 Predicted	Orbit 42 Actuals	Orbit 120 Actuals
Period (Min.)	90.7	90.6	90.5
Perigee (N.M.)	99.6	97.6	98.8
Apogee (N.M.)	235.5	234.6	230.0
Inclination (Deg.)	75.0	75.0	75.0
Perigee Latitude (Deg.N.)	19.2	24.25	37.5
Eccentricity	0.0188	0.01899	0.01821

C. PANORAMIC CAMERAS

The Master and Slave panoramic cameras operated throughout both missions with no significant problems. The cloud cover observed in the photography averaged 35% for the mission. The photographic quality was lower than the best missions due to atmospheric conditions.

D. STELLAR-INDEX CAMERAS

Stellar-Index cameras operated satisfactorily during both missions. Photography was of acceptable quality.

E. OTHER SUB-SYSTEMS

The clock, instrumentation and the PMU systems performance was satisfactory.

The command system performed satisfactorily except for the V/h delay stepper switch which occasionally failed to home in Position 1.

SCHEMATIC INBOARD PROFILE - CORONA J SYSTEM

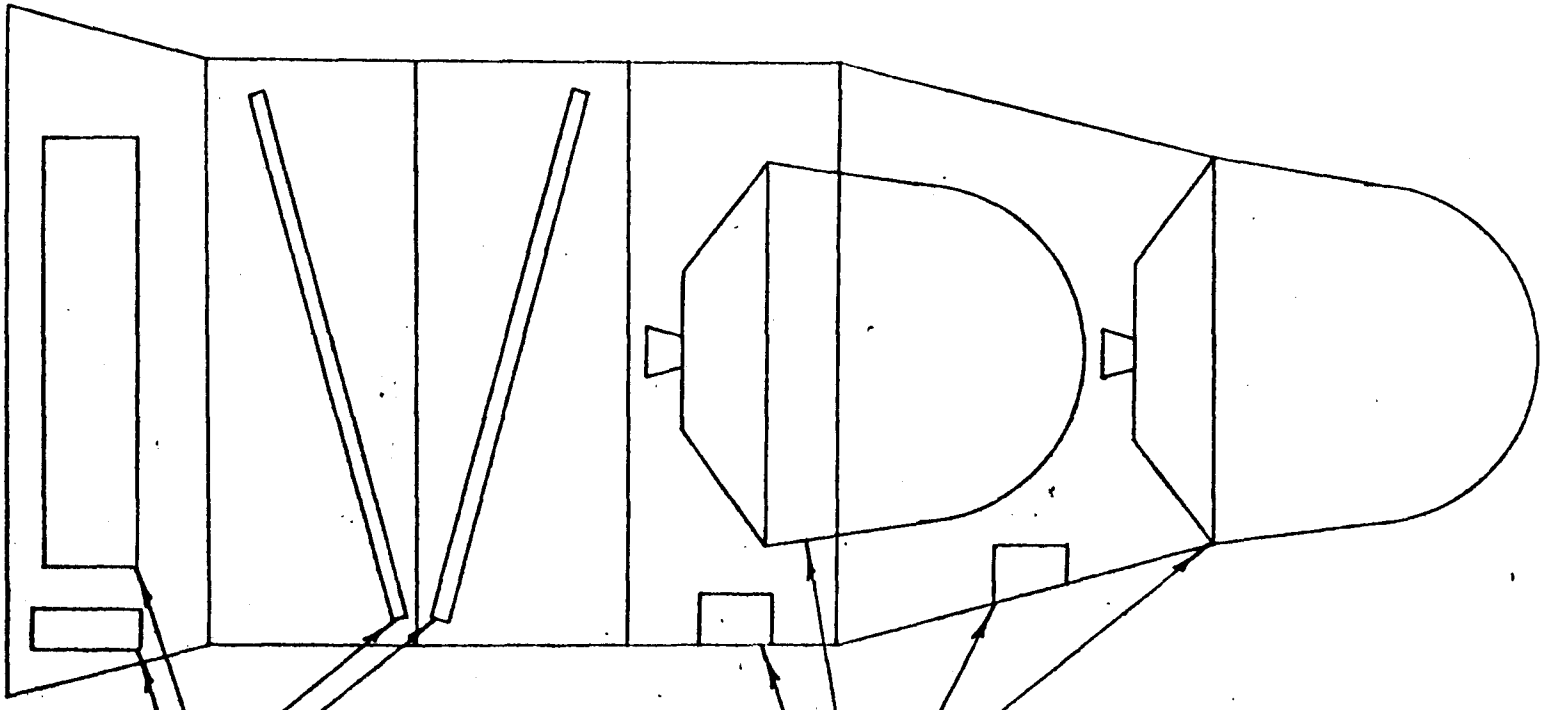


FIGURE 1-1

SECTION 2

PRE-FLIGHT SYSTEMS TEST

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 susceptibility to corona discharge. Such discharge fogs the film thus degrading the operational photography.

2. Test Summary

Performance of the J-29 payload system was generally satisfactory during the environmental test in the TASC Chamber. The test ran from 2-7 October 1965.

Both instruments ran fast throughout the test; the average cycle period was 1.5% fast for both instruments. The instruments ran within $\pm$ 1% of each other with instrument #2 being generally faster. Excessive coasting was observed for both units during some of the operations at the faster rates. In one instance both units coasted into the scan portion of the cycle. Cycle periods are listed in Table 2-1. Approximately 2800 cycles per instrument per mission were made.

The -1 S/I monitor indicated payload movement during several platen command times. The -2 S/I operated satisfactorily.

The clock performance was satisfactory. Results are listed in Table 2-2.

The pressure make-up system operated normally. The average gas consumption rate of 7.4 psi/min is consistent with previous PMU systems.

The lowest internal payload pressure was 0.8 microns. The corona on the payload was very minor.

Except for several noisy TLM idlers, the instrumentation was normal.

The command system functioned properly for both missions. The RTC switch units stepped to the positions programmed in each case.

The -1 and -2 recovery sequences and vehicle deactivate sequence were satisfactorily performed.

B. RESOLUTION TEST

The dynamic resolution test of the J-29 payload system was performed at the A/P facility on 14 October 1965. Each panoramic camera photographed low contrast resolution targets. The resulting through focus resolution data is shown in Figure 2-1 for the Master camera and in Figure 2-2 for the Slave camera. The resolution performance meets the system requirement specifications.

C. LIGHT LEAK TEST

The examination of the 3401 Type film threaded in the J-29 system during the light leak test determined that the light tight integrity of the system was acceptable for flight.

D. FLIGHT LOADING AND CERTIFICATION

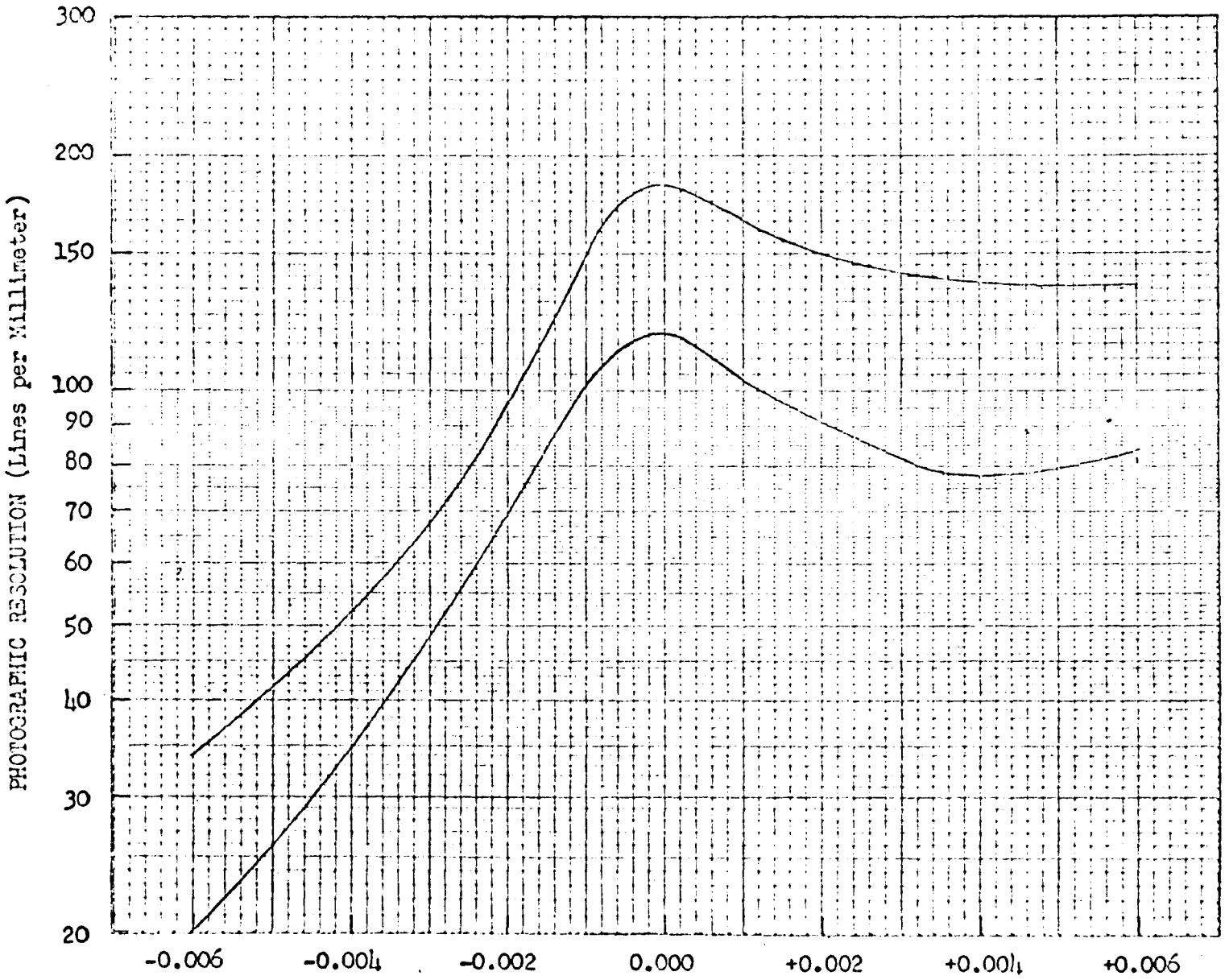
Pan instrument payload exhibits from the flight readiness test were processed and examined on 1 March 1966. Both instruments were acceptable except for excessive amounts of scraped emulsion which caused ragged rail edges and clogged shrinkage markers. On the master instrument, the scraped emulsion also obscured one fiducial mark and caused minus density streaks in the pan format from deposits on the filter. It was therefore necessary to clean both instruments and rerun the test. The second readiness test, also completed on 1 March 1966, showed the system to be in acceptable condition for flight loading.

Loading of the supply cassette and final assembly of the system was performed on 2 March 1966. These operations were completed in a routine manner.

The final light leak check showed no leaks except for one at the take-up side of the master instrument drum. The magnitude of this leak was less than similar leaks on several recent flight systems.

The J-29 system performance was considered acceptable and was certified for flight.

PRE-FLIGHT DYNAMIC RESOLUTION



Camera No: 182

Payload No: J-29

Resolution (l/mm)

High Contrast: 183

Low Contrast: 118

Film Type: 3404

Test Date: 10/15/65

Figure 2-1

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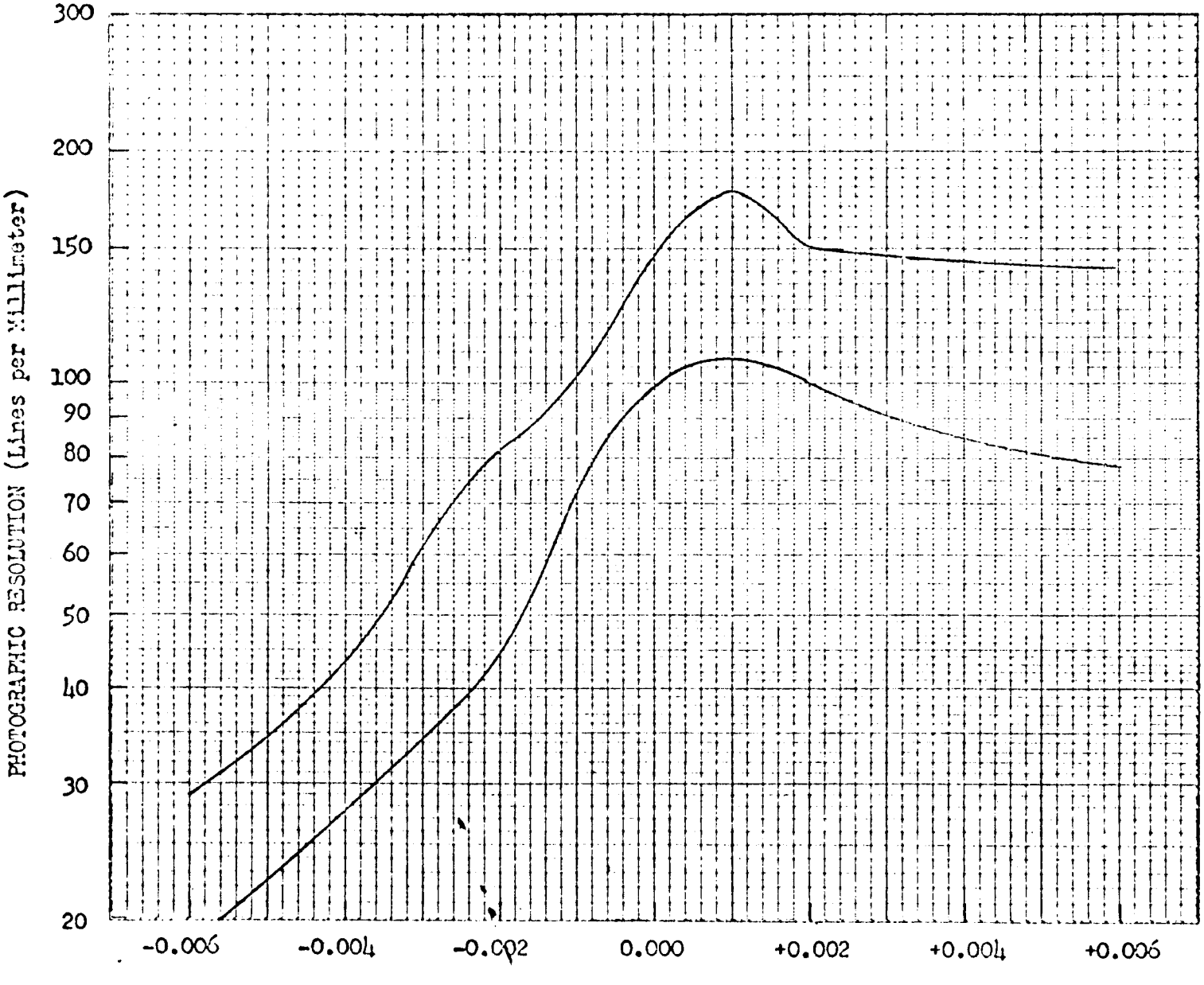
PRE-FLIGHT DYNAMIC RESOLUTION



Camera No: 183

Payload No: J-29

Resolution (l/mm)

High Contrast: 178

Low Contrast: 103

Film Type: 3404

Test Date: 10/15/65

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Figure 2-2

J-29 182/183 ENVIRONMENTAL TEST

REV/MODE	RAMP	T.U.R.	INST 182 ACT.	INST 182 CAL.	INST 182 DEV.	INST 183 ACT.	INST 183 CAL.	INST 183 DEV.	182/183 DIFF.
0 A	7 7	0	3.655	3.649	0.16S	3.645	3.642	0.08S	-0.27
0 A	7 7	0	3.650	3.649	0.02S	3.650	3.642	0.21S	-0.00
1 A	7 7	390	3.500	3.513	0.37F	3.500	3.507	0.19F	-0.00
1 A	7 7	2215	2.550	2.555	0.20F	2.550	2.555	0.18F	-0.00
2 A	4 1	2030	2.155	2.187	1.45F	2.150	2.186	1.66F	-0.23
2 A	5 8	825	2.814	2.822	0.27F	2.820	2.819	0.02S	0.21
3 A	5 8	1645	2.390	2.408	0.73F	2.395	2.408	0.55F	0.21
4 A	7 7	2280	2.550	2.587	1.44F	2.555	2.587	1.23F	0.20
4 A	8 2	240	5.280	5.333	0.99F	5.270	5.320	0.94F	-0.19
5 A	11 1	1360	2.760	2.789	1.05F	2.760	2.787	0.98F	-0.00
5 A	11 1	1460	2.570	2.601	1.18F	2.565	2.600	1.34F	-0.19
6 A	11 1	1940	2.235	2.268	1.46F	2.230	2.270	1.75F	-0.22
6 A	5 8	1090	2.660	2.675	0.54F	2.665	2.673	0.31F	0.19
6 A	5 8	1445	2.455	2.476	0.86F	2.455	2.476	0.87F	-0.00
7 A	7 7	1180	2.820	2.847	0.95F	2.830	2.845	0.52F	0.35
7 A	7 7	1590	2.520	2.553	1.28F	2.520	2.552	1.27F	-0.00
8 A	7 7	2430	2.665	2.684	0.71F	2.655	2.683	1.04F	-0.38
8 A	4 1	1015	2.650	2.675	0.93F	2.640	2.674	1.26F	-0.38
9 A	4 1	3210	3.460	3.521	1.72F	3.465	3.514	1.41F	0.14

Table 2-1

REV/MODE		RAMP		T.U.R.	INST 182 ACT.	CAL.	DEV.	INST 183 ACT.	CAL.	DEV.	182/183 DIFF.
9	A	11	1	891	4.300	4.362	1.43F	4.315	4.352	0.85F	0.35
9	A	11	1	1880	2.233	2.266	1.46F	2.225	2.268	1.89F	-0.36
10	A	11	1	3140	5.404	5.546	2.55F	5.432	5.532	1.81F	0.52
10	A	7	7	40	3.580	3.647	1.83F	3.590	3.640	1.37F	0.28
11	A	7	7	1910	2.455	2.484	1.15F	2.445	2.484	1.56F	-0.41
11	A	7	7	2286	2.568	2.591	0.87F	2.568	2.590	0.85F	-0.00
12	A	8	2	1155	2.900	2.916	0.53F	2.895	2.913	0.61F	-0.17
12	A	8	2	845	3.620	3.648	0.76F	3.628	3.641	0.35F	0.22
13	A	4	1	2630	2.365	2.398	1.40F	2.358	2.399	1.72F	-0.30
13	A	11	1	1975	2.253	2.275	0.95F	2.243	2.276	1.46F	-0.44
14	A	11	1	3080	5.120	5.203	1.59F	5.138	5.190	1.00F	0.35
15	A	5	8	0	3.050	3.113	2.02F	3.060	3.109	1.57F	0.33
0	B	6	6	1945	2.270	2.275	0.21F	2.265	2.276	0.50F	-0.22
1	B	7	7	390	3.450	3.513	1.79F	3.455	3.507	1.48F	0.14
1	B	7	7	2450	2.670	2.699	1.08F	2.665	2.698	1.22F	-0.19
1	B	4	1	0	4.300	4.394	2.13F	4.300	4.383	1.90F	-0.00
2	B	4	1	1430	2.170	2.206	1.64F	2.150	2.206	2.53F	-0.92
2	B	4	1	1610	2.160	2.192	1.47F	2.140	2.192	2.36F	-0.93
2	B	4	1	2130	2.155	2.190	1.58F	2.140	2.189	2.24F	-0.70
2	B	5	8	730	2.843	2.873	1.06F	2.835	2.871	1.25F	-0.28
3	B	5	8	1550	2.403	2.436	1.34F	2.408	2.436	1.15F	0.21
3	B	5	8	0	3.068	3.113	1.44F	3.073	3.109	1.15F	0.16

Table 2-1

REV/MODE		RAMP		T.U.R.	INST 182 ACT.	INST 182 CAL.	INST 182 DEV.	INST 183 ACT.	INST 183 CAL.	INST 183 DEV.	182/183 DIFF.
4	B	7	7	2280	2.573	2.587	0.55F	2.573	2.587	0.53F	-0.00
4	B	8	2	440	4.768	4.822	1.12F	4.758	4.810	1.09F	-0.21
5	B	11	1	1460	2.590	2.601	0.41F	2.580	2.600	0.77F	-0.39
5	B	11	1	1940	2.260	2.268	0.36F	2.250	2.270	0.87F	-0.44
6	B	5	8	1090	2.675	2.675	0.02S	2.680	2.673	0.25S	0.19
6	B	5	8	1645	2.388	2.408	0.81F	2.388	2.408	0.84F	-0.00
7	B	7	7	1230	2.783	2.800	0.61F	2.783	2.798	0.54F	-0.00
7	B	7	7	1590	2.538	2.553	0.58F	2.548	2.552	0.17F	0.39
8	B	7	7	2430	2.675	2.684	0.34F	2.680	2.683	0.10F	0.19
8	B	4	1	1015	2.665	2.675	0.37F	2.670	2.674	0.14F	0.19
9	B	4	1	3310	3.755	3.737	0.48S	3.743	3.730	0.36S	-0.32
9	B	11	1	990	3.958	3.965	0.18F	3.973	3.957	0.41S	0.38
10	B	11	1	2080	2.325	2.318	0.29S	2.318	2.320	0.07F	-0.30
10	B	11	1	3170	5.730	5.726	0.07S	5.725	5.712	0.22S	-0.09
10	B	11	1	0	9.070	9.056	0.15S	9.060	9.049	0.12S	-0.11
10	B	7	7	0	3.650	3.649	0.02S	3.640	3.642	0.06F	-0.27

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

J-29 CLOCK/IRIG TIME CHECK

REV	IRIG DAY-HR-MIN-SEC	IRIG SECONDS	CLOCK SECONDS	DELTA IRIG	DELTA CLOCK	ERROR
0	275 7 51 57.780	23788317.780	5276.306	---	---	---
1	275 8 30 33.785	23790633.785	7592.329	2316.005	2316.023	0.018
2	275 11 8 14.740	23800094.740	17053.284	9460.955	9460.955	0.000
3	275 12 44 9.880	23805849.880	22806.413	5755.140	5755.129	-0.011
4	275 14 15 0.210	23811300.210	28258.750	5450.330	5450.337	0.007
5	275 15 29 10.050	23815750.050	32708.592	4449.840	4449.842	0.002
6	276 8 1 46.120	23875306.120	92264.655	59556.070	59556.063	-0.007
7	276 9 27 36.475	23880456.475	97415.004	5150.355	5150.349	-0.006
8	276 11 0 6.350	23886006.350	102964.886	5549.875	5549.882	0.007
9	276 13 28 33.375	23894913.375	111871.919	8907.025	8907.033	0.008
10	276 15 11 4.140	23901064.140	118022.668	6150.765	6150.749	-0.016
11	277 8 13 45.220	23962425.220	179383.742	61361.080	61361.074	-0.006
12	277 9 31 15.323	23967075.323	184033.839	4650.103	4650.097	-0.006
13	277 10 57 5.345	23972225.345	189183.887	5150.022	5150.048	0.026
14	277 12 35 25.359	23978125.359	195083.872	5900.014	5899.985	-0.029
1	279 10 1 6.390	24141066.390	358624.881	163541.028	163541.006	-0.021
2	279 12 38 36.405	24151116.405	368074.906	9450.015	9450.025	0.010
3	279 14 14 31.545	24156871.545	373830.039	5755.140	5755.133	-0.007
4	279 15 45 21.425	24162321.425	379279.913	5449.880	5449.874	-0.006
5	279 16 59 31.632	24166771.632	383730.126	4450.207	4450.213	0.006
	4 9 7 33.851-DELTA TIME			TOTAL ACCUM. ERROR		-0.031
	POWER DOWN					
6	280 8 59 52.960	24224392.960	9464.737	---	---	---
7	280 10 42 23.355	24230543.355	15615.131	6150.395	6150.394	-0.001
8	280 12 59 2.145	24238742.145	23813.924	8198.790	8198.793	0.003
9	280 14 33 12.260	24244392.260	29464.039	5650.115	5650.115	0.000
10	280 16 15 42.775	24250542.775	35614.551	6150.515	6150.512	-0.003
	0 7 15 49.815-DELTA TIME			TOTAL ACCUM. ERROR		-0.001

Table 2-2

SECTION 3

FLIGHT OPERATIONS

A. SUMMARY

All launch, ascent, and injection events occurred as programmed. All Thor and Agena events were normal which resulted in achieving the desired orbit.

Both panoramic instruments operated satisfactorily throughout the flight. Average cycle rates on both units deviated from the pre-flight calibrated values by less than 1.0%.

The -1 and -2 Stellar/Index cameras operated normally throughout the flight.

The clock, instrumentation, and the PMU systems functioned properly throughout the flight.

The command system performed satisfactorily except for the V/h delay stepper switch which failed to home in position one on numerous occasions throughout the flight.

Both the -1 and -2 recovery systems were successfully recovered by air catch on orbits 81 and 159, respectively.

B. PANORAMIC CAMERA PERFORMANCE

Camera system dynamics were normal throughout the -1 and -2 missions. The film transport of both camera systems was normal. Cycle rate data (Table 3-1) indicates that the camera systems were generally less than 0.75% from the calibrated systems value. The master and slave instruments were generally less than 1.0% apart throughout most of the flight. The 99/101 average clutch ratio was 6/6 for both instruments. Camera film depletion occurred prior to the engineering operation on Rev. 151.

Panoramic film consumption

These data are based on cycle counter readings and nominal film supply.

	Predicted		Actual	
	Master	Slave	Master	Slave
Pre-Launch	110	110	102	110
-1 Mission	3000	3000	2956	2945
-2 Mission	2935	2935	2991	2995
Total Frames	6045	6045	6049	6050

FMC Match

The RTC command setup (R8-A3-D7) provided a good match between the calibrated rates and the orbit rate requirements throughout the mission. Normal operations occurred well within acceptable tolerance, especially during -1 phase of the mission. However, the malfunctioning of the V/h delay start selector switch caused occasional FMC errors as high as 20%. An error of this magnitude could produce noticeable smear on the photography.

The V/h programmer usually started at the desired delay step or one step later. Therefore, the RTC command setup was changed (R7-A3-D6) to insure the most favorable ramp match. However, when the V/h delay failed to start in either of these positions, excessive FMC errors were produced.

C. INSTRUMENTATION AND COMMAND SYSTEM PERFORMANCE

Instrumentation System Performance

The instrumentation system performed satisfactorily throughout both missions except for points 1 (cal 1/2) and 2 (RTC 6 tens position) on channel 13. These two points on the commutator indicated the same voltage value beginning on Rev 87 of the -2 mission. This condition was present until sometime between the engineering passes on Rev 103 and

110. Both these points indicated the proper voltage levels on the engineering pass on Rev 110 and throughout the remainder of the mission. The cause of this anomaly remains unresolved.

Command System Performance

The payload system responded to all stored and real time commands except for the erratic homing of the V/h delay stepper switch. This anomaly was first encountered on the "Post-Mate Confidence" prior to launch. A special confidence re-run was conducted to insure satisfactory performance of the V/h delay stepper switch. The V/h delay stepper switch was given a homing command five different times. The stepper switch failed to home properly on the first two attempts stopping in position 11. On these two attempts the unregulated voltage was set at 28 volts and 26 volts respectively. The unregulated voltage was then set at 24 volts and the V/h delay stepper switch homed properly to position 1 on the next three attempts.

The vehicle unregulated voltage was predicted to drop to approximately 24 volts after the second day of the mission. It was, therefore, decided to proceed with the launch and if necessary, adjust the ramp, amplitude, and V/h delay start position to compensate for erratic homing.

Refer to Table 3-2 for the orbits in which the V/h delay switch failed to home in the proper position.

The problem of the erratic homing of the V/h stepper switch has been attributed to the installation of two spark suppression diodes in this circuit. A decision was, therefore, made to remove these two diodes from all subsequent systems.

D. CLOCK SYSTEM PERFORMANCE

The payload clock system performed satisfactorily during both phases of the mission. The clock/system time correlation data obtained from the [redacted] acquisitions are included in Table 3-3.

E. PRESSURE MAKE-UP SYSTEM PERFORMANCE

The pressure make-up system operated normally throughout the flight. The average gas consumption was 7.7 psi/min. for a total instrument operate time of 249 minutes. The supply pressure dropped from 2350 psig at launch to 420 psig at the end of the -2 mission.

The average gas consumption rate was 7.5 psi/min. for the -1 mission and 8.0 psi/min. for the -2 mission.

F. THERMAL ENVIRONMENT

The temperature data obtained from the [redacted] acquisitions are contained in Table 3-4. Average panoramic camera temperatures for the master camera varied from 89°F to 72°F and the slave camera temperatures varied from 83°F to 64°F during the mission. The actual system temperatures versus the predicted system temperatures for the major components are compared in Figures 3-1 to 3-3.

G. STELLAR/INDEX CAMERA PERFORMANCE

The -1 stellar/index camera operation was normal throughout the mission with telemetry indicating proper metering and shutter operation.

The -2 stellar/index camera operation was also normal throughout the mission with no abnormalities noted in telemetry.

J-2S 182/183 FLIGHT CYCLE RATES

REV. MODE	CP	RAMP R	RAMP A	TUR SECS	SYSTEM CALIB.	INST. 182 ACTUAL	INST. 182 UNIT DEV.	INST. 182 SYSTEM DEV.	INST. 183 ACTUAL	INST. 183 UNIT DEV.	INST. 183 SYSTEM DEV.	182/183 DIFF.
C9	A	8	3	120	5.132	5.055	1.62F	1.50F	5.045	1.58F	1.70F	-0.20
16	A	8	3	1685	2.263	2.280	C.79S	C.75S	2.260	0.17F	C.14F	-0.88
31	A	7	3	1869	2.216	2.215	C.04F	C.03F	2.220	0.21S	0.20S	0.23
47	A	7	3	1642	2.224	2.242	C.8CS	0.81S	2.223	C.04F	0.05F	-0.85
63	A	7	3	1700	2.221	2.228	C.32S	C.33S	2.232	0.53S	0.51S	0.18
79	A	7	3	1660	2.223	2.230	C.31S	0.32S				
88	B	7	3	249	4.609	4.600	C.21F	0.09F	4.590	0.26F	C.41F	-0.33
94	B	7	3	1823	2.216	2.251	1.56S	1.57S	2.231	C.68S	0.66S	-0.89
103	B	7	3	340	4.459	4.553	1.99S	2.11S	4.574	2.70S	2.58S	0.46
110	B	7	3	1903	2.216	2.232	C.73S	C.74S	2.217	C.08S	0.07S	-0.67
126	B	7	3	1911	2.216	2.233	C.78S	0.79S	2.224	0.39S	0.38S	-0.40

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

ABNORMAL V/H DELAY HOME POSITION

Rev.	Station	Stepper Switch Home Position	V/H Start Position Error
29	[redacted]	11	60 Seconds Late
42		11	60 Seconds Late
44		11	60 Seconds Late
71		11	60 Seconds Late
74		11	60 Seconds Late
80		11	60 Seconds Late
87		11	60 Seconds Late
89		11	60 Seconds Late
91		11	60 Seconds Late
95		11	60 Seconds Late
101		11	60 Seconds Late
104		11	60 Seconds Late
106		11	60 Seconds Late
108		8	240 Seconds Late
111		10	120 Seconds Late
115		7	300 Seconds Late
117		6	300 Seconds Early
119		11	60 Seconds Late
121		7	300 Seconds Late
123		11	60 Seconds Late
126		11	60 Seconds Late
131		11	60 Seconds Late
133		11	60 Seconds Late
135		11	60 Seconds Late
136		7	300 Seconds Late
139		11	60 Seconds Late
142		4	180 Seconds Early
150		11	60 Seconds Late
152		4	180 Seconds Early
153		11	60 Seconds Late
155		7	300 Seconds Late
158		11	60 Seconds Late
159		11	60 Seconds Late

Table 3-2

ORDER FIT 1

SYS TIME I/P	CL TIME I/P	COMP SYS TM	DELTA ST	REV	STA
0.4062614300 05	0.1428123150 06	0.4062614430 05	-0.0018	9	[redacted]
0.8026284300 05	0.1824493200 06	0.8026284140 05	0.0016	16	
0.3577285000 05	0.2243590510 06	0.3577286120 05	-0.0012	24	
0.7544528000 05	0.2640544900 06	0.7544528380 05	-0.0038	31	
0.3640217600 05	0.3113664040 06	0.3640217260 05	0.0034	40	
0.7601173500 05	0.3509979830 06	0.7601173730 05	-0.0023	47	
0.3760355800 05	0.3903698210 06	0.3760355810 05	-0.0001	56	
0.7659955000 05	0.4379858320 06	0.7659955470 05	-0.0047	63	
0.3753048600 05	0.4855316770 06	0.3753048250 05	0.0035	72	
0.7717665800 05	0.5249629550 06	0.7717665910 05	0.0089	79	
0.3811997100 05	0.5543553700 05	0.3811997290 05	-0.0019	88	
0.7217612300 05	0.6949154500 05	0.7217611860 05	0.0044	94	
0.3313366400 05	0.1106541050 06	0.3313366140 05	0.0026	103	
0.7268843900 05	0.1564659010 06	0.7268844300 05	-0.0040	110	
0.3362289800 05	0.2057363690 06	0.3362289390 05	0.0041	119	
0.7315519300 05	0.2432706430 06	0.7315520350 05	-0.0105	126	
0.3407597700 05	0.2965914800 06	0.3407597330 05	0.0037	135	
0.3450077600 05	0.3774163160 06	0.3450077780 05	-0.0018	151	

A0=-0.1021661104D 06 A1= 0.9999996370750 00
SIGMA=0.0024 NO. POINTS= 18
RATIO OF CLOCK TIME TO SYS TIME= 0.1000000362930 01

ORDER FIT 2

SYS TIME I/P	CL TIME I/P	COMP SYS TM	DELTA ST	REV	STA
0.4062614300 05	0.1428123150 06	0.4062614300 05	0.0000	9	[redacted]
0.8026284300 05	0.1824493200 06	0.8026284020 05	0.0028	16	
0.3577285000 05	0.2243590510 06	0.3577285050 05	-0.0005	24	
0.7544528000 05	0.2640544930 06	0.7544528360 05	-0.0036	31	
0.3640217600 05	0.3113664040 06	0.3640217290 05	0.0031	40	
0.7601173500 05	0.3509979830 06	0.7601173780 05	-0.0028	47	
0.3760355800 05	0.3903698210 06	0.3760355890 05	-0.0009	56	
0.7659955000 05	0.4379858320 06	0.7659955560 05	-0.0056	63	
0.3753048600 05	0.4855316770 06	0.3753048360 05	0.0024	72	
0.7717665800 05	0.5249629530 06	0.7717665020 05	0.0078	79	
0.3811997100 05	0.5543553700 05	0.3811997400 05	-0.0030	88	
0.7217612300 05	0.6949154500 05	0.7217611950 05	0.0035	94	
0.3313366400 05	0.1103541050 06	0.3313366210 05	0.0019	103	
0.7268843900 05	0.1564659010 06	0.7268844340 05	-0.0044	110	
0.3362289800 05	0.2057363690 06	0.3362289390 05	0.0041	119	
0.7315519300 05	0.2432706930 06	0.7315520310 05	-0.0101	126	
0.3407597700 05	0.2965914800 06	0.3407597230 05	0.0047	135	
0.3450077600 05	0.3774163160 06	0.3450077550 05	0.0005	151	

A0=-0.1021661228D 06 A1= 0.9999996587620 00
A2=-0.2109569835750D-13
SIGMA=0.0013 NO. POINTS= 18

Table 3-3

TABLE 3-4

J-29 TEMPERATURE SUMMARY

SENSOR	ORBITS ACQUIRED																		
											A	B							
Master Camera	0	9	16	24	31	40	47	56	63	72	79	88	94	103	110C	119	126	135	151
3	60	81	79	82	80	80	78	80	76	78	73	74	68	70	65	69	65	69	70
4	58	84	81	84	81	83	79	82	77	80	73	76	69	72	67	71	66	70	70
5	58	90	86	89	86	87	84	87	82	84	80	80	75	77	73	75	70	74	73
6	57	96+	93	95	92	93	89	91	87	89	84	84	78	79	77	75	73	74	74
7	54	90	87	89	88	87	85	86	83	84	81	79	75	75	73	73	70	71	71
8	61	90	87	90	86	88	84	88	82	86	80	81	75	78	74	77	71	75	75
9	59	90	92	96	92	93	88	92	86	90	84	85	79	82	76	80	73	78	78
10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11	65	94	93	95	93	93	89	90	85	88	83	80	74	78	72	75	70	71	70
12	62	82	79	82	80	81	77	81	75	80	73	76	68	73	66	72	65	70	72
13	54	90	87	89	88	86	84	85	81	83	79	76	70	72	68	69	68	68	68
AVG	59	89	86	89	87	87	84	86	81	84	78	78	73	76	72	74	69	72	72
Slave Camera																			
3	57	89	87	88	87	87	84	85	81	82	77	77	71	72	69	70	65	67	66
4	54	83	78	83	79	81	77	81	76	78	72	74	67	70	65	68	62	65	64
5	52	83	80	84	81	82	79	82	77	79	74	75	70	71	68	68	64	68	67
6	56	88	81	83	82	82	80	81	79	80	76	75	70	71	69	69	66	68	70
7	52	85	82	85	83	83	81	81	80	81	78	76	69	72	69	70	67	68	68
8	55	85	82	84	82	83	80	83	79	82	76	78	71	74	69	72	67	71	71
9	56	88	79	81	80	80	78	80	77	80	75	76	69	72	68	71	66	70	71
10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11	58	72	70	71	72	70	69	71	68	69	66	65	62	61	60	60	56	58	59
12	56	86	80	86	81	85	78	82	76	79	73	76	68	73	66	69	63	66	66
13	53	80	80	81	82	79	78	79	76	77	74	71	67	67	64	65	64	64	64
AVG	57	83	80	83	82	81	78	80	77	79	74	74	68	70	67	68	64	66	67
Supply Shell																			
1	55	64	65	67	67	67	67	69	67	68	64	64	60	60	58	59	56	57	58
2	69	73	71	76	74	75	72	76	71	74	69	69	63	65	63	63	59	62	61

Note: All data corrected for self-heating, except injection.

TABLE 3-4

J-29 TEMPERATURE SUMMARY

SENSOR	ORBITS ACQUIRED										A	B							
Pair ("A") Barrel #1 ("B")	0	9	16	24	31	40	47	56	63	72	79	88	94	103	110	119	126	135	151
1	OBH	36	49	39	49	29	42	33	42	26	39	18	34	18	34	15	28	15	15
2	OBH	3	-4	7	-4	3	-4	3	-4	3	-8	55	45	55	51	55	48	55	58
3	OBH	-7	-4	-7	4	-11	0	-11	4	-11	-4	71	109	67	106	71	106	67	67
4	208	54	51	54	54	45	48	48	48	41	38	41	80	38	71	35	61	28	28
5	227	64	60	64	67	54	64	57	54	47	41	39	52	35	48	32	42	25	25
6	OBH	60	93	63	90	50	79	53	69	44	60	--	--	--	--	--	--	--	--
Barrel No. 2																			
1	125	52	77	52	68	39	68	45	58	35	45	32	42	29	35	22	29	22	19
2	OBH	50	103	50	97	40	91	44	85	37	76	37	73	34	66	30	53	27	24
3	206	64	103	67	106	61	103	64	103	61	103	64	100	64	103	64	97	61	61
4	227	51	44	54	48	43	48	51	48	51	44	51	44	51	48	51	48	51	57
5	200	49	59	56	62	49	62	52	62	46	52	39	46	36	46	36	42	32	36
Conic Adapter																			
1	137	55	68	55	65	49	58	49	52	39	42	33	33	29	26	26	19	19	19
Clock																			
1	79	69	67	73	69	67	67	69	67	65	61	59	53	57	53	55	51	53	53
2	83	71	69	73	71	69	67	69	67	67	61	61	55	57	53	57	53	53	53
Thrust Dirn "A" to "B" SRV																			
1	70	46	41	45	41	42	40	42	38	40	35	63	59	60	58	58	57	58	58
2	64	70	63	66	60	63	58	60	56	58	51	72	67	69	65	65	63	64	64
Stellar Index "A" to "B"																			
1	--	--	--	--	--	--	--	--	--	--	--	43	78	39	72	36	62	33	26
2	--	--	--	--	--	--	--	--	--	--	--	34	47	31	41	28	34	21	21
Recovery Battery "B" SRV																			
1	61	70	72	72	75	66	72	70	70	67	66	79	83	86	81	87	86	86	86
Master Caution "A" SRV																			
2	92	70	67	69	68	71	67	68	67	66	65	--	--	--	--	--	--	--	--

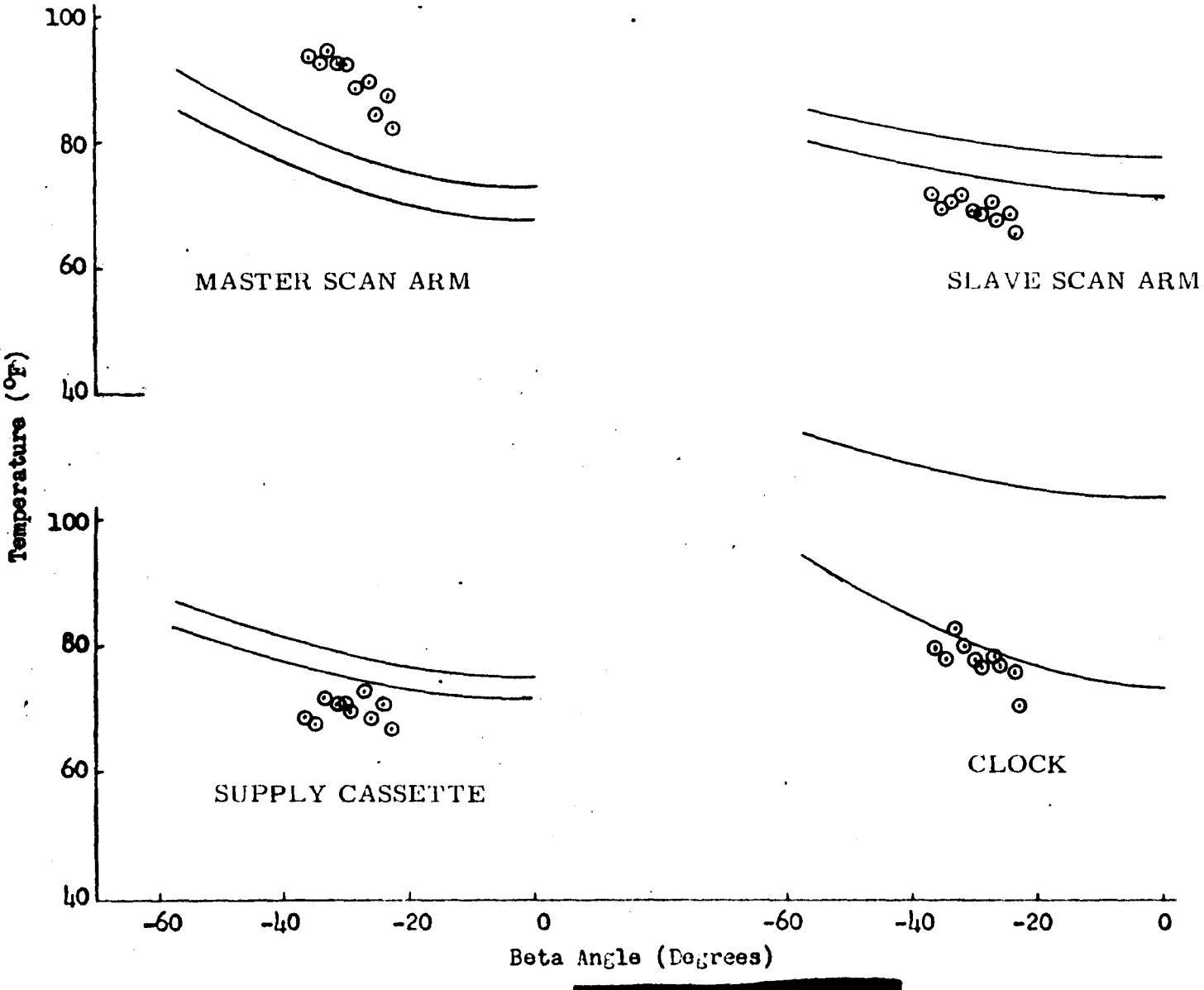

100
80
60
40
MASTER SCAN ARM
SLAVE SCAN ARM
Temperature (°F)
100
80
60
40
SUPPLY CASSETTE
CLOCK
-60
-40
-20
0
-60
-40
-20
0
Beta Angle (Degrees)

Figure 3-1

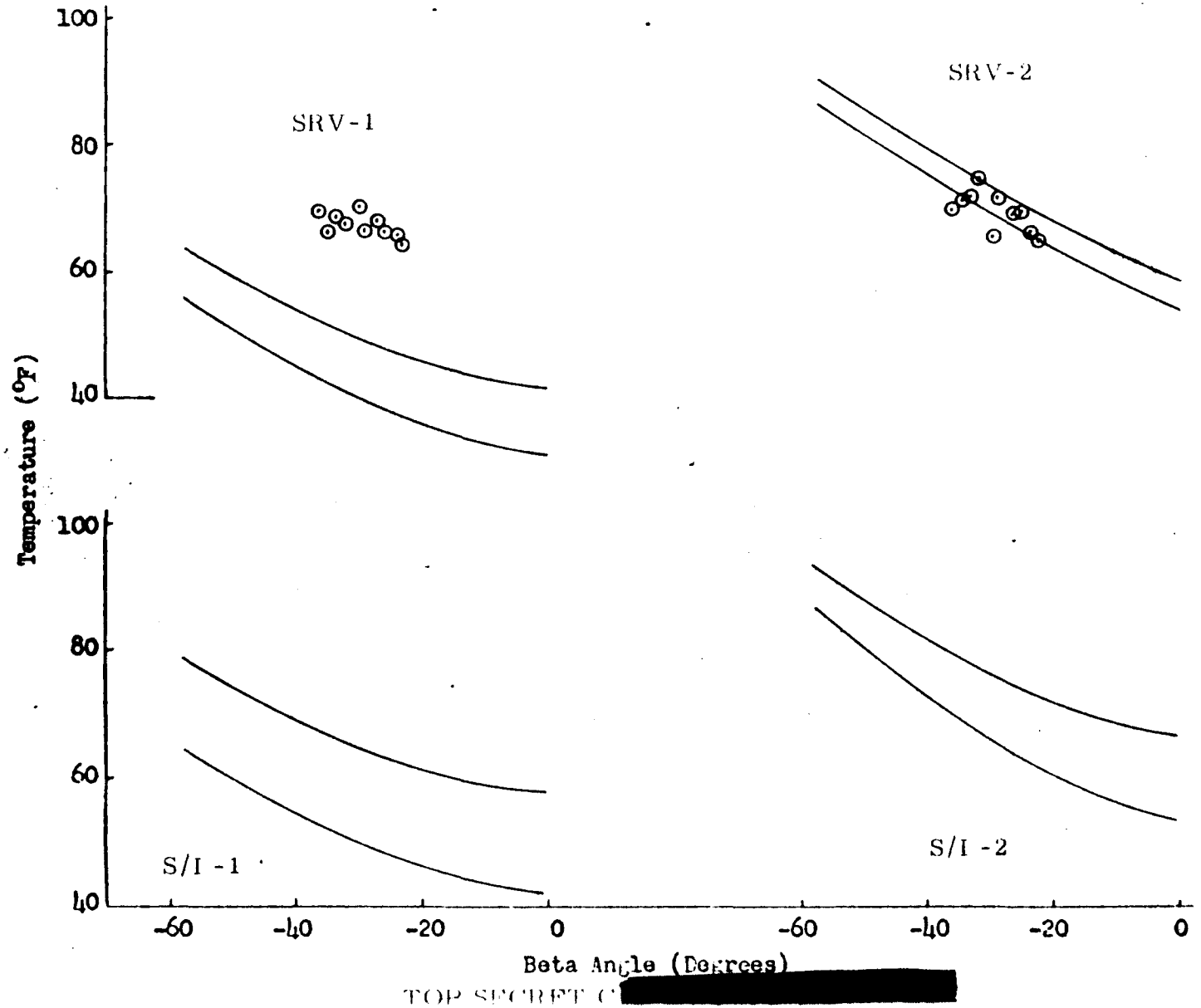

SRV-1
SRV-2
S/I -1
S/I -2
Temperature (°F)
100
80
60
40
-60
-40
-20
0
Beta Angle (Degrees)

Figure 3-2

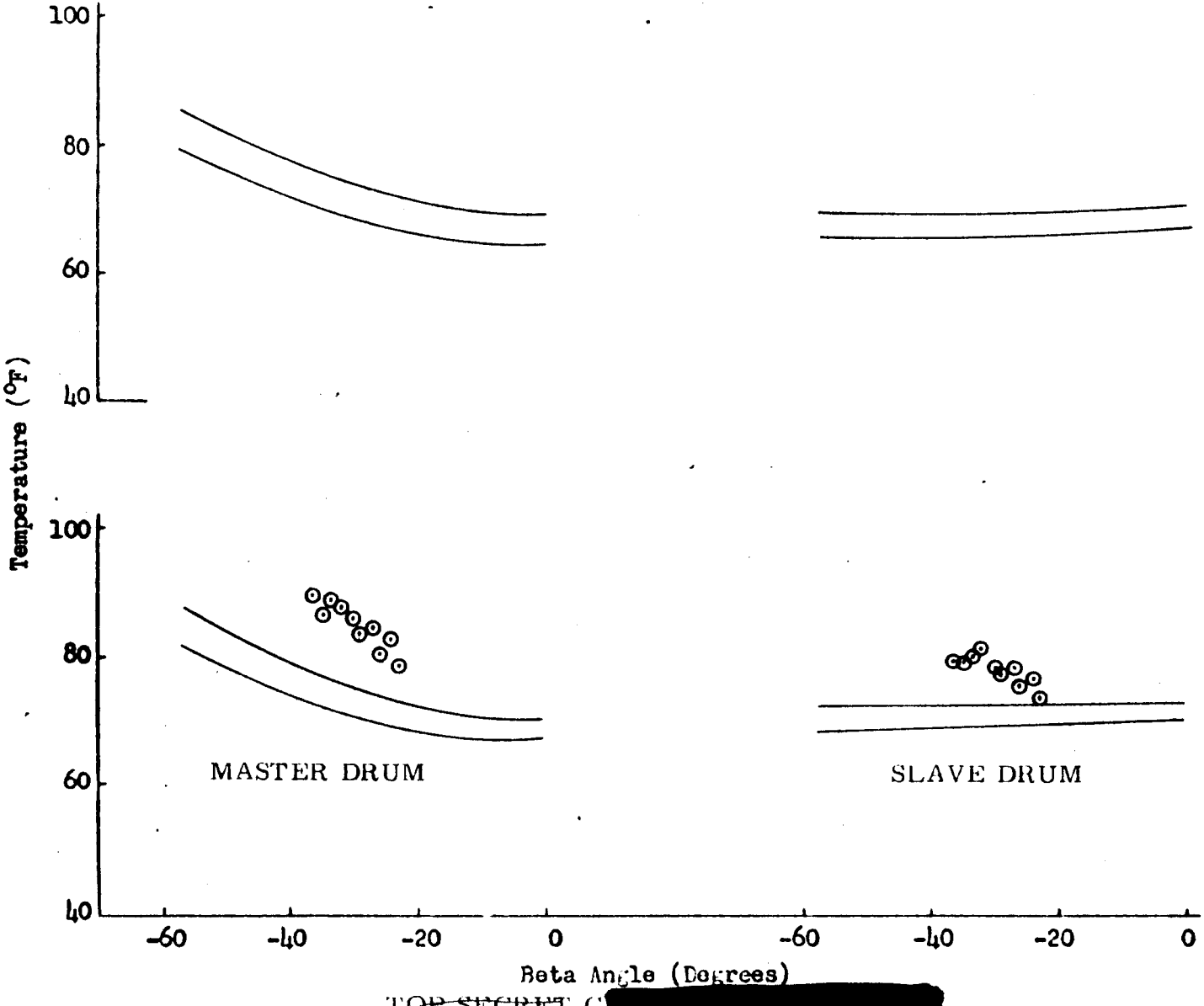

100
80
60
40
Temperature (°F)
100
80
60
40
MASTER DRUM
SLAVE DRUM
-60
-40
-20
0
-60
-40
-20
0
Beta Angle (Degrees)

Figure 3-3

SECTION 4

MISSION 1030-1 RECOVERY SYSTEM

SRV #709 was received at A/P on 16 July 1965. The receiving weight was 149.5 pounds. After modification and incorporation of outstanding E.O.'s, the SRV was delivered to Systems Test for mating to the J-29 system. The capsule was delivered to VAFB on 24 January 1966.

-1 Mission

The -1 recovery system was successfully recovered by air catch on orbit 81, March 14, 1966.

Impact Point

Predicted		Actual	
23^{o} 33' N	168^{o} 55'W	23^{o} 26' N	168^{o} 37' W

The sequence of re-entry events is contained in Table 4-1.

MISSION 1030-1

RECOVERY SEQUENCE OF EVENTS

Event	Delta Time (Seconds) Actual	Nominal Events + ΔT
*Arm	76.73	77 ± 1.0
*Transfer	2.0	2.0 ± 0.25
Electrical Disconnect	0.86	$0.900^{+0.430}_{-0.400}$
**Spin	3.42	3.4 ± 0.30
Retro	7.52	7.55 ± 0.45
Despin	10.55	10.75 ± 0.59
T/C Separation	1.51	1.5 ± 0.15
***"G" Switch Open	486.39	491.8 to 502.6
Parachute Cover Off	33.98	34.0 ± 1.5
Drogue Chute Deployed	0.66	0.63 ± 0.08
Main Chute Bag Separate	9.97	$10.14^{+.48}_{-.40}$
Main Chute Deployed	0.43	0.52 ± .13
Main Chute Disreef	4.63	$4.46^{+.49}_{-.29}$

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

Spin Rate: 64 RPM
Despin Rate: N/A
Retro Velocities: 1075.8 Ft/Sec.

TABLE 4-1

SECTION 5

MISSION 1030-2 RECOVERY SYSTEM

SRV #710 was received at A/P on 16 July 1965. The receiving weight was 149.6 pounds. After modification and incorporation of outstanding E.O.'s the SRV was delivered to Systems Test for mating to the J-29 system. The capsule was delivered to VAFB on 24 January 1966.

-2 Mission

The -2 recovery system was successfully recovered by air catch on orbit 159, March 19, 1966.

Impact Point			
Predicted		Actual	
22° 35' N	148° 22' W	22° 42' N	148° 14' W

All recovery events occurred within tolerances. The detailed recovery event times are contained in Table 5-1.

MISSION 1030-2

RECOVERY SEQUENCE OF EVENTS

Event	Delta Time (Seconds) Actual	Nominal Events + Δ T
*Arm	76.96	77 ± 1.0
*Transfer	2.0	2.0 ± 0.25
Electrical Disconnect	0.97	$0.900 \begin{smallmatrix} +0.430 \\ -0.400 \end{smallmatrix}$
Separation	--	--
**Spin	3.37	3.4 ± 0.30
Retro	7.55	7.55 ± 0.45
Despin	10.72	10.75 ± 0.59
T/C Separation	1.55	1.5 ± 0.15
***"G" Switch Open	500.23	491.8 to 502.6
Parachute Cover Off	33.43	34.0 ± 1.5
Drogue Chute Deployed	0.75	$0.63 \pm .08$
Main Chute Bag Separate	9.50	$10.14 \begin{smallmatrix} +.48 \\ -.40 \end{smallmatrix}$
Main Chute Deployed	0.43	$0.52 \pm .13$
Main Chute Disreef	4.49	$4.46 \begin{smallmatrix} +.49 \\ -.29 \end{smallmatrix}$

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

Spin Rate: 64 RPM
Despin Rate: 9.5 RPM
Retro Velocity: 966.4 Ft/Sec.

TABLE 5-1

SECTION 6

MASTER PANORAMIC CAMERA

A. COMPONENT ASSIGNMENT

Component	Serial Number
Main Camera	182
Main Camera Lens	1902435
Supply Horizon Camera	281-G4
Supply Horizon Camera Lens	E12864
Take-up Horizon Camera	284-G3
Take-up Horizon Camera Lens	E12876
Supply Cassette	SC-29

B. CAMERA DATA AND FLIGHT SETTINGS

Main Camera:	
Lens	24" f/3.5
Slit Width	0.275"
Filter Type	Wratten 25
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
Filter Type	Wratten 25

C. POST FLIGHT PERFORMANCE EVALUATION

The overall photographic quality of this mission was low due to severe haze layers over many targets. This caused the contrast to be drastically reduced. The segments of the mission in clear weather displayed excellent image quality.

The measured minimum densities were higher than on previous Corona missions. The correlation between these densities and mission performance will not be fully understood until a research analysis is undertaken. It is noted that this mission received a comparatively low percentage of full processing.

The starboard looking horizon cameras produced poor, but useable imagery early in the mission. As the flight progressed the imagery degraded to a useless condition. They started to clear on pass D-98 and after pass D-132 they were normal. There is no assignable cause at this time for this condition.

The end of pass marker was missing on the film from the master instrument. The pre-flight material indicated that it was operational prior to lift-off so it is surmised that ascent vibration caused the anomaly.

The following characteristic anomalies were normal; format and rail scratches, ragged format edges, edge static and light leaks. These items warrant attention to prevent increased degradation.

SECTION 7

SLAVE PANORAMIC CAMERA

A. COMPONENT ASSIGNMENT

Component	Serial Number
Main Camera	183
Main Camera Lens	1882435
Supply Horizon Camera	301-G6
Supply Horizon Camera Lens	E12845
Take-up Horizon Camera	301-G5
Take-up Horizon Camera Lens	E12844
Supply Cassette	SC-29

B. CAMERA DATA AND FLIGHT SETTINGS

Main Camera:	
Lens	24" f/3.5
Slit Width	0.175
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

SECTION 3

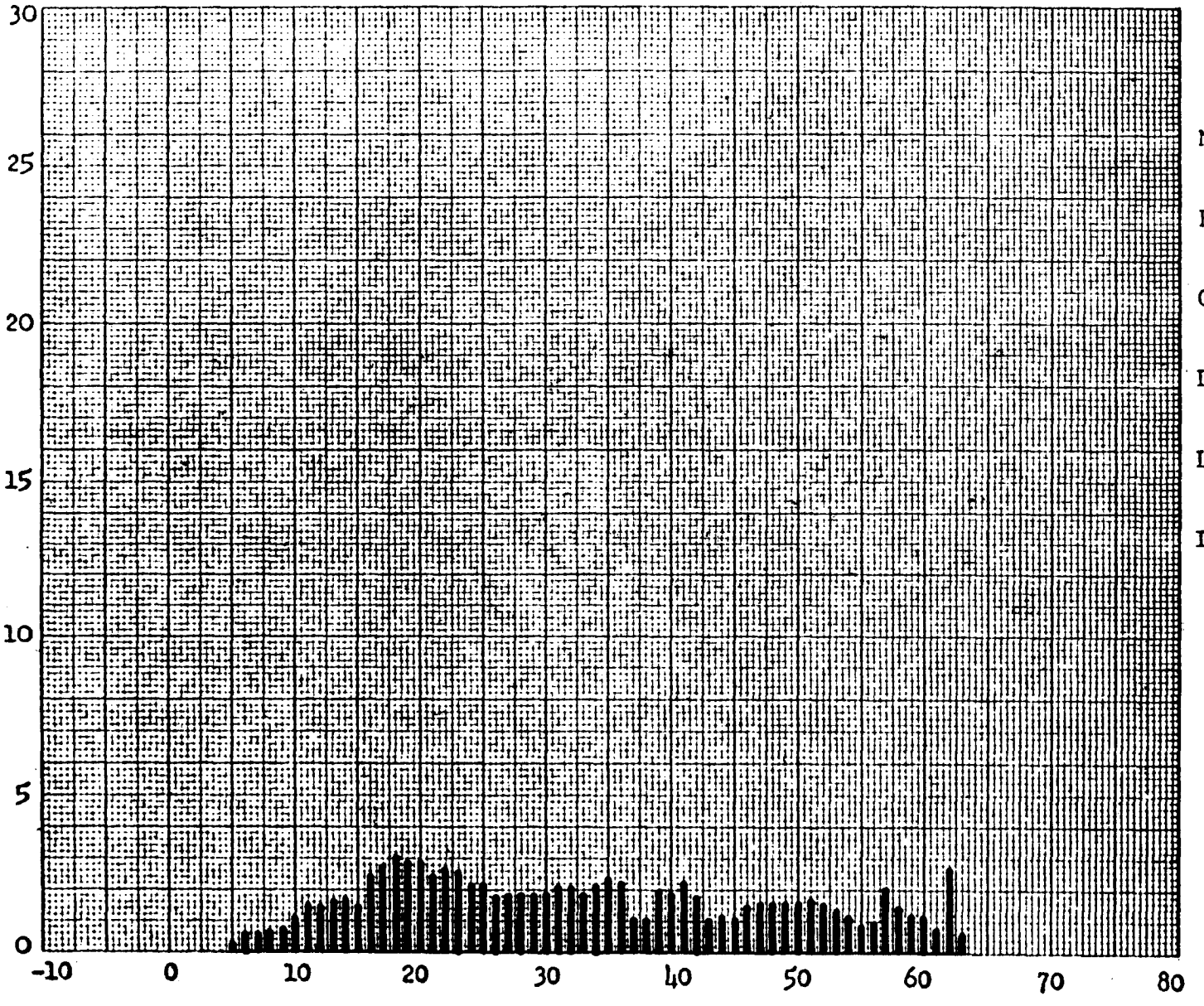
PANORAMIC CAMERA EXPOSURE

The Master camera contained a 0.275 inch slit with a Wratten 25 filter while the Slave camera used a 0.175 inch slit with a Wratten 21 filter. The nominal exposure times for the Master and Slave instruments are shown as a function of latitude for passes 8, 56, 103 and 151 in Figures 8-5 to 8-12. The frequency distributions of the solar elevations and solar azimuths encountered during photographic operations are shown in Figures 8-1 to 8-4.

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]

Mission/Camera		Primary	Intermediate	Full
1030-1/FWD	Predicted	0%	58%	42%
	Actual	3%	31.7%	65.3%
1030-1/AFT	Predicted	0%	53%	47%
	Actual	0.2%	45.6%	54.2%
1030-2/FWD	Predicted	1%	42%	57%
	Actual	0.1%	52.5%	47.4%
1030-2/AFT	Predicted	1%	23%	76%
	Actual	0.2%	28.3%	71.5%

SOLAR ELEVATION FREQUENCY DISTRIBUTION



Mission No: 1030-1

Payload No: J-29

Camera No: 182

Launch Date: 3/9/66

Launch Time: 2202 Z

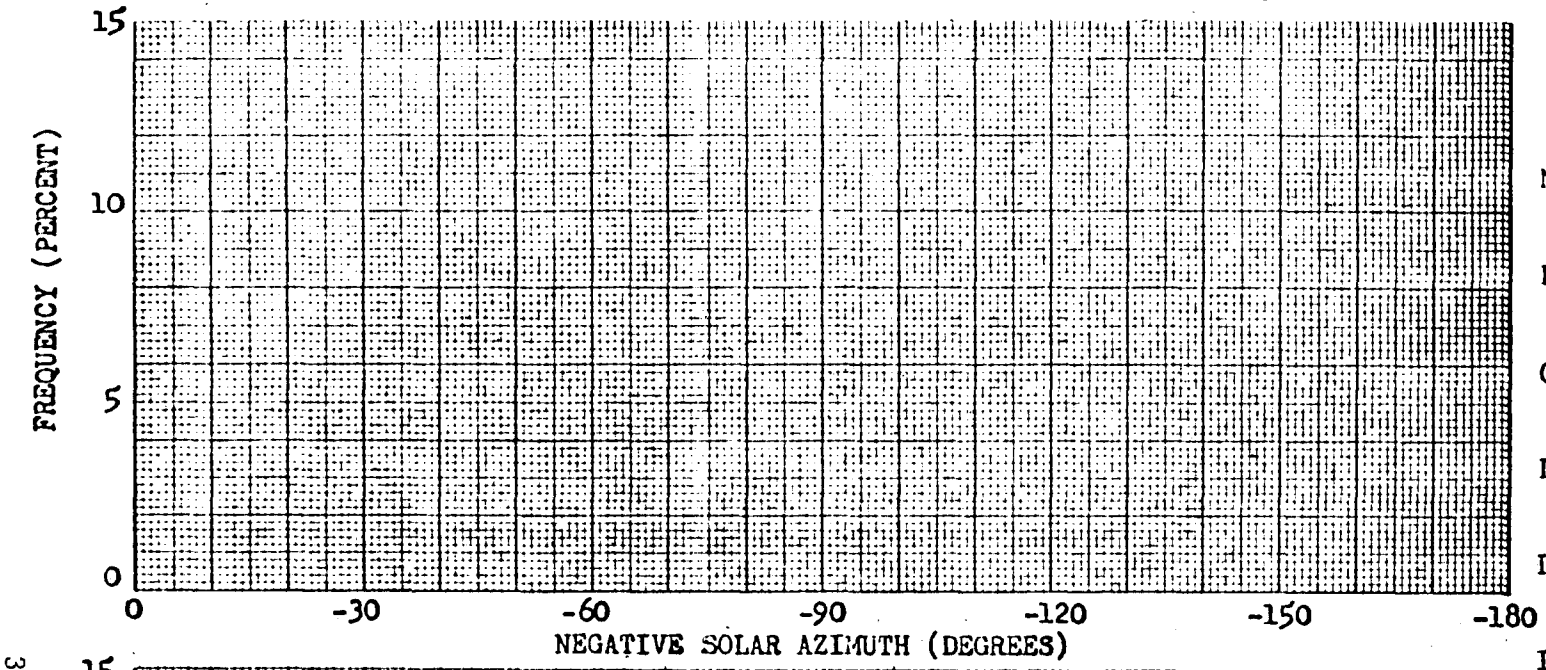
Inclination: 75°

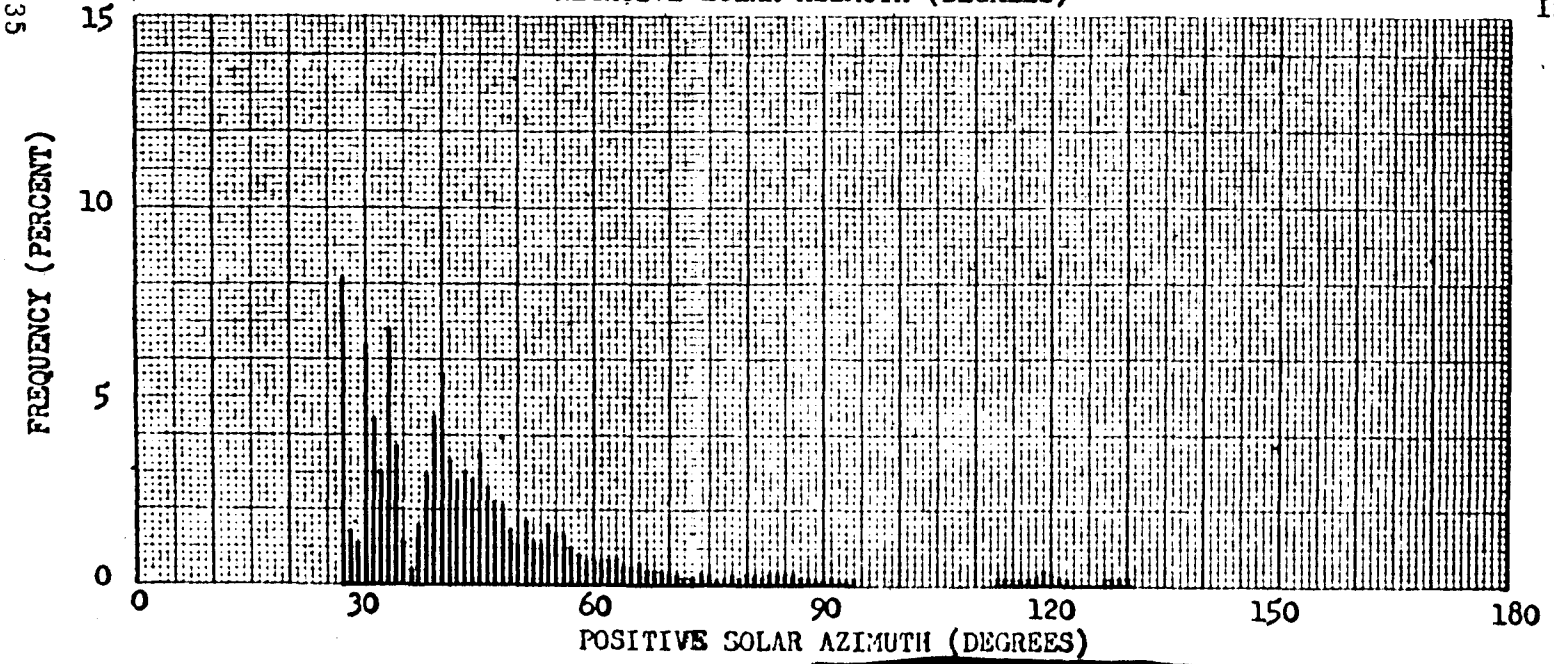
Figure 8-1

[redacted]

NO. [redacted]

SOLAR AZIMUTH FREQUENCY DISTRIBUTION





Mission No: 1030-1

Payload No: J-29

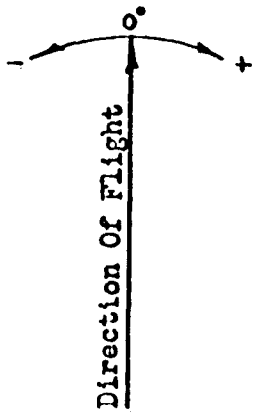
Camera No: 182

Launch Date: 3/9/66

Launch Time: 2202 Z

Inclination: 75°

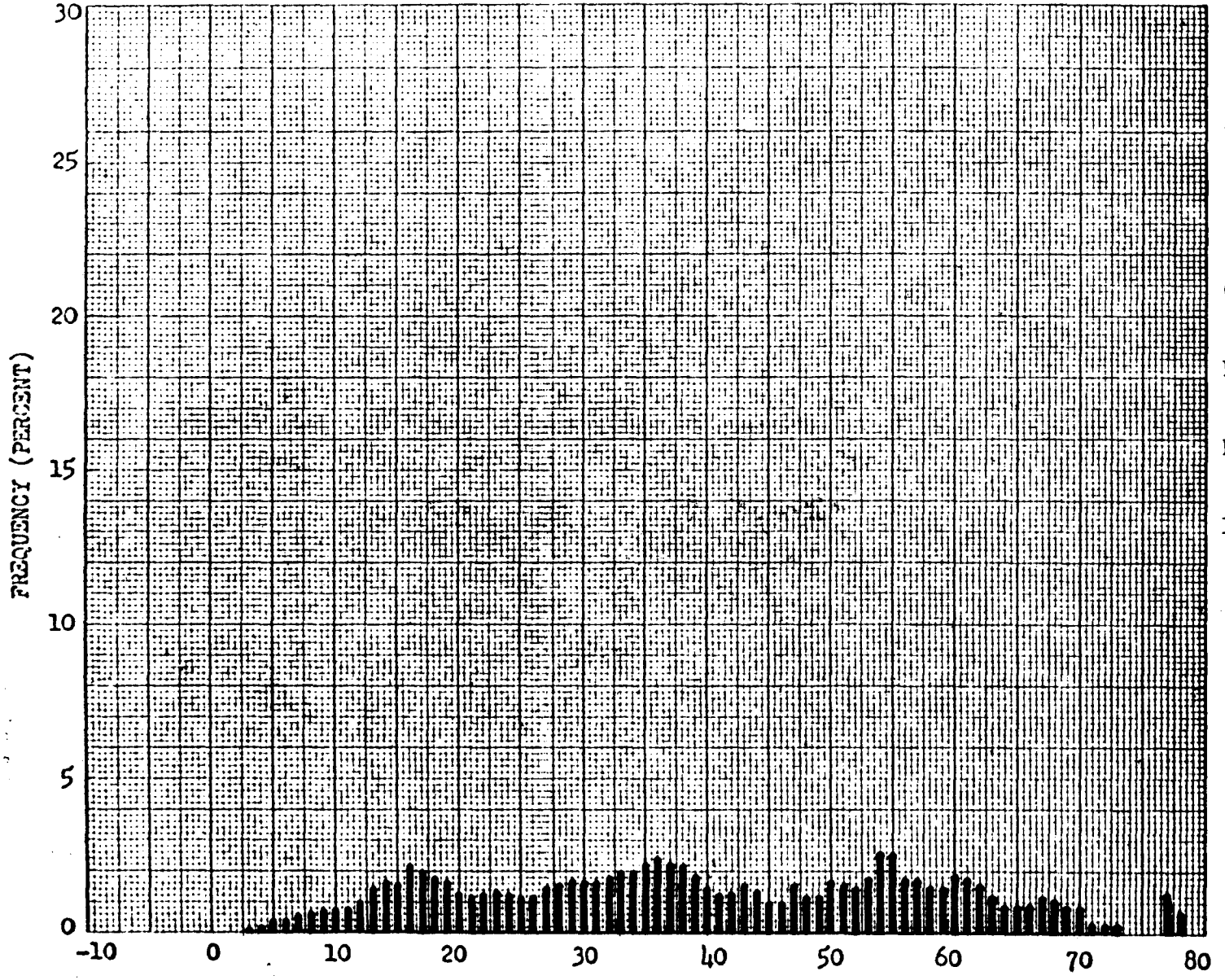
SIGN NOTATION



35

[redacted]

SOLAR ELEVATION FREQUENCY DISTRIBUTION



Mission No: 1030-2

Payload No: J-29

Camera No: 182

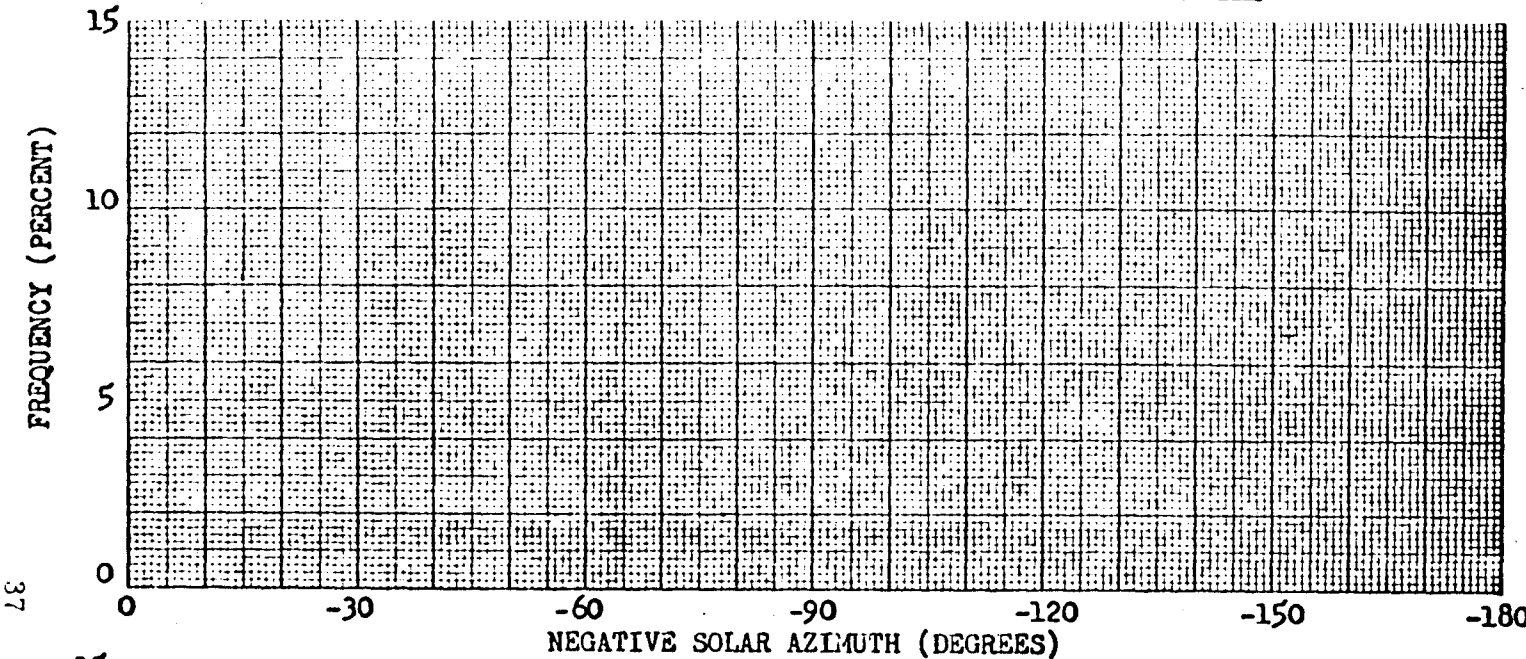
Launch Date: 3/9/66

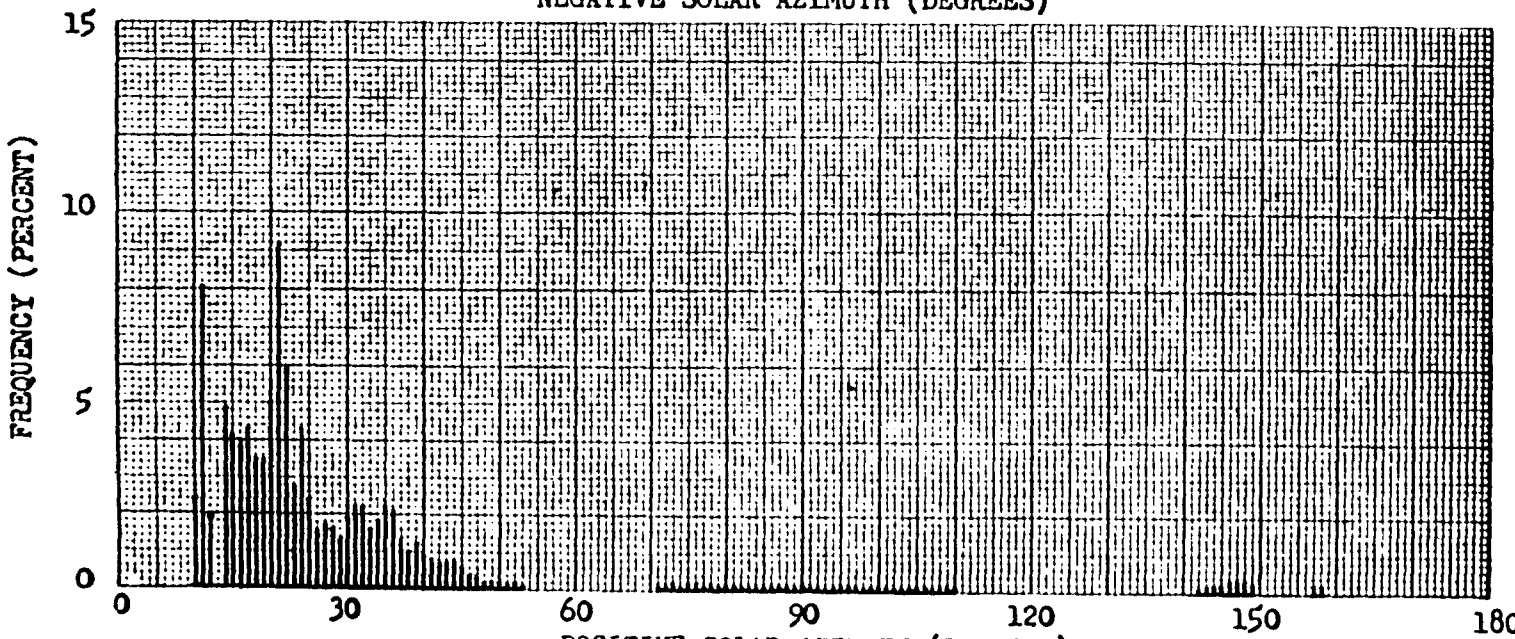
Launch Time: 2202 Z

Inclination: 75°

Figure 8-3

SOLAR AZIMUTH FREQUENCY DISTRIBUTION





Mission No: 1030-2

Payload No: J-29

Camera No: 182

Launch Date: 3/9/66

Launch Time: 2202 Z

Inclination: 75°

SIGN NOTATION

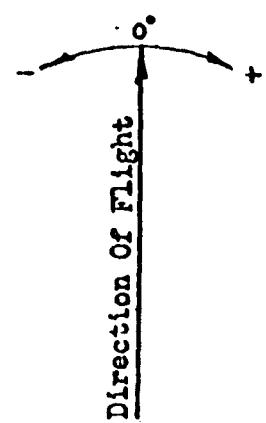
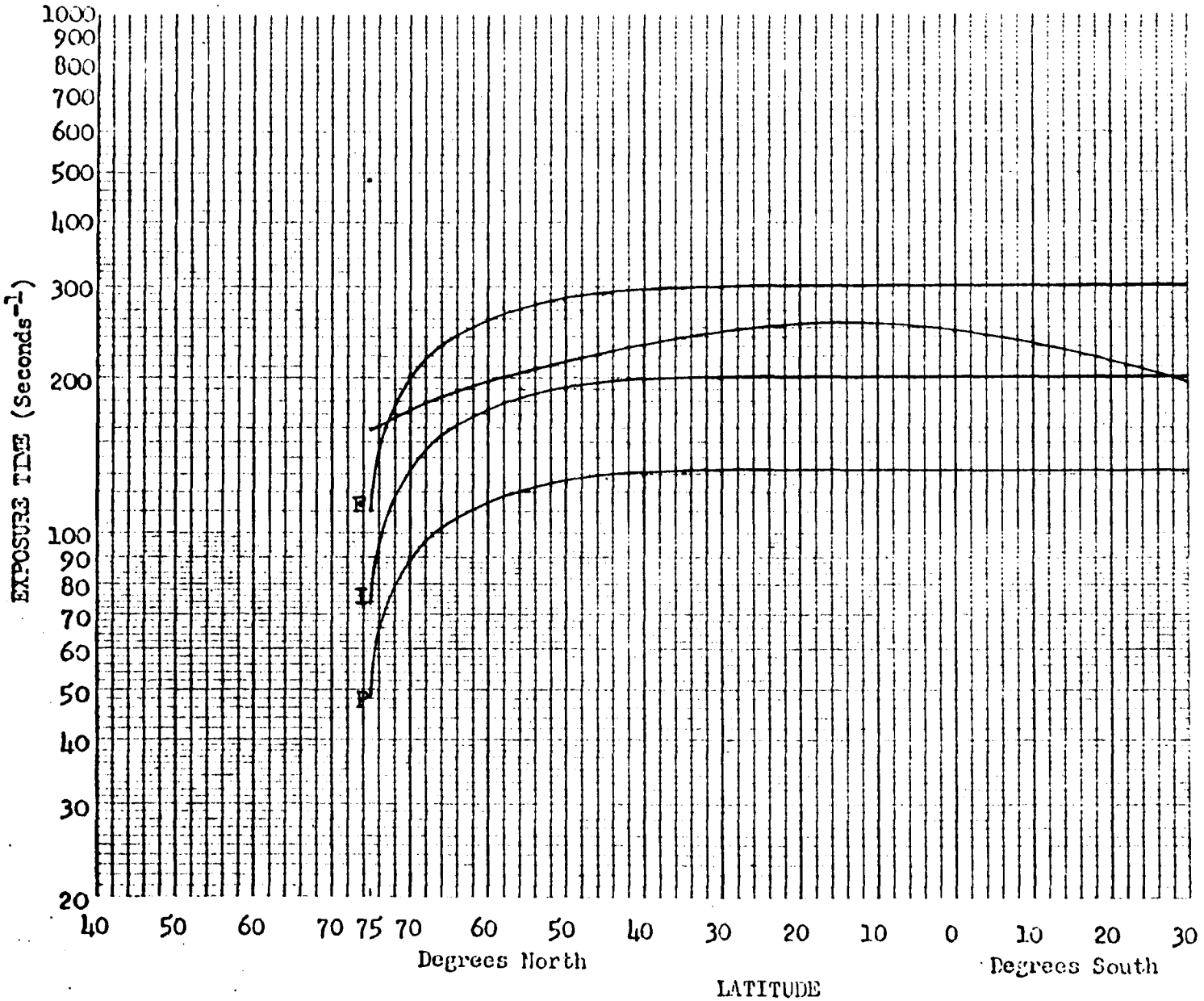


Figure 8-4

[redacted]

EXPOSURE POINTS



Mission No: 1030

Payload No: J-29

Camera No: 132

Pass No: 8

Launch Date: 3/9/60

Launch Time: 2202 Z

Slit Width: .275

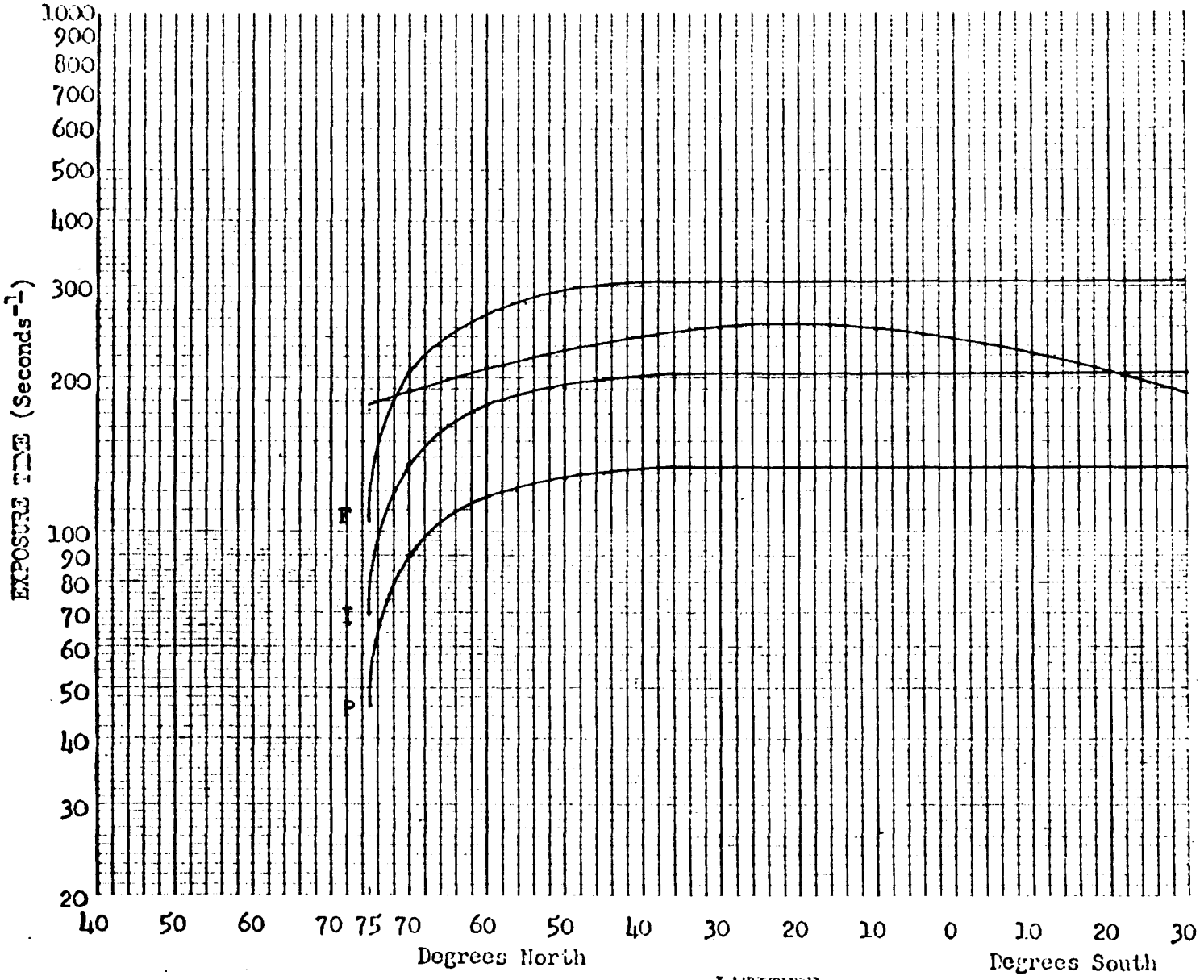
Filter Type: Wratten 25

Film Type: 3404

[redacted]

[redacted]

EXPOSURE POINTS



Mission No: 1030

Payload No: J-29

Camera No: 182

Pass No: 56

Launch Date: 3/9/66

Launch Time: 2202 Z

Slit Width: .275

Filter Type: Wratten 25

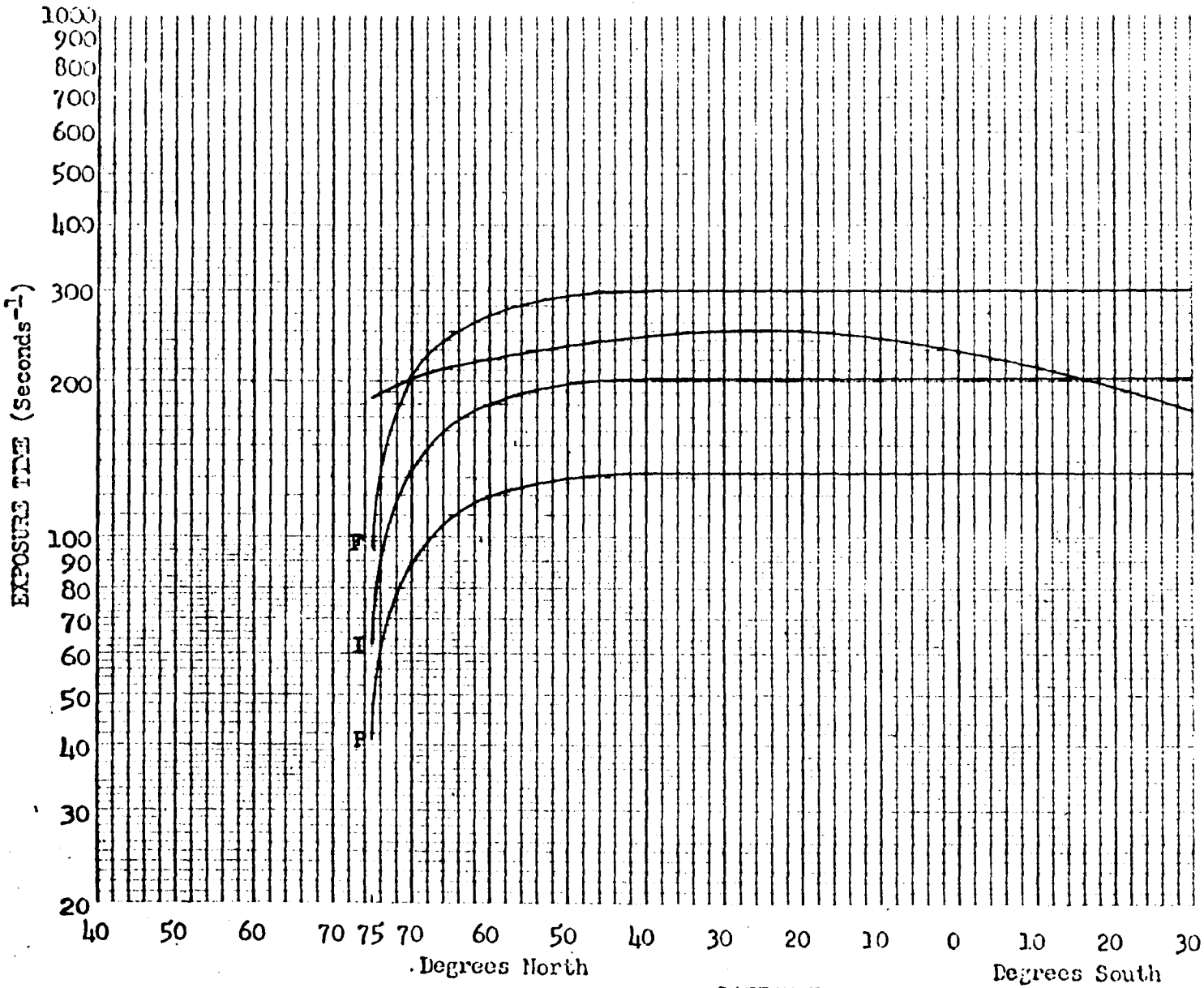
Film **Type:** 3404

[redacted]

Figure [illegible]

[redacted]

EXPOSURE POINTS



Mission No: 1[illegible]

Payload No: J-29

Camera No: 182

Pass No: 103

Launch Date: 3/9/66

Launch Time: 2202 Z

Slit Width: .275

Filter Type: Wratten 25

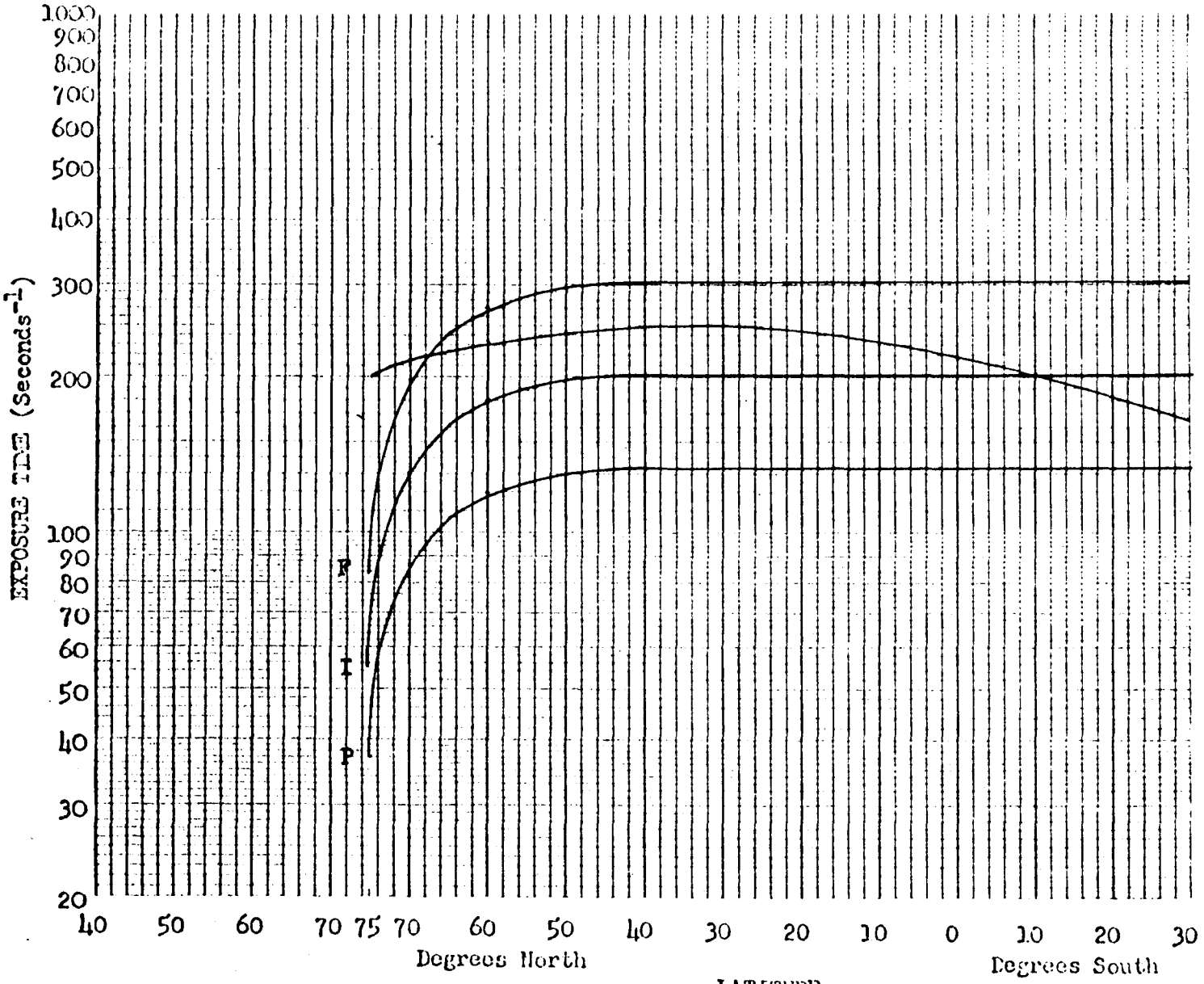
Film Type: 3404

TOP SECRET [redacted]

Figure [illegible]

[redacted]

EXPOSURE POINTS



Mission No: 1130

Payload No: [illegible]-29

Camera No: 182

Pass No: 151

Launch Date: 3/9/66

Launch Time: 2202 Z

Slit Width: .275

Filter Type: Wratten 25

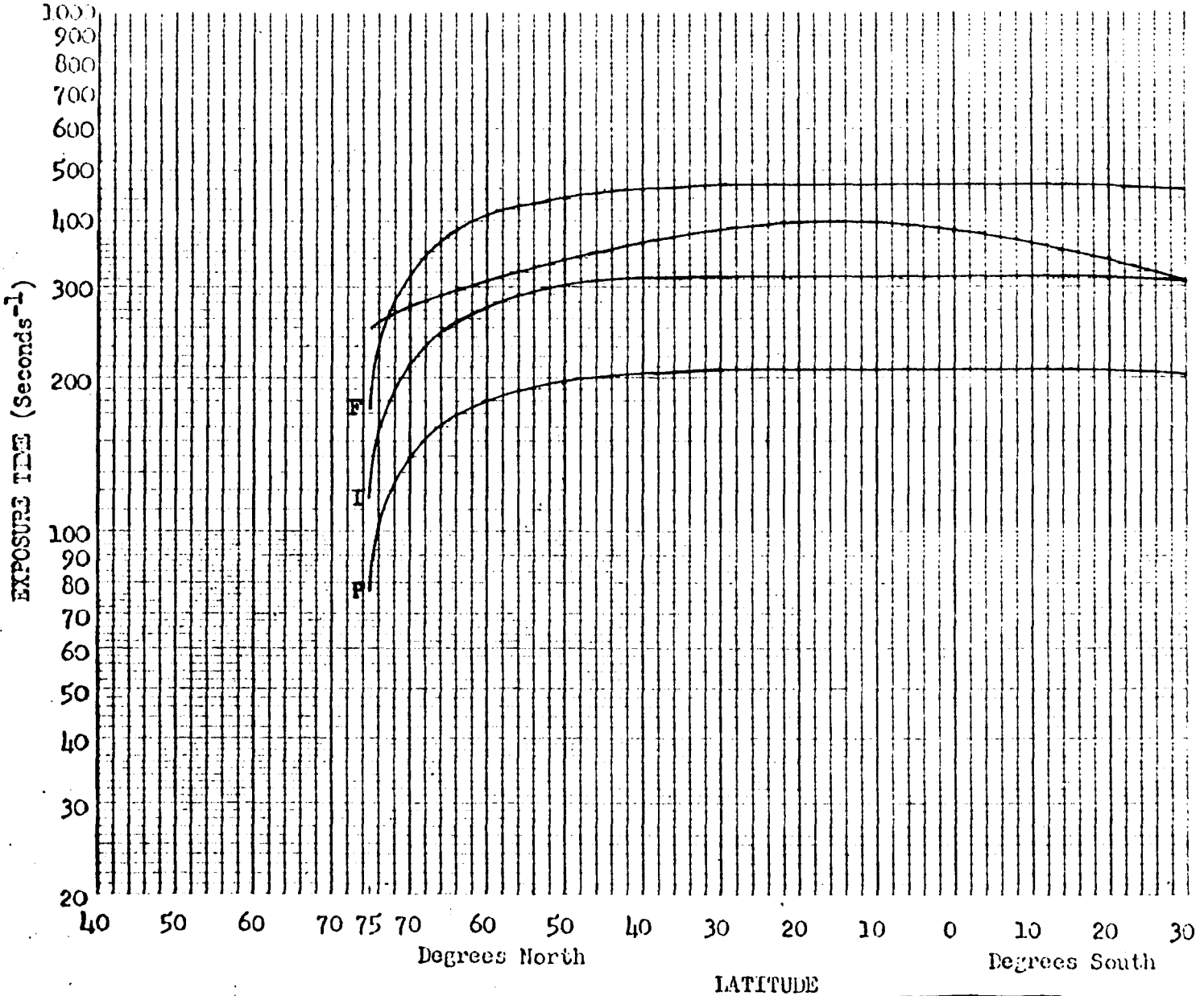
Film Type: 3404

[redacted]

Figure [illegible]

[redacted]

EXPOSURE POINTS



Mission No: 1030

Payload No: [illegible]-29

Camera No: 183

Pass No: 5

Launch Date: 3/9/66

Launch Time: 2202 Z

Slit Width: .175

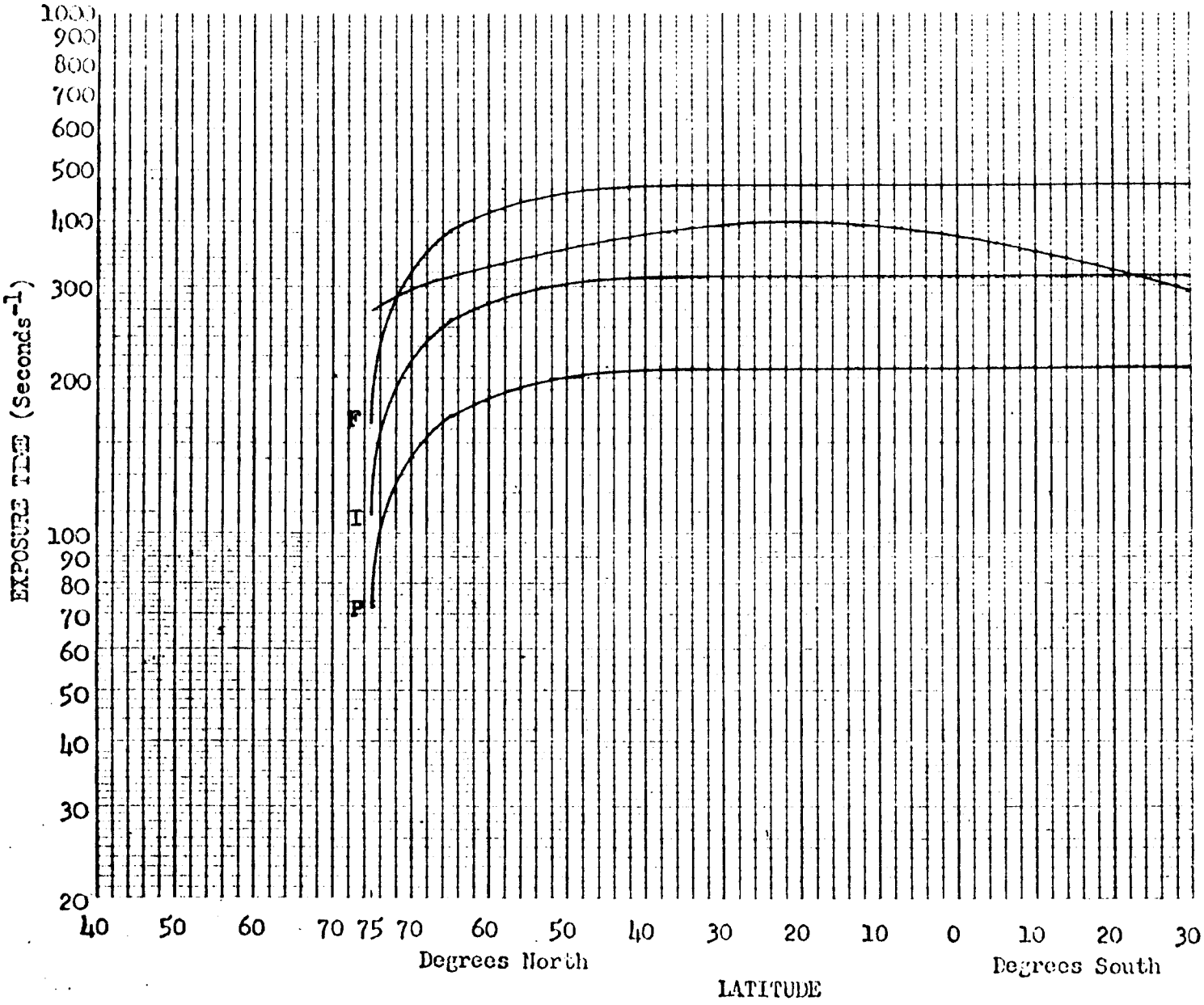
Filter Type: Wratten 21

Film Type: 3404

[redacted]

[redacted]

EXPOSURE POINTS



Mission No: 1030

Payload No: J-29

Camera No: 183

Roll No: 56

Launch Date: 3/9/56

Launch Time: 2202 Z

Slit Width: .175

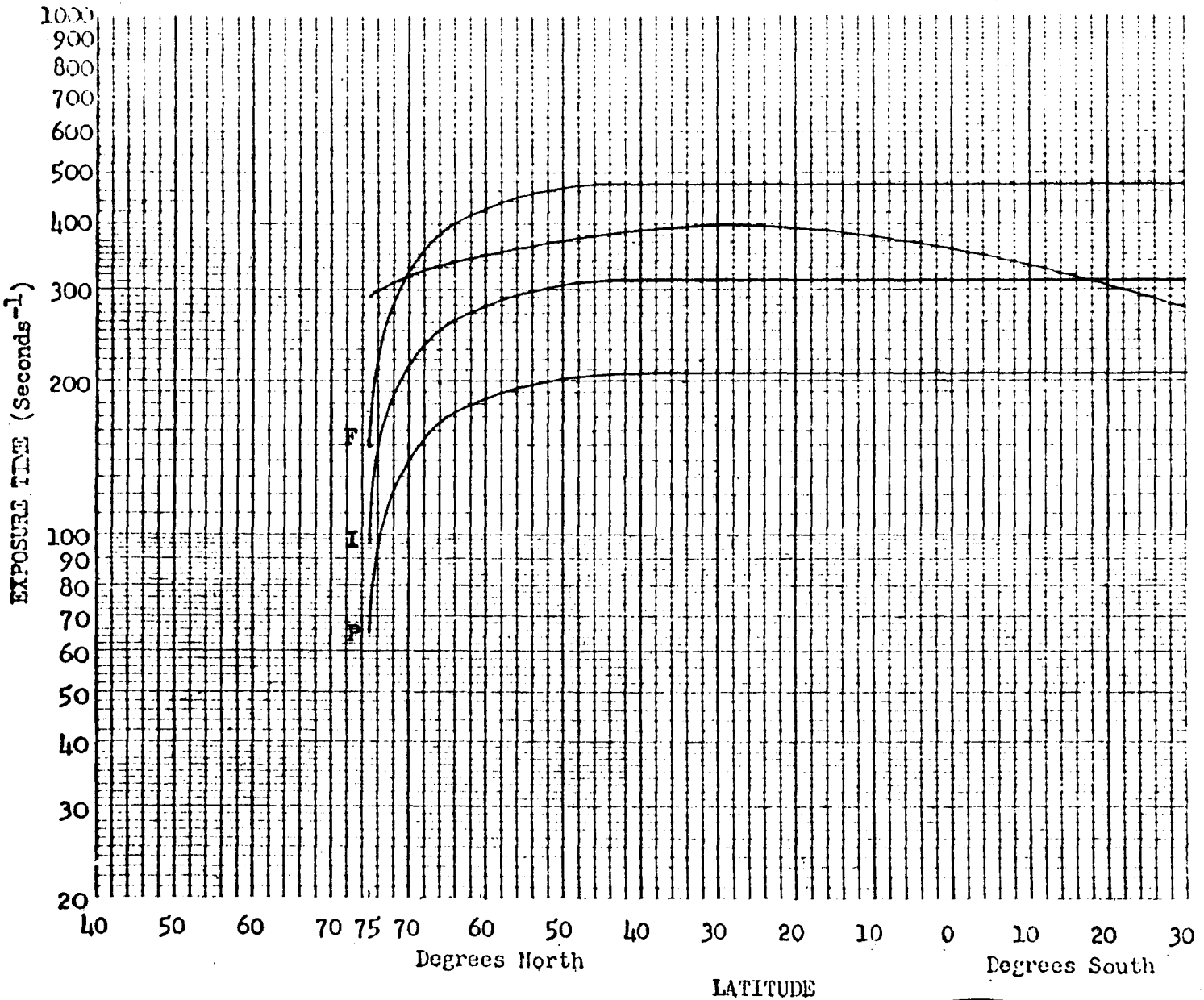
Filter Type: Wratten 21

Film Type: 3404

[redacted]

Figure 3-10

EXPOSURE POINTS



Mission No: 1030

Payload No: J-29

Camera No: 183

Pass No: 103

Launch Date: 3/9/66

Launch Time: 2202 Z

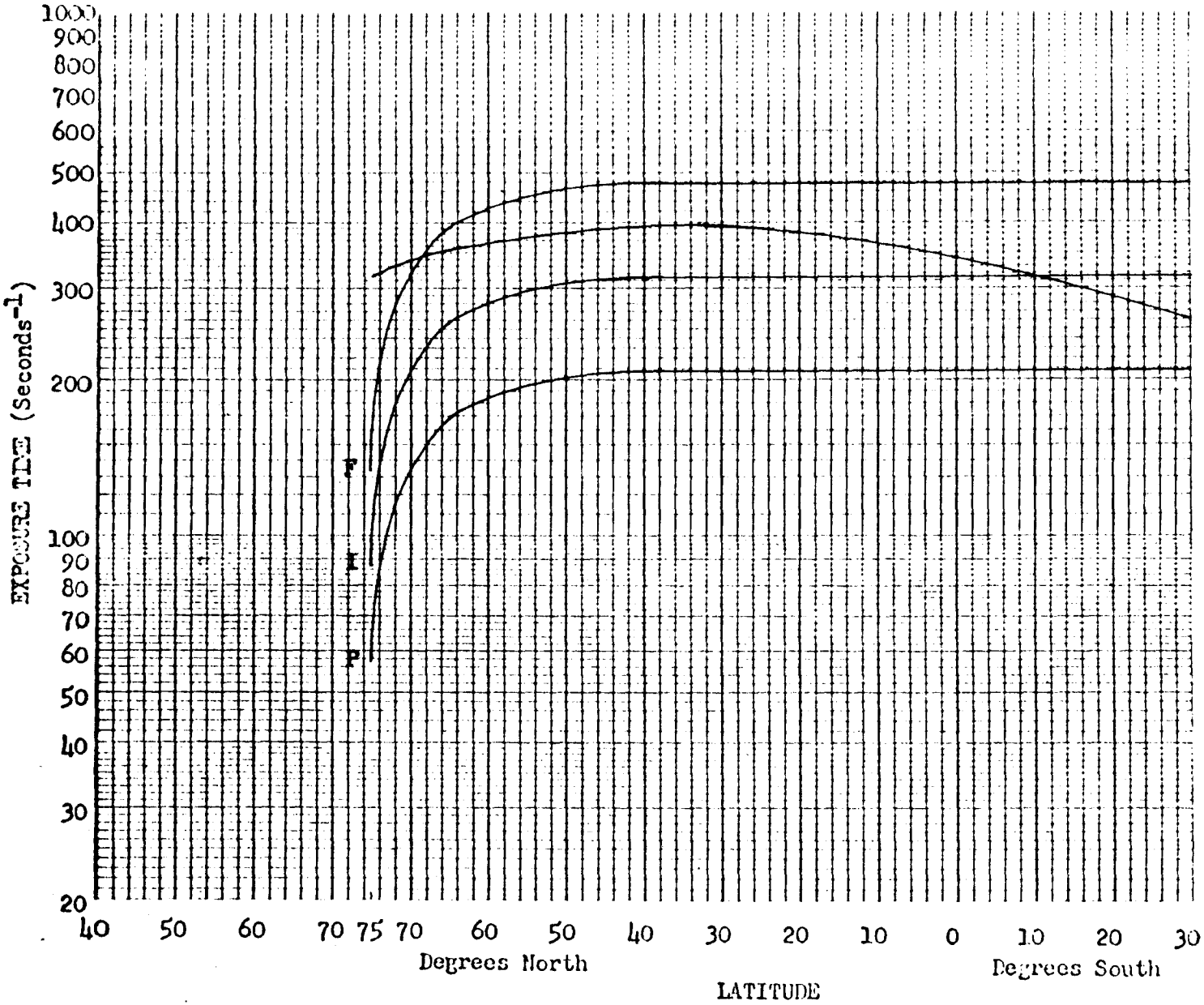
Slit Width: .175

Filter Type: Wratten 21

Film Type: 3404

Figure 8-11

EXPOSURE TIMES



Mission No: 1033

Payload No: J-29

Camera No: 133

Pass No: 151

Launch Date: 3/9/66

Launch Time: 2202 Z

Slit Width: .175

Filter Type: Wratten 21

Film Type: 3404

Figure 8-12

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.

Mission	Camera		Primary	Intermediate	Full
1030-1	FWD	Predicted	0%	58	42
		Reported	3	31.7	65.3
		Computed	0.8	51.7	47.5
1030-1	AFT	Predicted	0	53	47
		Reported	0.2	45.6	54.2
		Computed	0	71	29
1030-2	FWD	Predicted	1	42	57
		Reported	0.1	52.5	47.4
		Computed	0	70	30
1030-2	AFT	Predicted	1	23	76
		Reported	0.2	28.3	71.5
		Computed	0	30	70

The tabulations of density frequency distributions for Missions 1030-1 and 1030-2 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

FIG 9-1

[redacted]

[illegible]	INSTR - FRWD	8/25/66	PROCESSING AND EXPOSURE ANALYSIS			
[illegible]	SAMPLE SIZE	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	[illegible]	1 PC	0 PC	50 PC	0 PC	50 PC
INTERMEDIATE	[illegible]	4 PC	6 PC	59 PC	27 PC	3 PC
FULL	117	3 PC	0 PC	62 PC	29 PC	1 PC
ALL LEVELS	244	4 PC	3 PC	61 PC	28 PC	5 PC

[illegible]	INSTR - AFT	8/25/66	PROCESSING AND EXPOSURE ANALYSIS			
[illegible] LEVEL	SAMPLE SIZE	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	[illegible]	[illegible] PC	0 PC	0 PC	0 PC	0 PC
INTERMEDIATE	173	[illegible] PC	12 PC	65 PC	17 PC	6 PC
FULL	72	[illegible] PC	0 PC	61 PC	36 PC	3 PC
ALL LEVELS	245	1 PC	3 PC	64 PC	22 PC	4 PC

[illegible]	INSTR - FRWD	8/25/66	PROCESSING AND EXPOSURE ANALYSIS			
[illegible] LEVEL	SAMPLE SIZE	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	[illegible]	1 PC	0 PC	0 PC	6 PC	0 PC
INTERMEDIATE	174	[illegible] PC	13 PC	73 PC	12 PC	3 PC
FULL	[illegible]	15 PC	0 PC	56 PC	18 PC	9 PC
ALL LEVELS	[illegible]	5 PC	7 PC	71 PC	13 PC	2 PC

[illegible]	INSTR - AFT	8/25/66	PROCESSING AND EXPOSURE ANALYSIS			
[illegible] LEVEL	SAMPLE SIZE	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	[illegible]	[illegible] PC	0 PC	0 PC	0 PC	0 PC
INTERMEDIATE	[illegible]	[illegible] PC	1 PC	76 PC	19 PC	4 PC
FULL	[illegible]	[illegible] PC	0 PC	63 PC	35 PC	1 PC
ALL LEVELS	[illegible]	2 PC	0 PC	66 PC	30 PC	2 PC

[illegible]	[illegible]	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	[illegible]	[illegible]-0.13	0.14-0.39	0.40-0.90	---------	0.91 AND UP
INTERMEDIATE	[illegible]	0.01-0.00	0.21-0.39	0.40-0.90	0.91-1.34	1.35 AND UP
FULL	[illegible]	[illegible]-0.44	---------	0.41-0.90	0.91-1.69	1.70 AND UP

[redacted]

Table 9-1

SECTION 10

PERFORMANCE MEASUREMENTS

The photography acquired by both panoramic cameras during Missions 1030-1 and 1030-2 received a MIP rating of 85. A summary is tabulated below of the MTF/AIM resolution values measured by AFSPPF and [redacted]. The microdensitometer slit used by AFSPPF and [redacted] was 80 microns by one micron.

Mission	Camera	AFSPPF	[redacted]
1030-1	FWD	81	66
1030-1	AFT	74	77
1030-2	FWD	73	71
1030-2	AFT	86	71

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 normally included in this report.

SECTION 11

OBSERVED DATA

Mission 1030 contained an unusually high percentage of photography that was degraded by atmospheric conditions, the PEIR report states that for Mission 1030-1 only 2% was clear terrain, and Mission 1030-2 contained 11% clear terrain. Consequently, only a very small amount of photography from engineering operations is suitable for evaluating the system performance capability.

Pass D47 covered Indian Springs and Pahrump Fixed CORN targets. Indian Springs had solid cloud cover. Pahrump was degraded by thin clouds or haze, but the high contrast fixed target was read to 12 feet ground resolution. A mobile T Bar Target of low contrast was deployed near the fixed target. The largest group (16 feet) could not be resolved. Obviously, the system capability is much better than shown under this atmospheric condition.

The other 2 resolution targets photographed on this mission were even less useful. The Fort Huachuca target on pass D31 was in the bonus area and out of focus. A mobil medium T-Bar target was deployed at Lompoc, California for pass D126. This target appeared 2 inches from the end of the format and thus suffered loss of scale. The forward camera resolved 16 feet on the ground and the aft camera resolved 12 feet.

Pass D126 did contain a few square miles of clear terrain around Ventura, California with no detectable haze. At a sewage treatment plant the catwalks and spray arms on the clarifier tanks were detected by both cameras, representing a detection capability of 5 feet. A few miles away, at Oxnard AFB, the 3 foot spaces of the runway threshold markers could not be seen, in spite of a 15:1 aspect ratio.

The only conclusion that can be drawn from the foregoing is that this particular system was capable of resolving less than 12 feet on the ground, but probably could not resolve 6 feet.

SECTION 12

MISSION 1030-1 STELLAR-INDEX CAMERA

A. COMPONENT ASSIGNMENT

Component	Serial Number
Camera	D-94
Index Reseau	100
Stellar Reseau	107

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 PERFORMANCE EVALUATION

The -1 mission instruments each produced 422 frames of good quality photography. Plus density streaks, multidirectional, appeared intermittently through frame 78 of the stellar material. To determine the source of these particles would be difficult and since they have a minimal effect on data reduction, there will be no further action taken.

SECTION 13

MISSION 1030-2 STELLAR-INDEX CAMERA

A. COMPONENT ASSIGNMENT

Component	Serial Number
Camera	D-82
Index Reseau	195
Stellar Reseau	102

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 -2 mission instruments each produced 444 frames of good quality for data reduction.

In many target areas there was a severe haze layer that drastically reduced contrast and image quality. An analysis of the index material shows that only 15% of the -1 mission and 17% of the -2 mission had clear weather (10% or less cloud cover).

SECTION 14

VEHICLE ATTITUDE

The vehicle attitude errors for both Mission 1030-1 and 1030-2 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 14-1 through 14-6 show these distributions for Mission 1030-1 and Figures 14-7 through 14-12 for Mission 1030-2.

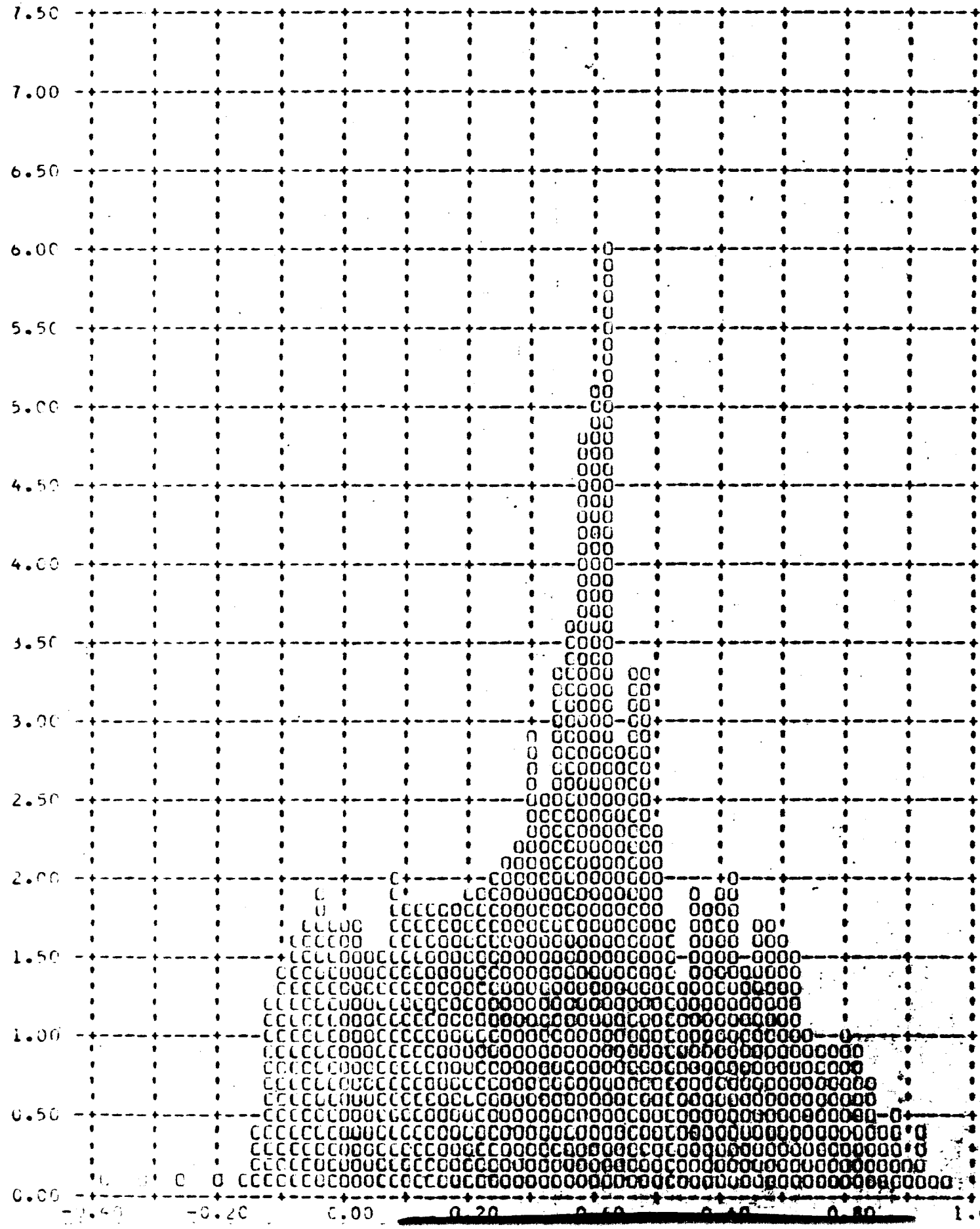
The summary table below lists the maximum attitude errors and rates that were experienced during 90% of the FWD photographic operations, excluding the first six frames of each operation, and the total range of the errors and rates.

	Mission 1030-1		Mission 1030-2	
Value	90%	Range	90%	Range
Pitch Error (^{o})	0.67	-0.38 to +0.96	0.70	-0.06 to +1.0
Roll Error (^{o})	0.25	-0.26 to +0.80	0.27	-0.35 to +1.05
Yaw Error (^{o})	0.89	-1.30 to +0.90	0.87	-1.35 to +1.05
Pitch Rate (^{o}/hr.)	29.63	-85 to + 85	28.38	-56 to +76
Roll Rate (^{o}/hr.)	22.70	-65 to + 75	22.66	-90 to +80
Yaw Rate (^{o}/hr.)	36.09	-50 to +85	36.29	-50 to 62

MISSION 1030A1 ~~TOP SECRET~~ [redacted]

J-29 A-POCKET FORWARD INSTRUME FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 0.67

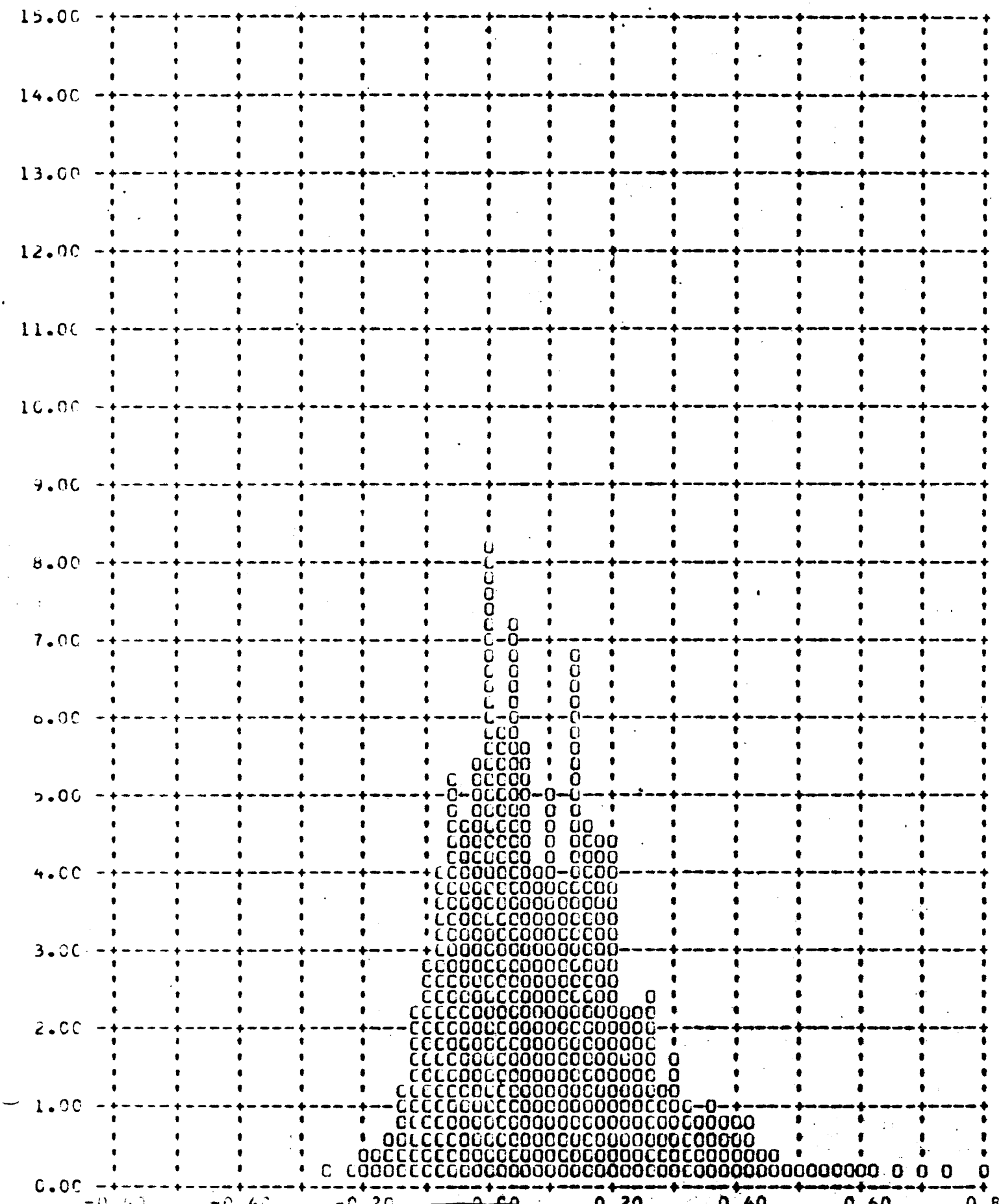
Y PITCH ANGLE ERROR - DEGREES (X) VERSUS FREQUENCY - PERCENT (Y)



MISSION 1030A1 ~~TOP SECRET~~ [redacted]

-29 A-POCKET FORWARD INSTRUME FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 0.25

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

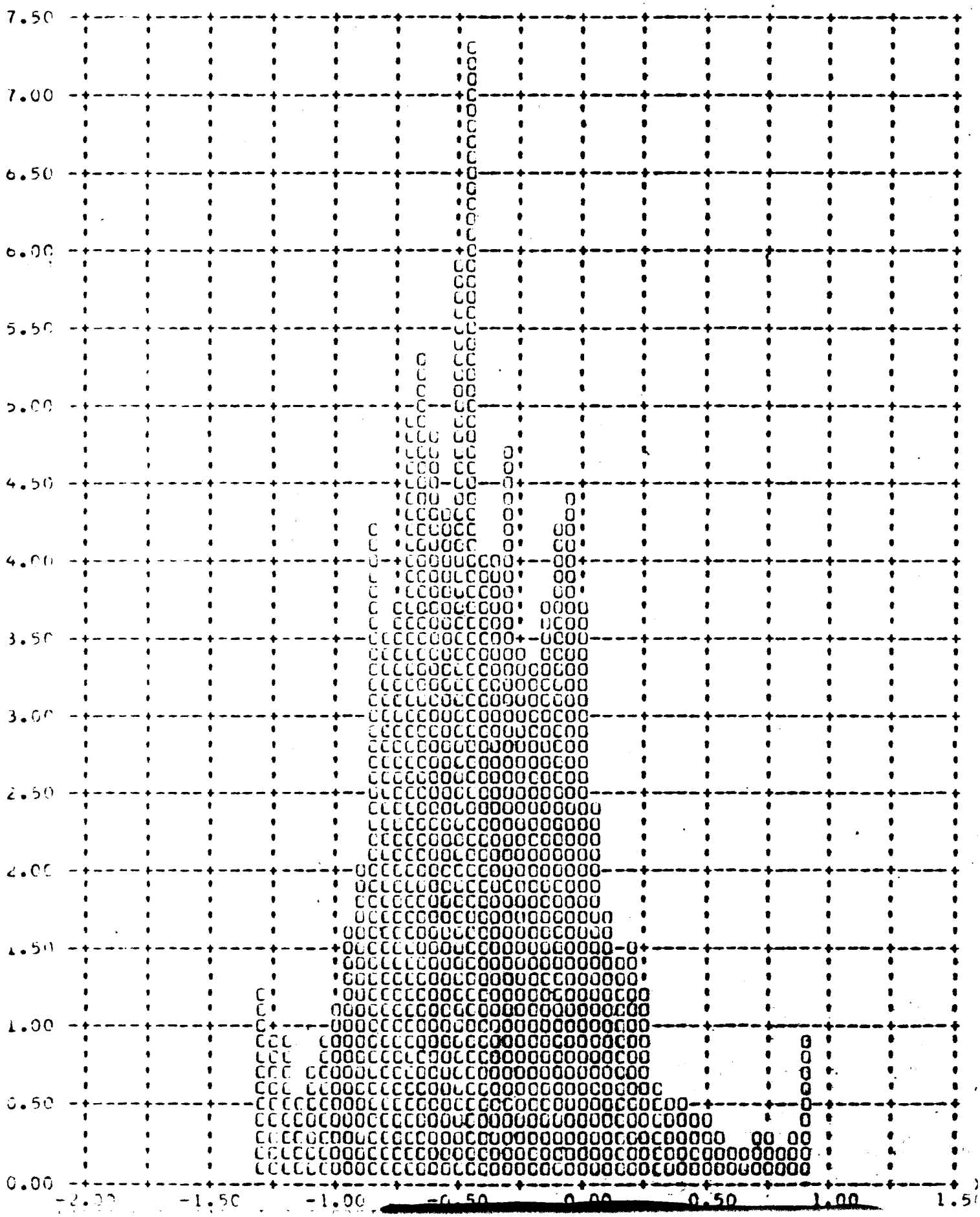


[redacted]

MISSION 1030A1 TOP SECRET [redacted]

1-29 A-BUCKET FORWARD INSTRUME FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 0.89

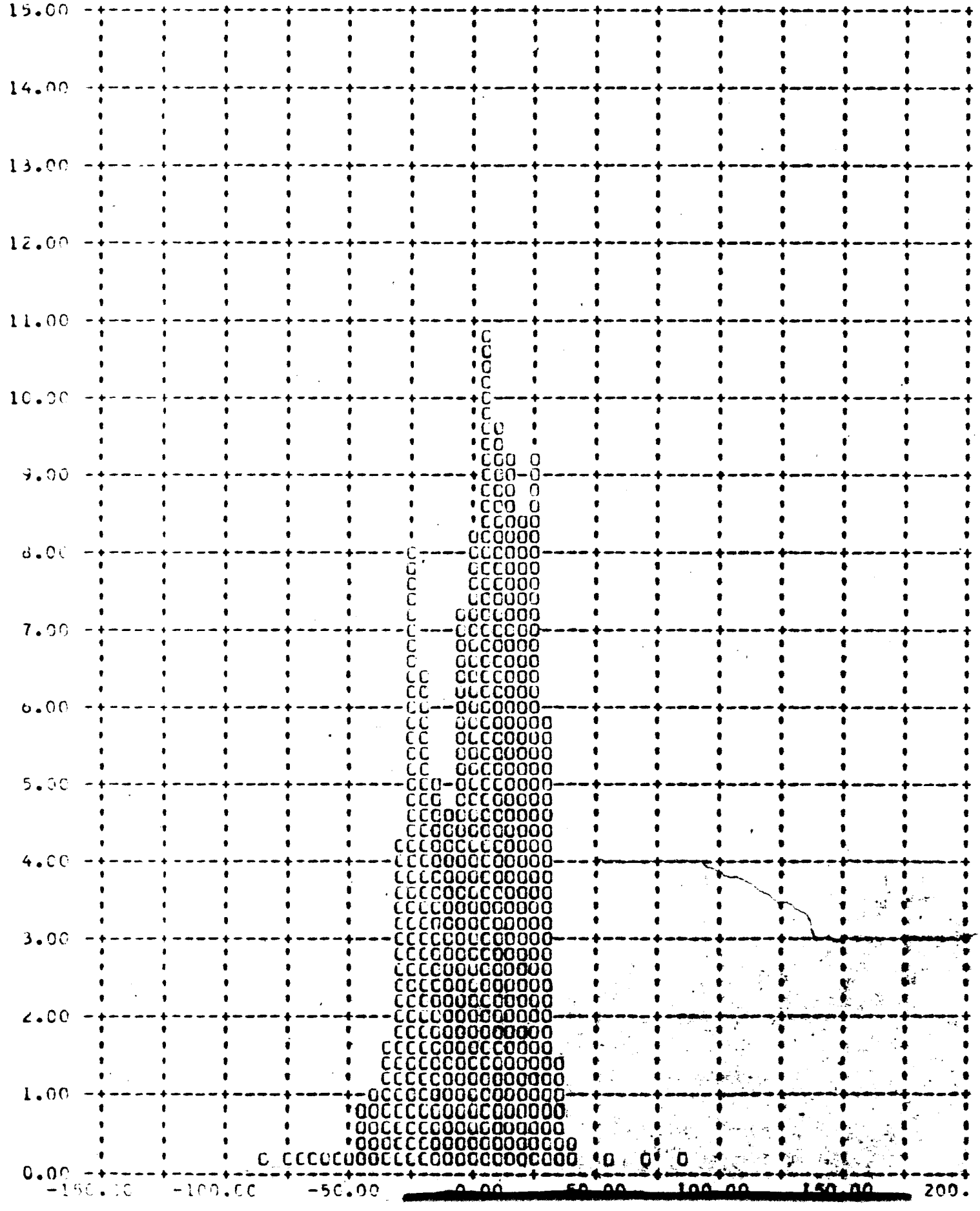
Y YAW ANGLE ERROR - DEGREES (X) VERSUS FREQUENCY - PERCENT (Y)



MISSION 1030A1 ~~TOP SECRET~~ [redacted]

J-29 A-BUCKET FORWARD INSTRUME FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 29.6

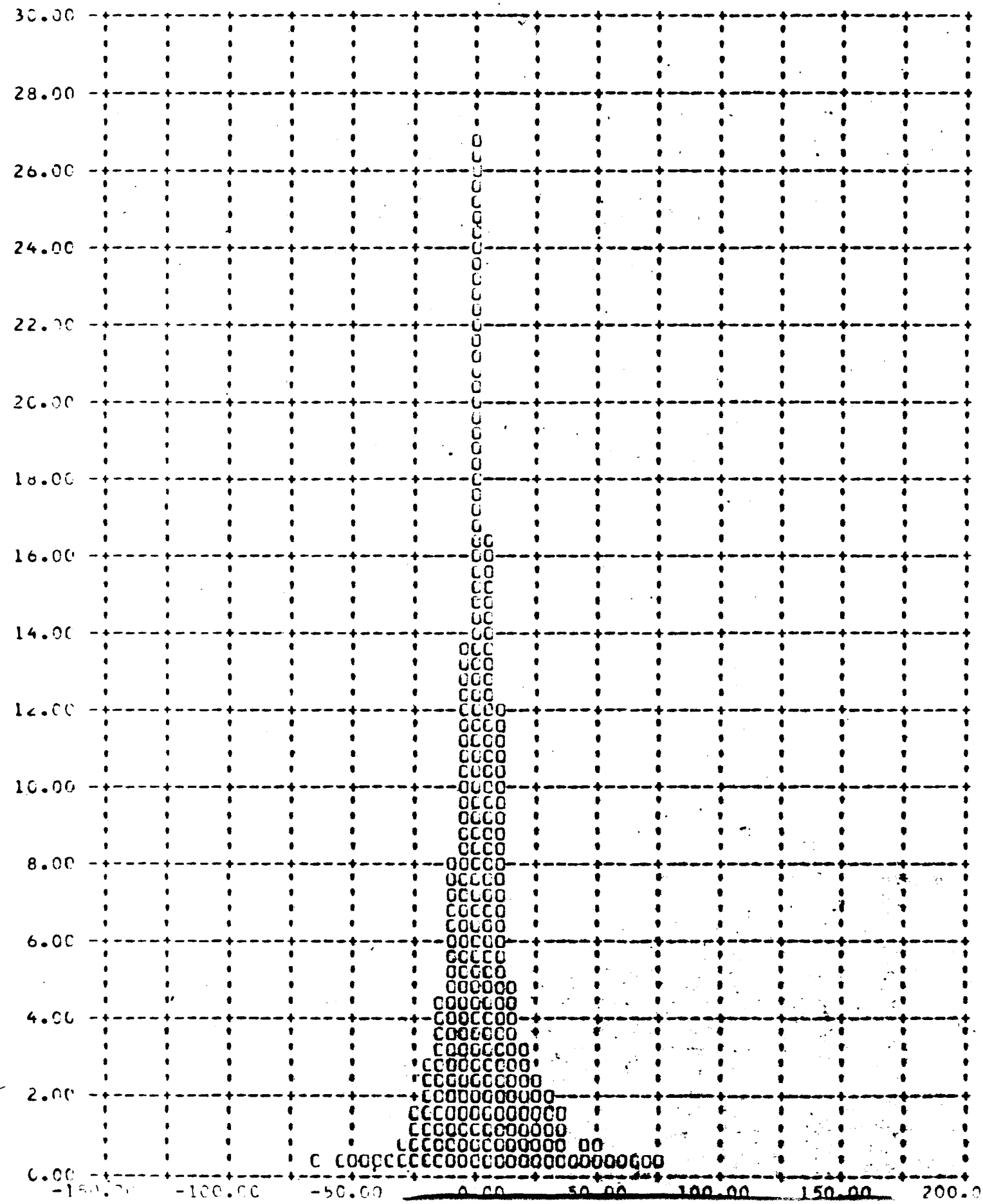
Y PITCH RATE ERROR - DEG/HOUR (X) VERSUS FREQUENCY - PERCENT (Y)



MISSION 1030A1 ~~TOP SECRET~~ [redacted]

1-29 A-POCKET FORWARD INSTRUMF FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 22.70

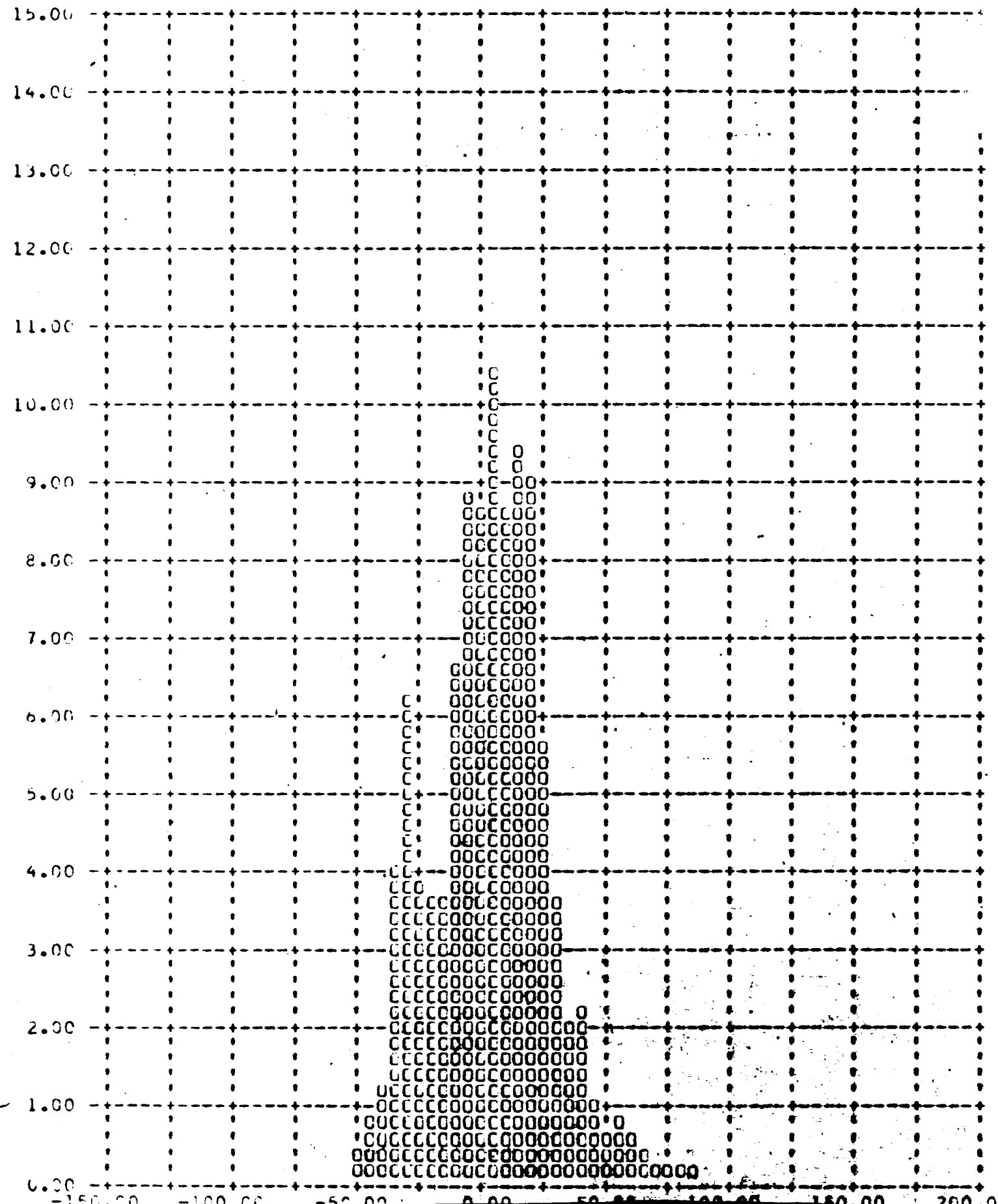
Y ROLL RATE ERROR - DEG/HOUR (X) VERSUS FREQUENCY - PERCENT (Y)



MISSION 1030A1 ~~TOP SECRET~~ [redacted]

J-29 A-ROCKET FORWARD INSTRUME FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 36.0

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

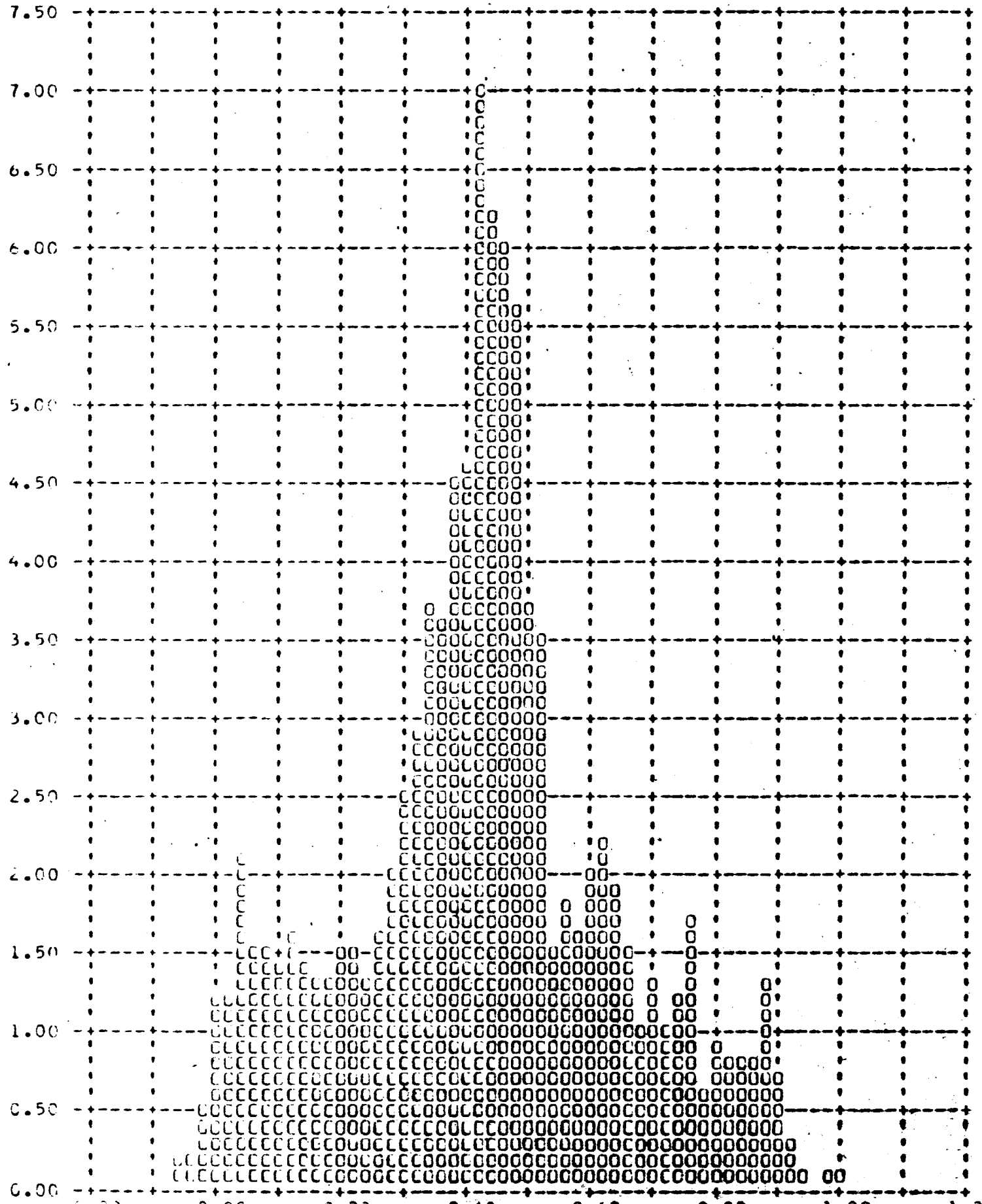


[redacted]

MISSION 10308I ~~TOP SECRET~~ [redacted]

29 B-BUCKET FORWARD INSTRUMEN FRAMES 1-6 OF EACH UP OMITTED 90 PERCENT = 0.70

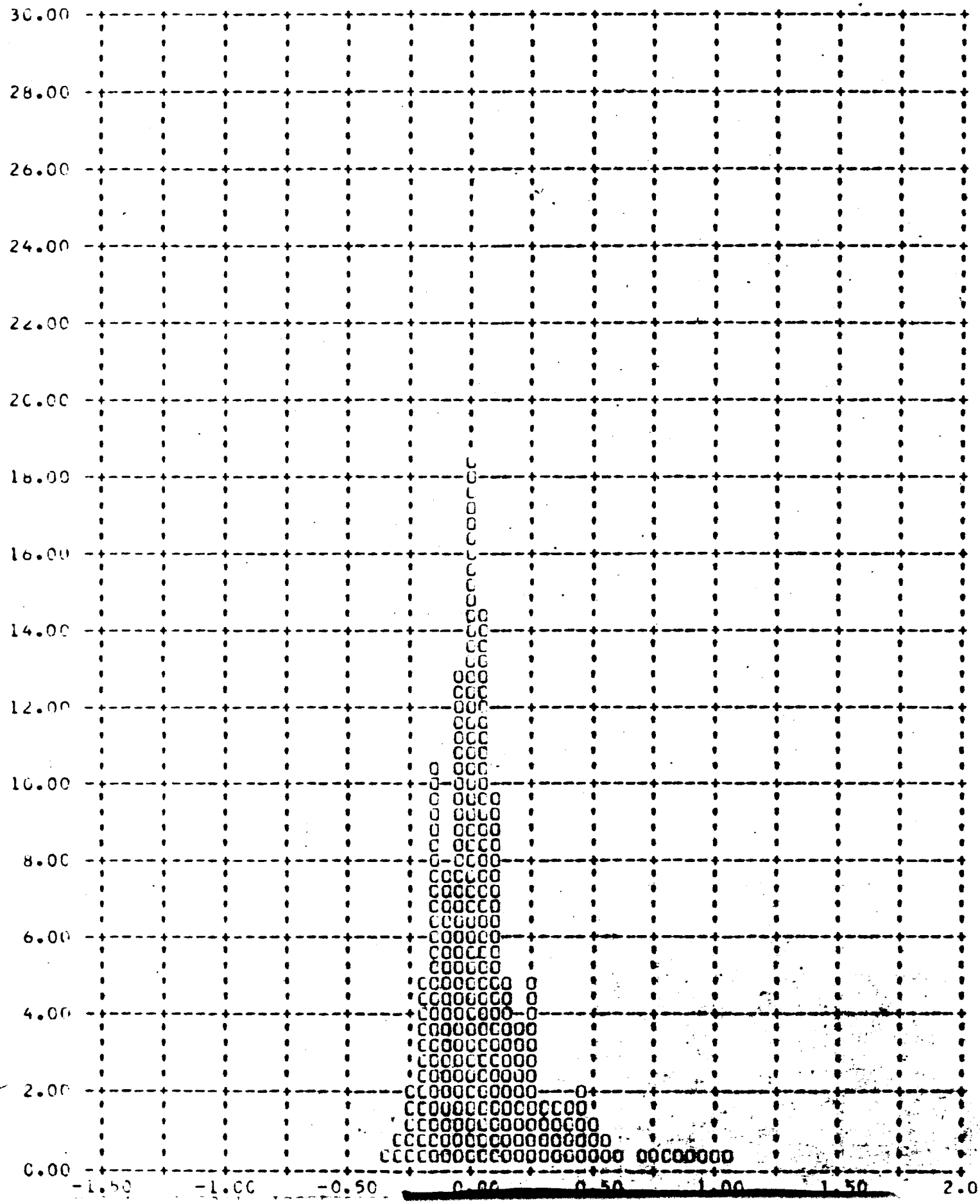
Y PITCH ANGLE ERROR - DEGREES (X) VERSUS FREQUENCY - PERCENT (Y)



MISSION 103061 ~~TOP SECRE~~ [redacted]

29 U-BUCKET FORWARD INSTRUMEN FRAMES 1-6 OF EACH OP OMITTED 90 PERCENT = 0.27

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



[redacted]

[redacted] • INSTRUMENT • FRWD 9/25/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
0	0	0	0	0	0	2	0	0	1	0	0	0
1	0	0	0	0	0	2	0	1	2	0	0	2
2	0	0	0	0	0	2	0	1	2	0	0	3
3	0	0	0	0	0	2	0	1	2	0	0	4
4	0	0	0	0	0	1	0	1	2	0	0	5
5	0	0	0	0	0	2	0	1	2	0	0	6
6	0	0	0	0	0	1	0	1	2	0	0	7
7	0	0	0	0	0	1	0	1	2	0	0	8
8	0	0	0	0	0	1	0	1	2	0	0	9
9	0	0	0	0	0	1	0	1	2	0	0	10
10	0	0	0	0	0	1	0	1	3	0	0	11
11	0	0	0	0	0	1	0	1	3	0	0	12
12	0	0	0	0	0	1	0	1	3	0	0	13
13	0	0	0	0	0	1	0	1	3	0	0	14
14	0	0	0	0	0	1	0	1	3	0	0	15
15	0	0	0	0	0	1	0	1	3	0	0	16
16	0	0	0	0	0	1	0	1	3	0	0	17
17	0	0	0	0	0	1	0	1	3	0	0	18
18	0	0	0	0	0	1	0	1	3	0	0	19
19	0	0	0	0	0	1	0	1	3	0	0	20
20	0	0	0	0	0	1	0	1	3	0	0	21
21	0	0	0	0	0	1	0	1	3	0	0	22
22	0	0	0	0	0	1	0	1	3	0	0	23
23	0	0	0	0	0	1	0	1	3	0	0	24
24	0	0	0	0	0	1	0	1	3	0	0	25
25	0	0	0	0	0	1	0	1	3	0	0	26
26	0	0	0	0	0	1	0	1	3	0	0	27
27	0	0	0	0	0	1	0	1	3	0	0	28
28	0	0	0	0	0	1	0	1	3	0	0	29
29	0	0	0	0	0	1	0	1	3	0	0	30
30	0	0	0	0	0	1	0	1	3	0	0	31
31	0	0	0	0	0	1	0	1	3	0	0	32
32	0	0	0	0	0	1	0	1	3	0	0	33
33	0	0	0	0	0	1	0	1	3	0	0	34
34	0	0	0	0	0	1	0	1	3	0	0	35
35	0	0	0	0	0	1	0	1	3	0	0	36
36	0	0	0	0	0	1	0	1	3	0	0	37
37	0	0	0	0	0	1	0	1	3	0	0	38
38	0	0	0	0	0	1	0	1	3	0	0	39
39	0	0	0	0	0	1	0	1	3	0	0	40
40	0	0	0	0	0	1	0	1	3	0	0	41
41	0	0	0	0	0	1	0	1	3	0	0	42
42	0	0	0	0	0	1	0	1	3	0	0	43
43	0	0	0	0	0	1	0	1	3	0	0	44
44	0	0	0	0	0	1	0	1	3	0	0	45
45	0	0	0	0	0	1	0	1	3	0	0	46
46	0	0	0	0	0	1	0	1	3	0	0	47
47	0	0	0	0	0	1	0	1	3	0	0	48
48	0	0	0	0	0	1	0	1	3	0	0	49
49	0	0	0	0	0	1	0	1	3	0	0	50
50	0	0	0	0	0	1	0	1	3	0	0	51
51	0	0	0	0	0	1	0	1	3	0	0	52
52	0	0	0	0	0	1	0	1	3	0	0	53
53	0	0	0	0	0	1	0	1	3	0	0	54
54	0	0	0	0	0	1	0	1	3	0	0	55
55	0	0	0	0	0	1	0	1	3	0	0	56
56	0	0	0	0	0	1	0	1	3	0	0	57
57	0	0	0	0	0	1	0	1	3	0	0	58
58	0	0	0	0	0	1	0	1	3	0	0	59
59	0	0	0	0	0	1	0	1	3	0	0	60
60	0	0	0	0	0	1	0	1	3	0	0	61
61	0	0	0	0	0	1	0	1	3	0	0	62
62	0	0	0	0	0	1	0	1	3	0	0	63
63	0	0	0	0	0	1	0	1	3	0	0	64
64	0	0	0	0	0	1	0	1	3	0	0	65
65	0	0	0	0	0	1	0	1	3	0	0	66
66	0	0	0	0	0	1	0	1	3	0	0	67
67	0	0	0	0	0	1	0	1	3	0	0	68
68	0	0	0	0	0	1	0	1	3	0	0	69
69	0	0	0	0	0	1	0	1	3	0	0	70
70	0	0	0	0	0	1	0	1	3	0	0	71
71	0	0	0	0	0	1	0	1	3	0	0	72
72	0	0	0	0	0	1	0	1	3	0	0	73
73	0	0	0	0	0	1	0	1	3	0	0	74
74	0	0	0	0	0	1	0	1	3	0	0	75
75	0	0	0	0	0	1	0	1	3	0	0	76
76	0	0	0	0	0	1	0	1	3	0	0	77
77	0	0	0	0	0	1	0	1	3	0	0	78
78	0	0	0	0	0	1	0	1	3	0	0	79
79	0	0	0	0	0	1	0	1	3	0	0	80
80	0	0	0	0	0	1	0	1	3	0	0	81
81	0	0	0	0	0	1	0	1	3	0	0	82
82	0	0	0	0	0	1	0	1	3	0	0	83
83	0	0	0	0	0	1	0	1	3	0	0	84
84	0	0	0	0	0	1	0	1	3	0	0	85
85	0	0	0	0	0	1	0	1	3	0	0	86
86	0	0	0	0	0	1	0	1	3	0	0	87
87	0	0	0	0	0	1	0	1	3	0	0	88
88	0	0	0	0	0	1	0	1	3	0	0	89
89	0	0	0	0	0	1	0	1	3	0	0	90
90	0	0	0	0	0	1	0	1	3	0	0	91
91	0	0	0	0	0	1	0	1	3	0	0	92
92	0	0	0	0	0	1	0	1	3	0	0	93
93	0	0	0	0	0	1	0	1	3	0	0	94
94	0	0	0	0	0	1	0	1	3	0	0	95
95	0	0	0	0	0	1	0	1	3	0	0	96
96	0	0	0	0	0	1	0	1	3	0	0	97
97	0	0	0	0	0	1	0	1	3	0	0	98
98	0	0	0	0	0	1	0	1	3	0	0	99
99	0	0	0	0	0	1	0	1	3	0	0	100
100	0	0	0	0	0	1	0	1	3	0	0	101
101	0	0	0	0	0	1	0	1	3	0	0	102
102	0	0	0	0	0	1	0	1	3	0	0	103
103	0	0	0	0	0	1	0	1	3	0	0	104
104	0	0	0	0	0	1	0	1	3	0	0	105
105	0	0	0	0	0	1	0	1	3	0	0	106
106	0	0	0	0	0	1	0	1	3	0	0	107
107	0	0	0	0	0	1	0	1	3	0	0	108
108	0	0	0	0	0	1	0	1	3	0	0	109
109	0	0	0	0	0	1	0	1	3	0	0	110
110	0	0	0	0	0	1	0	1	3	0	0	111
111	0	0	0	0	0	1	0	1	3	0	0	112
112	0	0	0	0	0	1	0	1	3	0	0	113
113	0	0	0	0	0	1	0	1	3	0	0	114
114	0	0	0	0	0	1	0	1	3	0	0	115
115	0	0	0	0	0	1	0	1	3	0	0	116
116	0	0	0	0	0	1	0	1	3	0	0	117
117	0	0	0	0	0	1	0	1	3	0	0	118
118	0	0	0	0	0	1	0	1	3	0	0	119
119	0	0	0	0	0	1	0	1	3	0	0	120
120	0	0	0	0	0	1	0	1	3	0	0	121
121	0	0	0	0	0	1	0	1	3	0	0	122
TOTAL	0	0	0	22	46	122	0	28	76	0	50	122

[redacted]

Table A-1

[redacted]

MISSION * 1230-1 * INSTRUMENT * FRWD 8/25/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
[illegible]												
SUBTOTAL												
TOTAL	1	2	2	127	127	102	117	117	106	246	246	210

MISSION 1230-1 INSTR - FRWD 8/25/66 PROCESSING AND EXPOSURE ANALYSIS

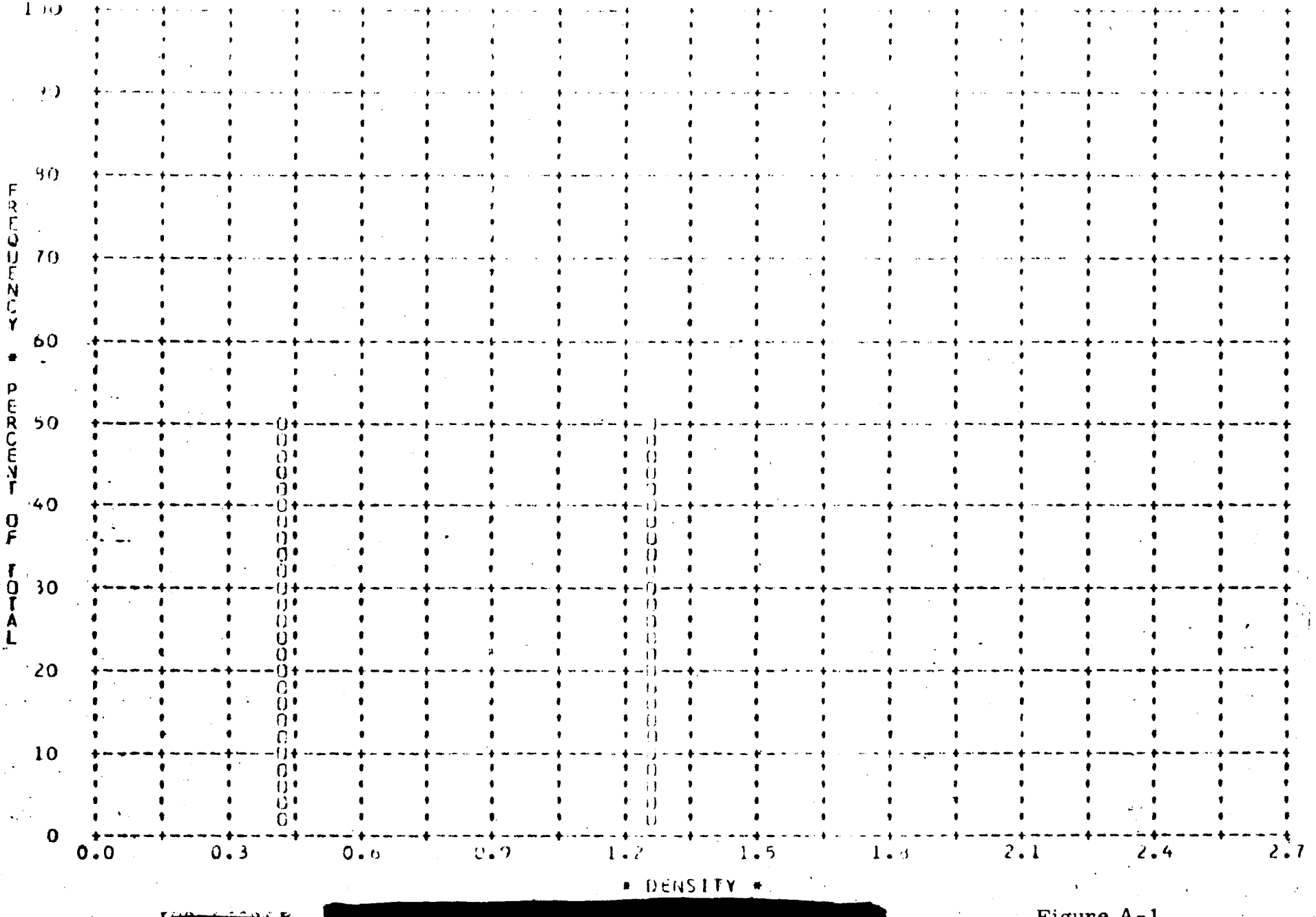
PROCESS LEVEL	SAMPLE SIZE	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	1	0 PC	0 PC	50 PC	0 PC	50 PC
INTERMEDIATE	127	3 PC	6 PC	59 PC	27 PC	3 PC
FULL	117	4 PC	0 PC	62 PC	29 PC	1 PC
ALL LEVELS	246	4 PC	3 PC	61 PC	28 PC	5 PC

PROCESS LEVEL	MIN	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	0.01-0.19	0.01-0.13	0.14-0.39	0.40-0.90	----------	0.91 AND UP
INTERMEDIATE	0.12-0.17	0.01-0.25	0.21-0.49	0.41-0.90	0.91-1.44	1.05 AND UP
FULL	0.21 AND UP	0.01-0.49	----------	0.40-0.90	0.91-1.69	1.70 AND UP

[redacted]

Table A-1

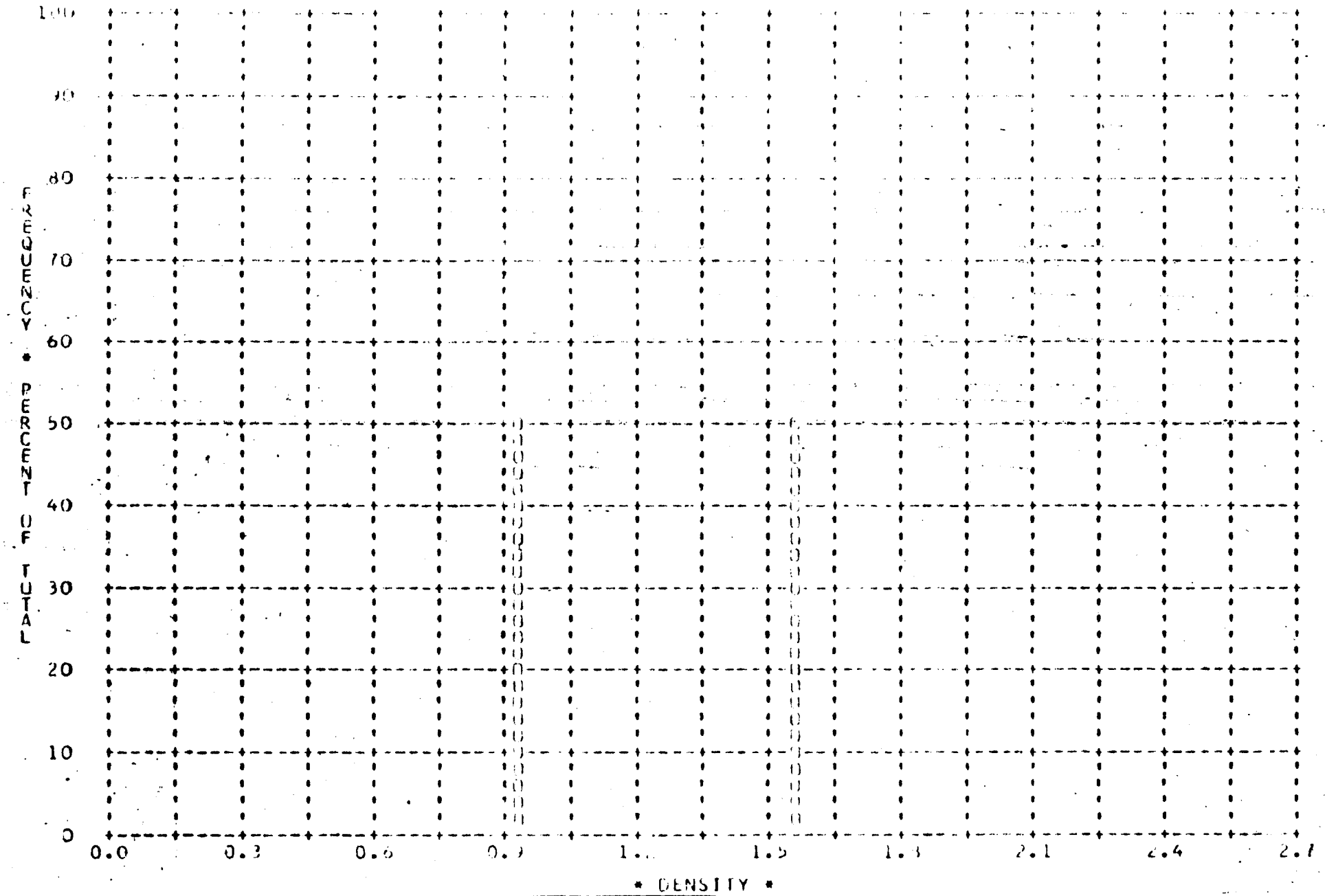
[redacted]



[redacted]

Figure A-1

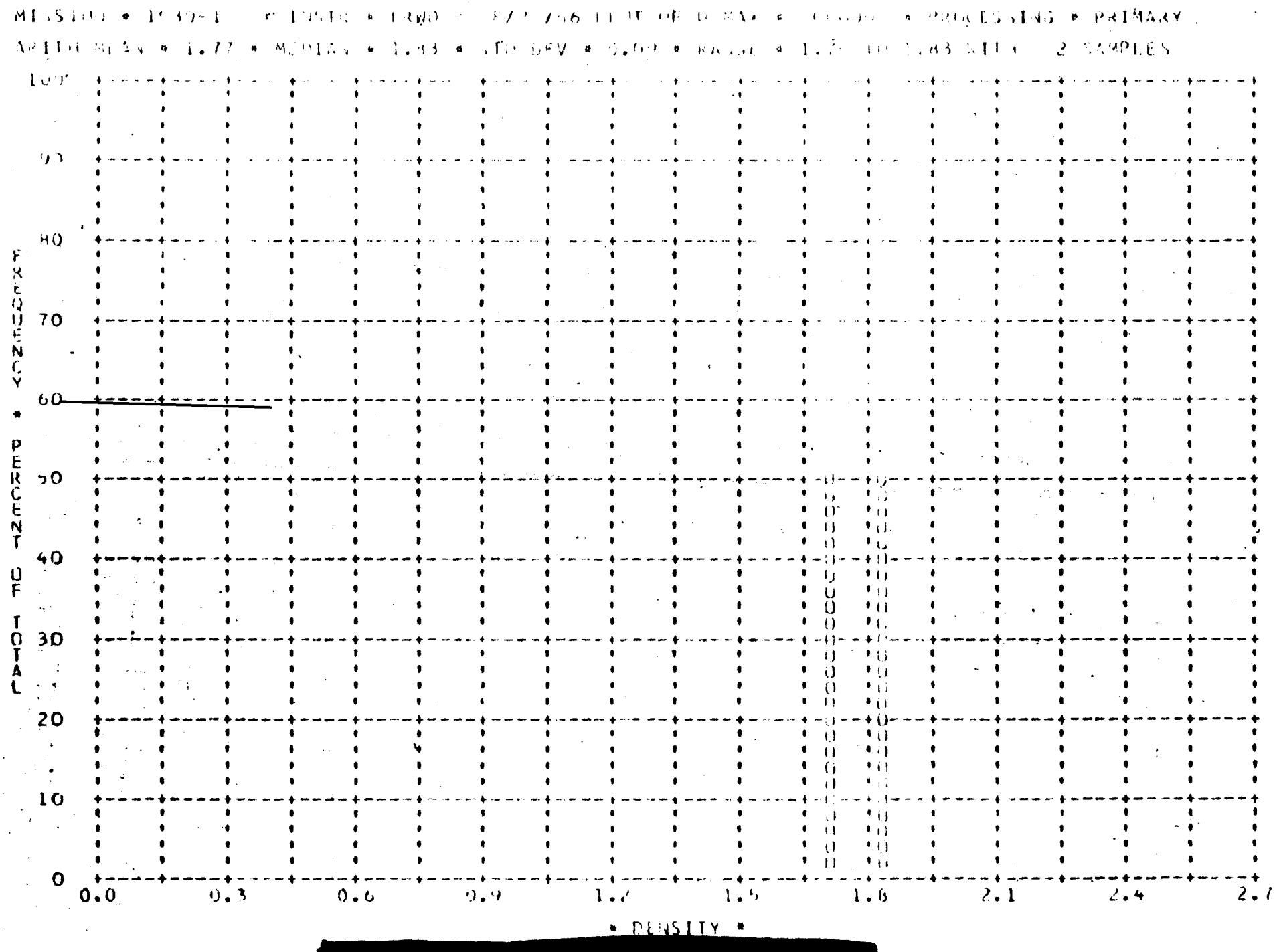
[redacted]



~~TOP SECRET~~ [redacted]

Figure A-2

[redacted]



[redacted]

Figure A-3

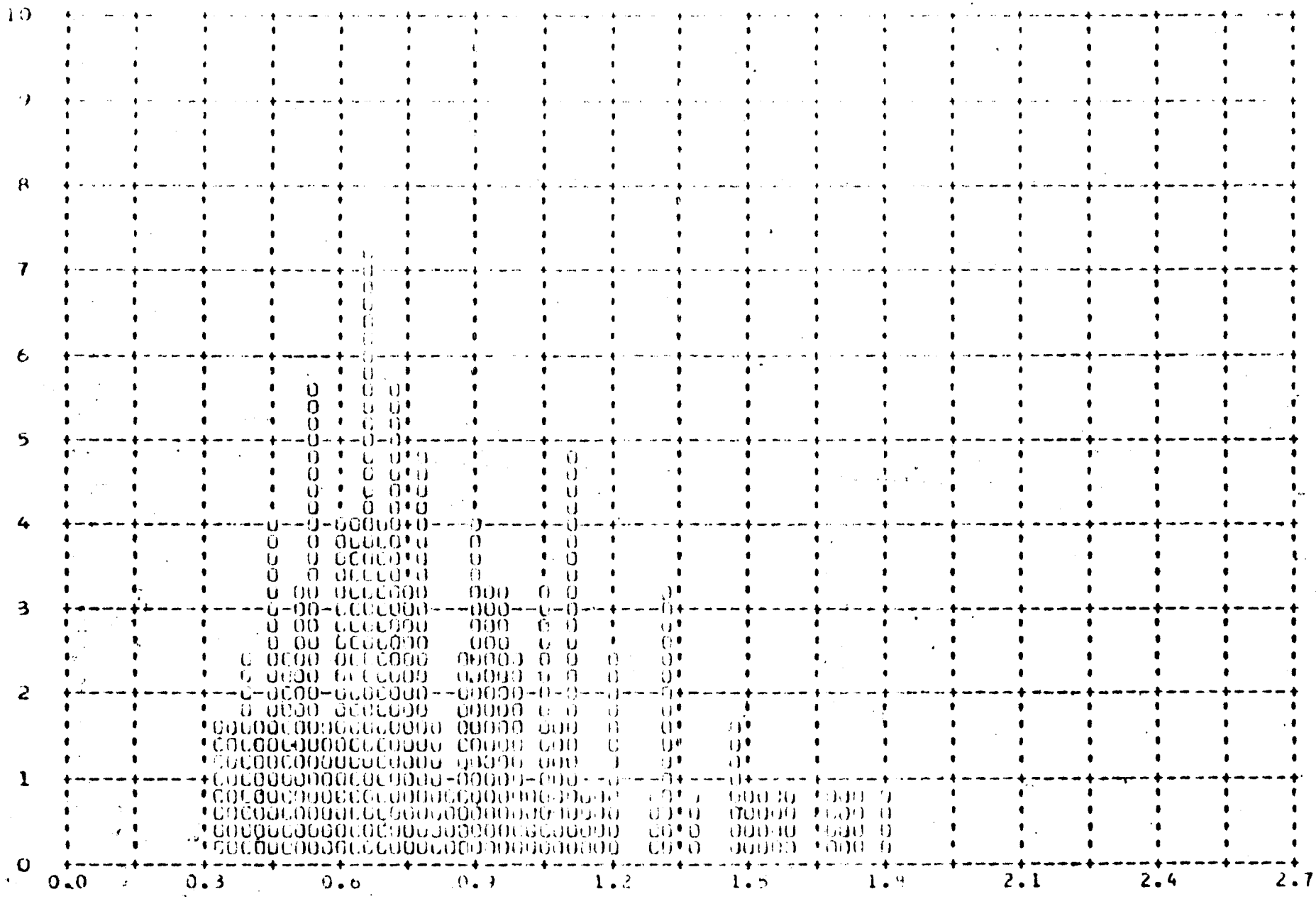
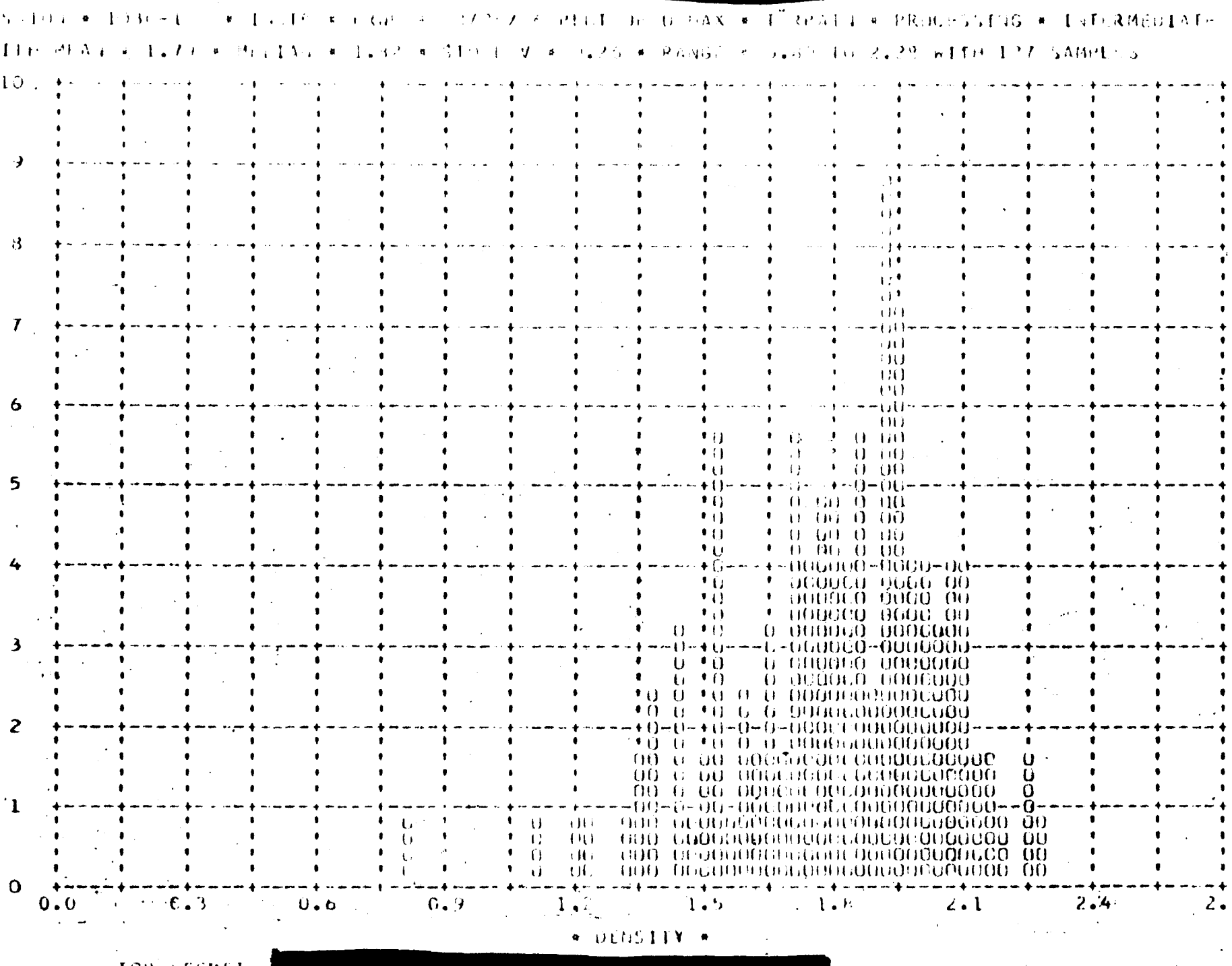

FREQUENCY * PERCENT OF TOTAL
10
9
8
7
6
5
4
3
2
1
0
0.0
0.3
0.6
0.9
1.2
1.5
1.8
2.1
2.4
2.7
* DENSITY *

Figure A-4

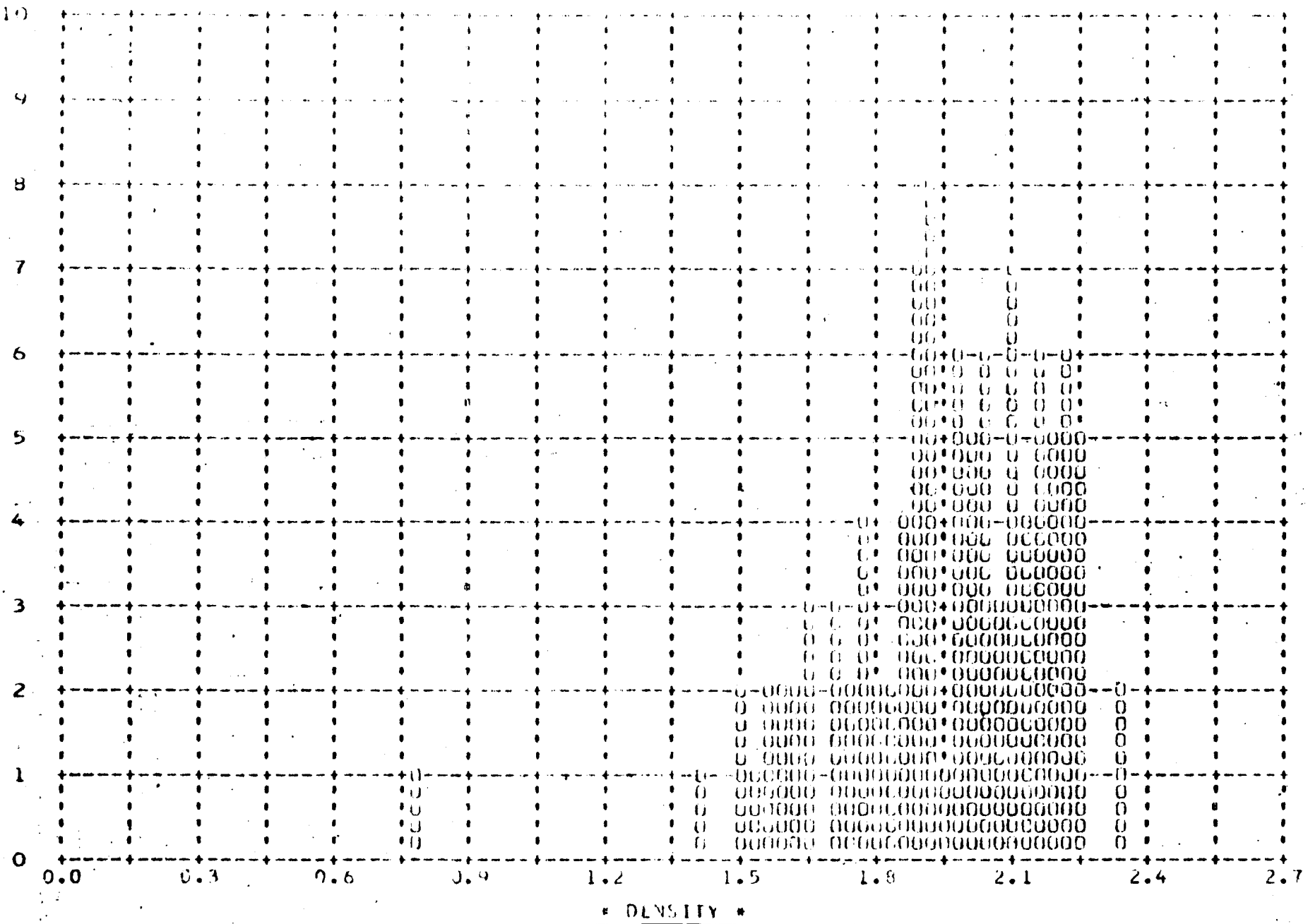
[redacted]



[redacted]

Figure A-5

[redacted]



[redacted]

Figure A-6

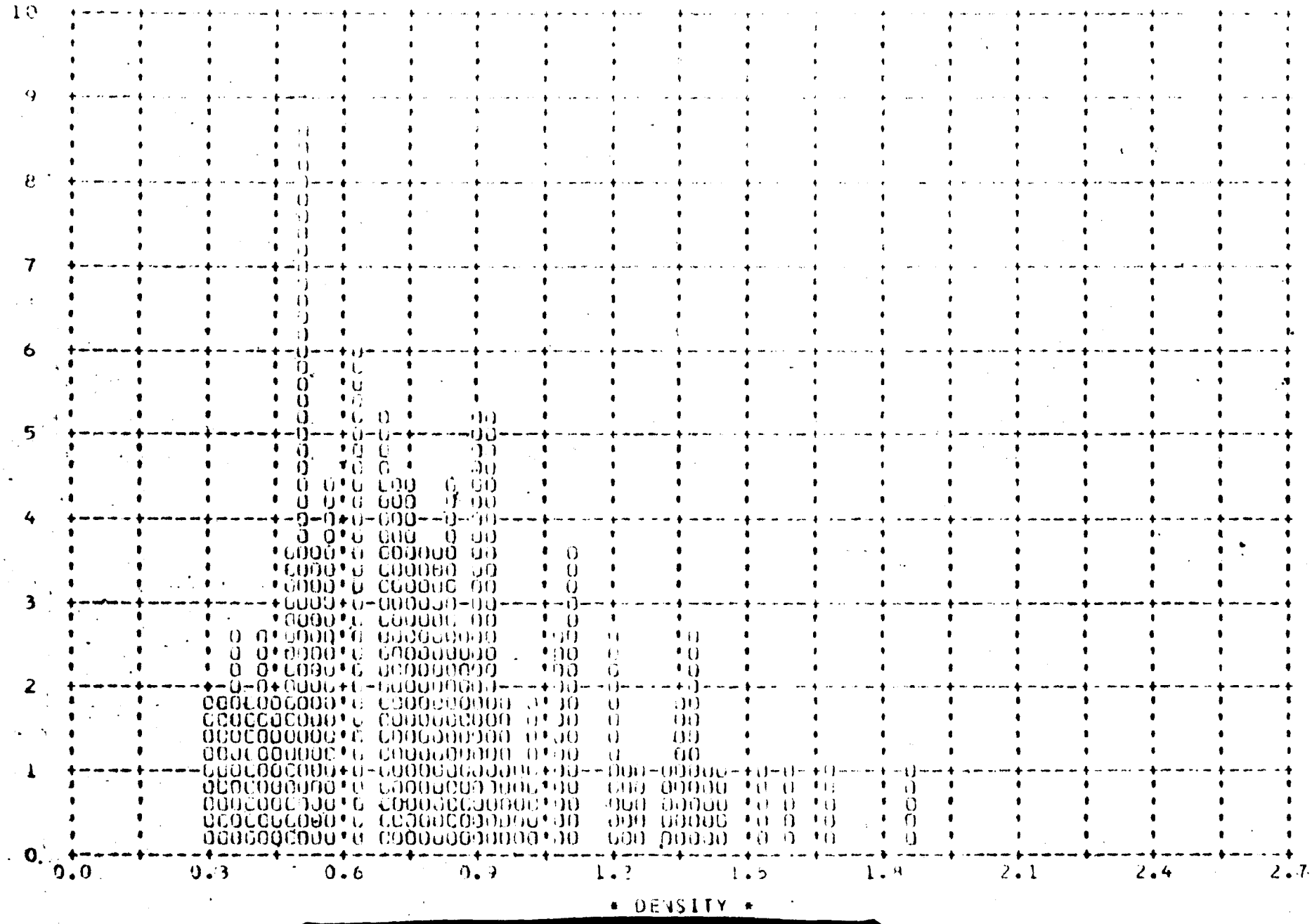

FREQUENCY • PERCENT OF TOTAL
10
9
8
7
6
5
4
3
2
1
0.
0.0
0.3
0.6
0.9
1.2
1.5
1.8
2.1
2.4
2.7
• DENSITY •

Figure A-7

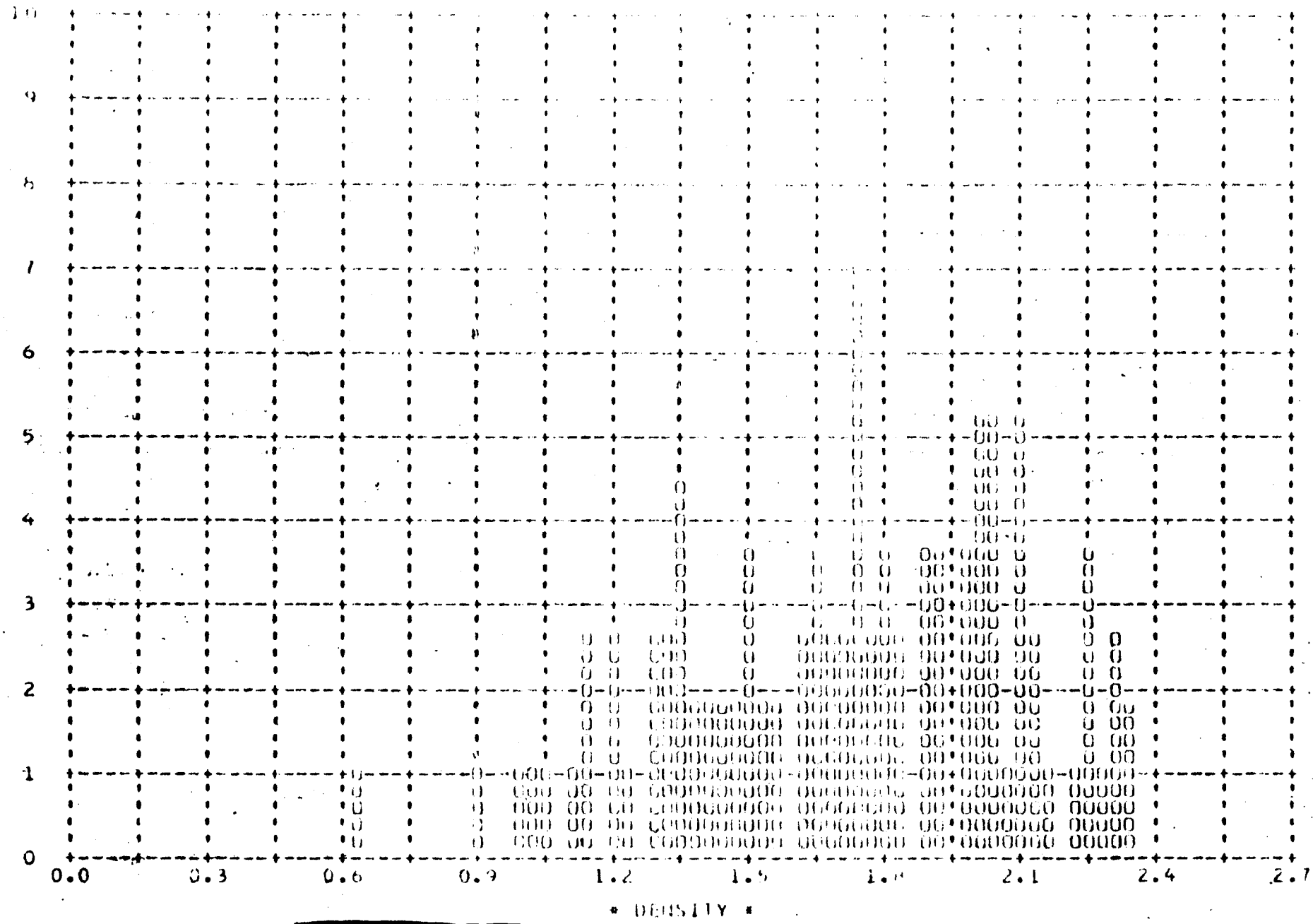

FREQUENCY * PERCENT OF TOTAL
* DENSITY *
0.0
0.3
0.6
0.9
1.2
1.5
1.8
2.1
2.4
2.7
0
1
2
3
4
5
6
7
8
9
10

Figure A-8

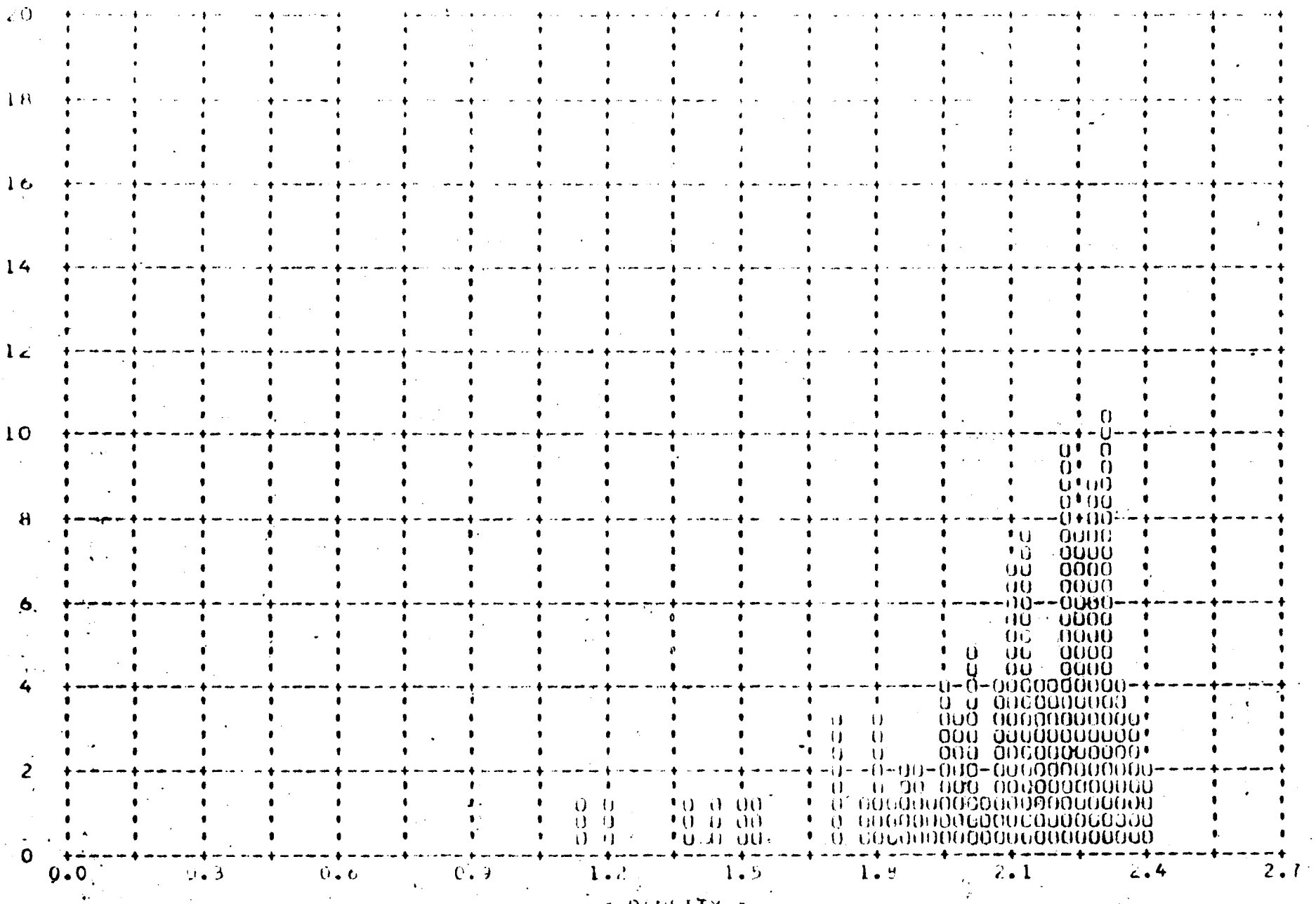

FREQUENCY • PERCENT OF TOTAL
20
18
16
14
12
10
8
6
4
2
0
0.0
0.3
0.6
0.9
1.2
1.5
1.9
2.1
2.4
2.7
• DENSITY •

Figure A-9

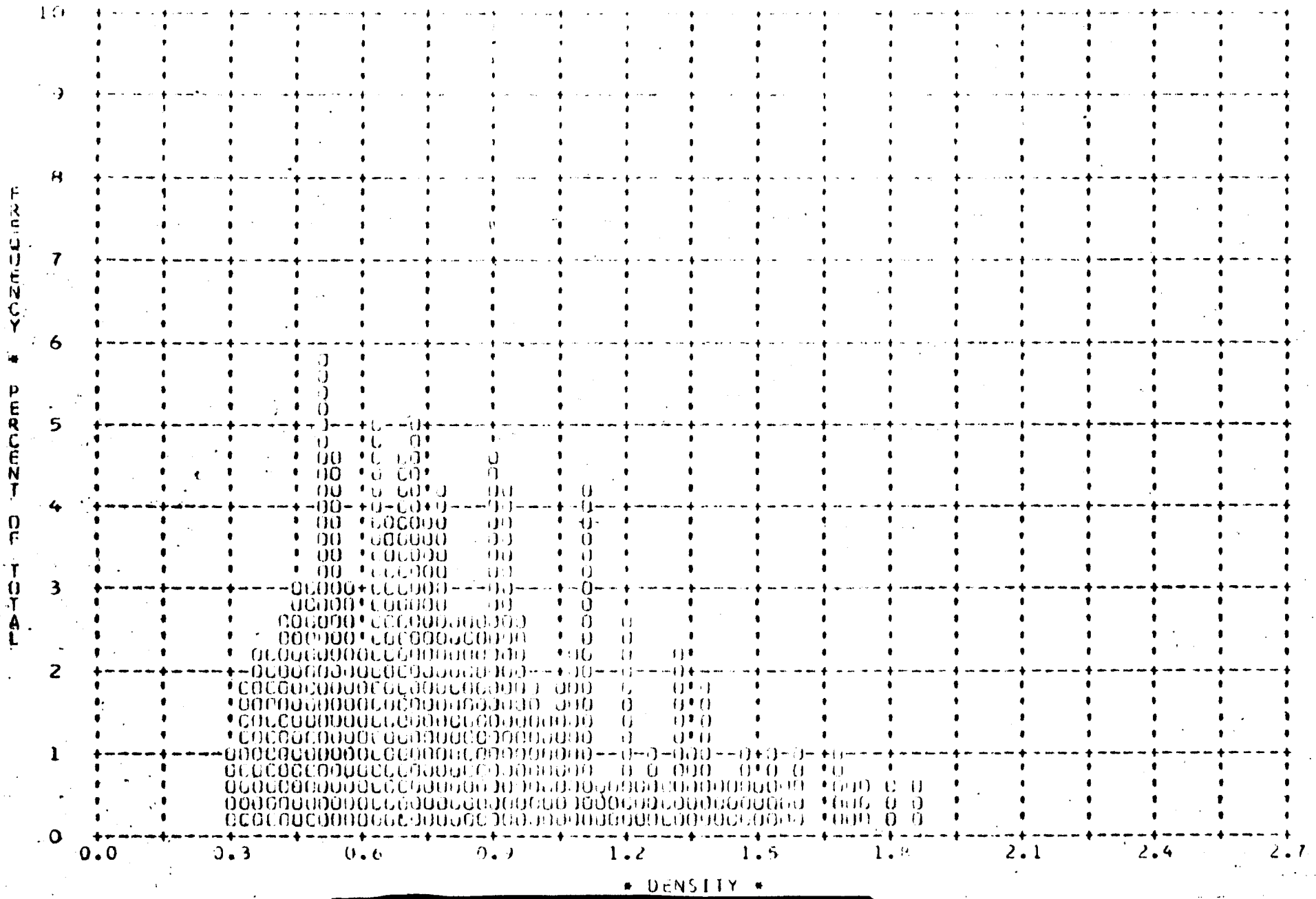
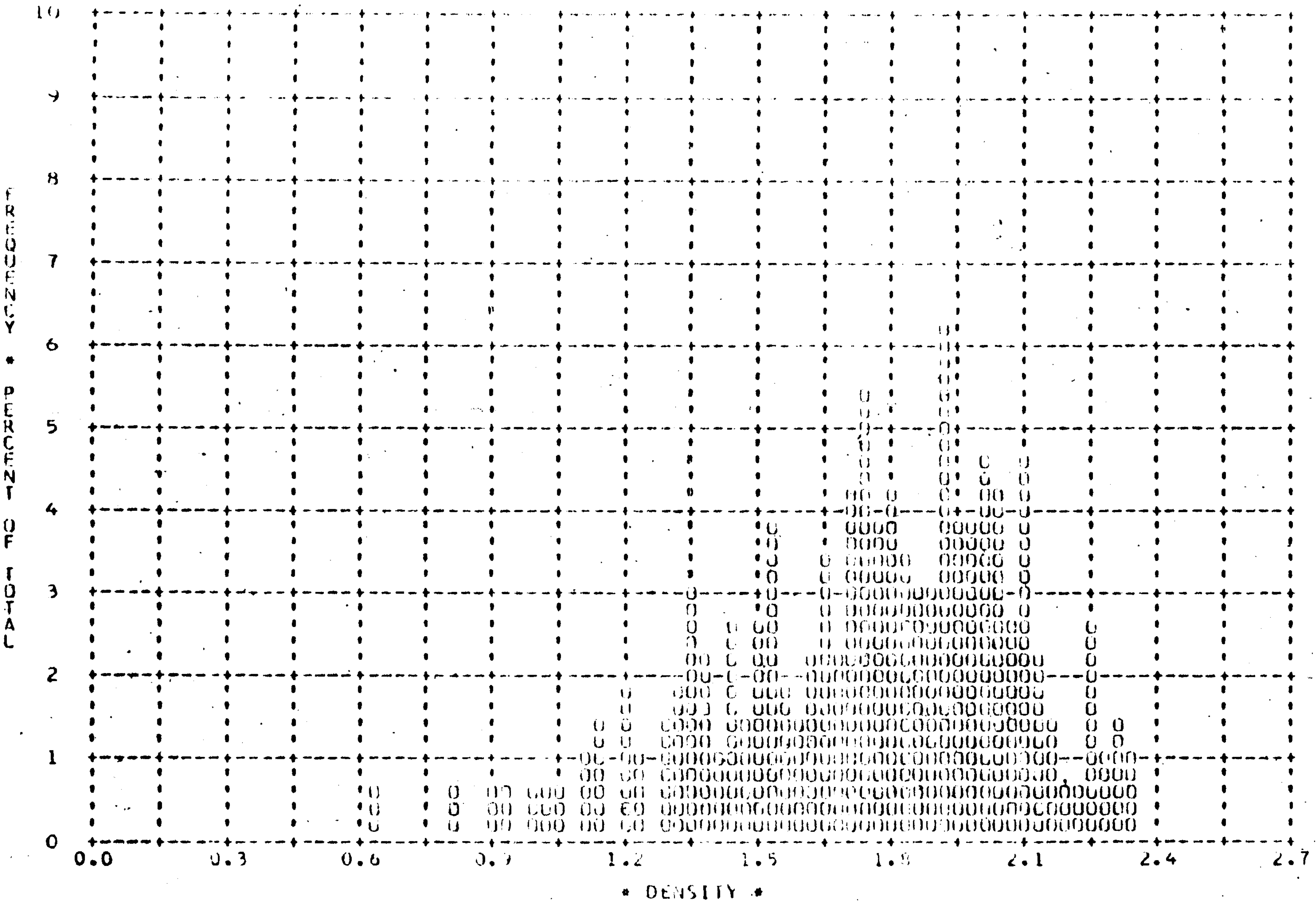

FREQUENCY * PERCENT OF TOTAL
* DENSITY *
0.0
0.3
0.6
0.9
1.2
1.5
1.8
2.1
2.4
2.7
0
1
2
3
4
5
6
7
8
9
10

Figure A-10

[redacted]

MISSION * 1030-1 ... PROCESSING * ALL LEVEL

ARITH MEAN * 1.7... * MEDIAN * 1.7... * RANGE * ... WITH 246 SAMPLES



[redacted]

Figure A-11

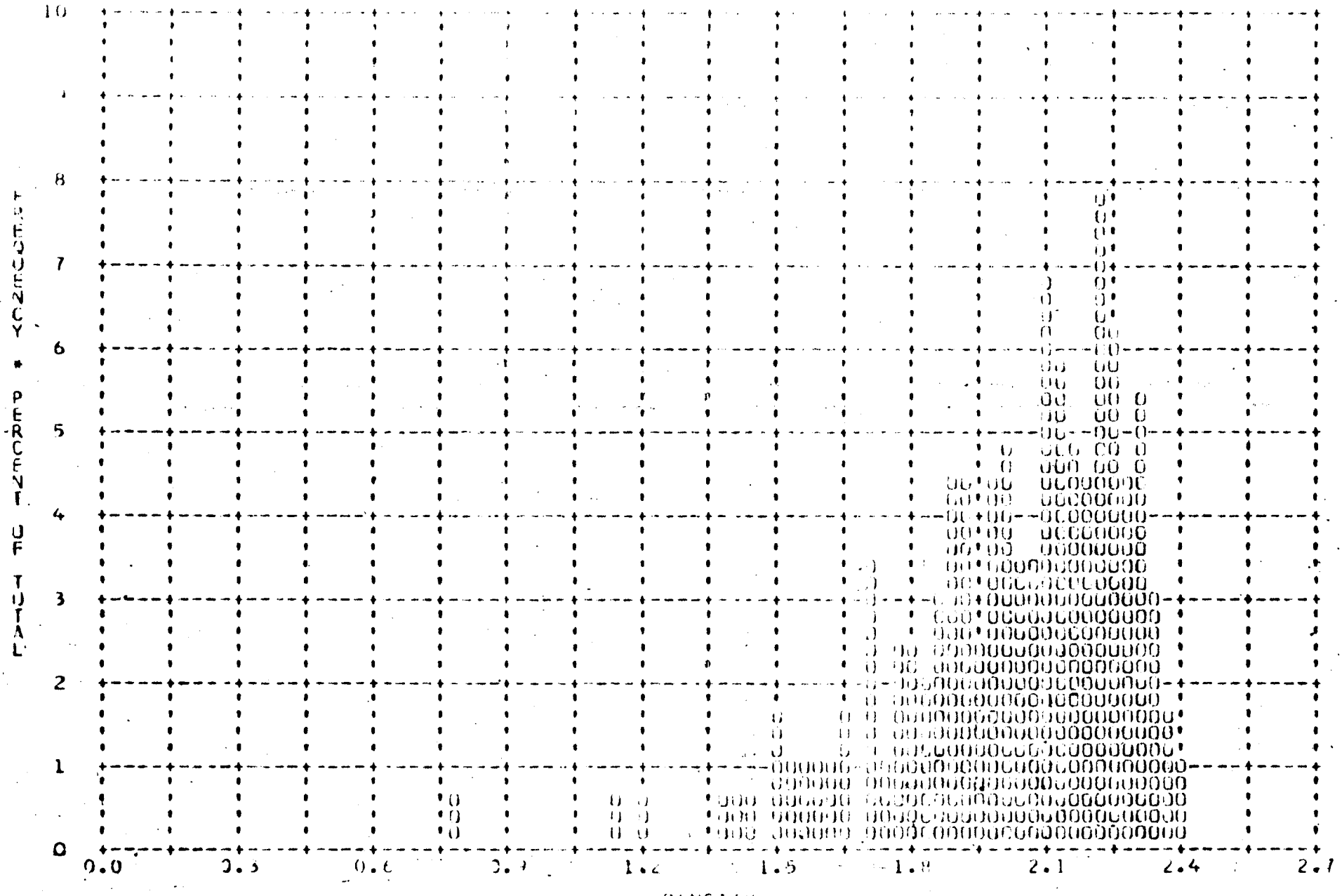


Figure A-12

[redacted]

[redacted] • INSTRUMENT • AFT 8/25/66 DENSITY FREQ DISTR

VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS 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	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	0	0	0	0	0	0	0
0.32	0	0	0	0	0	0	0	0	0	0	0	0
0.33	0	0	0	0	0	0	0	0	0	0	0	0
0.34	0	0	0	0	0	0	0	0	0	0	0	0
0.35	0	0	0	0	0	0	0	0	0	0	0	0
0.36	0	0	0	0	0	0	0	0	0	0	0	0
0.37	0	0	0	0	0	0	0	0	0	0	0	0
0.38	0	0	0	0	0	0	0	0	0	0	0	0
0.39	0	0	0	0	0	0	0	0	0	0	0	0
0.40	0	0	0	0	0	0	0	0	0	0	0	0
0.41	0	0	0	0	0	0	0	0	0	0	0	0
0.42	0	0	0	0	0	0	0	0	0	0	0	0
0.43	0	0	0	0	0	0	0	0	0	0	0	0
0.44	0	0	0	0	0	0	0	0	0	0	0	0
0.45	0	0	0	0	0	0	0	0	0	0	0	0
0.46	0	0	0	0	0	0	0	0	0	0	0	0
0.47	0	0	0	0	0	0	0	0	0	0	0	0
0.48	0	0	0	0	0	0	0	0	0	0	0	0
0.49	0	0	0	0	0	0	0	0	0	0	0	0
0.50	0	0	0	0	0	0	0	0	0	0	0	0
0.51	0	0	0	0	0	0	0	0	0	0	0	0
0.52	0	0	0	0	0	0	0	0	0	0	0	0
0.53	0	0	0	0	0	0	0	0	0	0	0	0
0.54	0	0	0	0	0	0	0	0	0	0	0	0
0.55	0	0	0	0	0	0	0	0	0	0	0	0
0.56	0	0	0	0	0	0	0	0	0	0	0	0
0.57	0	0	0	0	0	0	0	0	0	0	0	0
0.58	0	0	0	0	0	0	0	0	0	0	0	0
0.59	0	0	0	0	0	0	0	0	0	0	0	0
0.60	0	0	0	0	0	0	0	0	0	0	0	0
0.61	0	0	0	0	0	0	0	0	0	0	0	0
0.62	0	0	0	0	0	0	0	0	0	0	0	0
0.63	0	0	0	0	0	0	0	0	0	0	0	0
0.64	0	0	0	0	0	0	0	0	0	0	0	0
0.65	0	0	0	0	0	0	0	0	0	0	0	0
0.66	0	0	0	0	0	0	0	0	0	0	0	0
0.67	0	0	0	0	0	0	0	0	0	0	0	0
0.68	0	0	0	0	0	0	0	0	0	0	0	0
0.69	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0
0.75	0	0	0	0	0	0	0	0	0	0	0	0
0.76	0	0	0	0	0	0	0	0	0	0	0	0
0.77	0	0	0	0	0	0	0	0	0	0	0	0
0.78	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	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	0	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	44	0	0	8	0	0	52	0	0

[redacted]

Table A-2

[redacted]

MISSION * 1036-A * INSTRUMENT * AFT 6/25/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
.51	0	0	0	2	0	0	0	0	0	2	0	0
.52	0	0	0	2	0	0	0	0	0	1	0	0
.53	0	0	0	2	0	0	0	0	0	2	0	0
.54	0	0	0	4	0	0	0	0	0	4	0	0
.55	0	0	0	7	0	0	2	0	0	9	0	0
.56	0	0	0	5	0	0	1	0	0	6	0	0
.57	0	0	0	5	0	0	0	0	0	5	0	0
.58	0	0	0	2	0	0	1	0	0	3	0	0
.59	0	0	0	3	0	0	1	0	0	4	0	0
.60	0	0	0	5	0	0	1	0	0	6	0	0
.61	0	0	0	3	0	0	1	0	0	4	0	0
.62	0	0	0	2	0	0	1	0	0	3	0	0
.63	0	0	0	3	0	0	1	0	0	4	0	0
.64	0	0	0	4	0	0	4	0	0	8	0	0
.65	0	0	0	3	0	0	0	0	0	3	0	0
.66	0	0	0	1	0	0	3	0	0	4	0	0
.67	0	0	0	1	0	0	1	0	0	2	0	0
.68	0	0	0	1	0	0	1	0	0	2	0	0
.69	0	0	0	1	0	0	1	0	0	2	0	0
.70	0	0	0	1	0	0	1	0	0	2	0	0
.71	0	0	0	0	0	0	1	0	0	1	0	0
.72	0	0	0	0	0	0	2	0	0	2	0	0
.73	0	0	0	0	0	0	1	0	0	1	0	0
.74	0	0	0	0	0	0	2	0	0	2	0	0
.75	0	0	0	0	0	0	1	0	0	1	0	0
.76	0	0	0	0	0	0	2	0	0	2	0	0
.77	0	0	0	0	0	0	1	0	0	1	0	0
.78	0	0	0	0	0	0	2	0	0	2	0	0
.79	0	0	0	0	0	0	1	0	0	1	0	0
.80	0	0	0	0	0	0	2	0	0	2	0	0
.81	0	0	0	0	0	0	1	0	0	1	0	0
.82	0	0	0	0	0	0	2	0	0	2	0	0
.83	0	0	0	0	0	0	1	0	0	1	0	0
.84	0	0	0	0	0	0	2	0	0	2	0	0
.85	0	0	0	0	0	0	1	0	0	1	0	0
.86	0	0	0	0	0	0	2	0	0	2	0	0
.87	0	0	0	0	0	0	1	0	0	1	0	0
.88	0	0	0	0	0	0	2	0	0	2	0	0
.89	0	0	0	0	0	0	1	0	0	1	0	0
.90	0	0	0	0	0	0	2	0	0	2	0	0
.91	0	0	0	0	0	0	1	0	0	1	0	0
.92	0	0	0	0	0	0	2	0	0	2	0	0
.93	0	0	0	0	0	0	1	0	0	1	0	0
.94	0	0	0	0	0	0	2	0	0	2	0	0
.95	0	0	0	0	0	0	1	0	0	1	0	0
.96	0	0	0	0	0	0	2	0	0	2	0	0
.97	0	0	0	0	0	0	1	0	0	1	0	0
.98	0	0	0	0	0	0	2	0	0	2	0	0
.99	0	0	0	0	0	0	1	0	0	1	0	0
1.00	0	0	0	0	0	0	2	0	0	2	0	0
TOTAL	0	0	0	100	5	1	47	0	0	147	5	1

[redacted]

Table A-2

TOP SECRET [redacted]

MISSION • 1[illegible]30-[illegible] • INSTRUMENT • AFT 8/25/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
1.01	0	0	0	1	0	0	0	0	0	1	0	0
1.02	0	0	0	2	0	0	0	0	0	2	0	0
1.03	0	0	0	2	0	0	1	0	0	3	0	0
1.04	0	0	0	1	0	0	1	0	0	2	0	0
1.05	0	0	0	1	1	0	0	0	0	1	1	0
1.06	0	0	0	1	0	0	0	0	0	1	0	0
1.07	0	0	0	0	0	0	1	0	0	1	0	0
1.08	0	0	0	0	1	1	0	0	0	0	1	1
1.09	0	0	0	0	0	0	0	0	0	0	0	0
1.10	0	0	0	2	1	1	1	0	0	3	1	1
1.11	0	0	0	0	1	0	1	0	0	1	1	0
1.12	0	0	0	0	0	0	1	0	0	1	0	0
1.13	0	0	0	0	0	0	1	0	0	1	0	0
1.14	0	0	0	0	0	0	0	0	0	0	0	0
1.15	0	0	0	0	0	1	0	2	0	0	2	1
1.16	0	0	0	1	0	0	0	0	0	1	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	1	0	0	0	3	1	1	3	1
1.21	0	0	0	0	1	0	0	0	1	0	1	1
1.22	0	0	0	0	1	0	1	1	0	1	2	0
1.23	0	0	0	1	0	1	0	0	0	1	0	1
1.24	0	0	0	0	3	0	0	0	0	0	3	0
1.25	0	0	0	0	2	0	0	2	0	0	4	0
1.26	0	0	0	1	0	1	1	0	0	2	0	1
1.27	0	0	0	0	0	0	0	1	0	0	1	0
1.28	0	0	0	1	1	0	0	1	0	1	2	0
1.29	0	0	0	1	0	0	0	0	0	1	0	0
1.30	0	0	0	0	4	0	1	1	0	1	5	0
1.31	0	0	0	1	0	0	1	0	0	2	0	0
1.32	0	0	0	1	1	0	0	0	0	1	1	0
1.33	0	0	0	0	0	1	0	0	0	0	0	1
1.34	0	0	0	0	1	1	0	0	0	0	1	1
1.35	0	0	0	1	1	0	1	0	0	2	1	0
1.36	0	0	0	0	0	0	0	1	0	0	1	0
1.37	0	0	0	0	0	1	0	1	0	0	1	1
1.38	0	0	0	0	1	0	0	0	0	0	1	0
1.39	0	0	0	0	1	0	0	1	0	0	2	0
1.40	0	0	0	0	5	1	1	3	0	1	8	1
1.41	0	0	0	0	1	0	0	2	0	0	3	0
1.42	0	0	0	0	0	3	0	0	0	0	0	3
1.43	0	0	0	0	0	0	0	1	0	0	1	0
1.44	0	0	0	1	0	0	0	0	0	1	0	0
1.45	0	0	0	0	2	0	0	2	0	0	4	0
1.46	0	0	0	2	0	0	2	1	0	4	1	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	3	5	0	1	2	0	4	7	0
SUBTOTAL	0	0	0	25	34	12	16	25	2	41	59	14

TOP SECRET [redacted]

Table A-2

[redacted]

[illegible] * INSTRUMENT * AFT 8/25/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LB/ALLS MIN	ALL LB/ALLS MAX	ALL LB/ALLS LIM
[illegible]												
TOTAL				4	115	59	1	3	20	5	145	79

[redacted]

Table A-2

TOP SECRET [redacted]

MISSION * 1039-1 * INSTRUMENT * AFT 7/25/66 DENSITY FREQ. DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
2.01	0	0	0	0	1	0	0	1	0	0	2	0
2.02	0	0	0	0	3	1	0	0	0	0	3	1
2.03	0	0	0	0	2	1	0	1	0	0	3	1
2.04	0	0	0	0	0	0	0	0	0	0	0	0
2.05	0	0	0	0	2	4	0	1	3	0	3	7
2.06	0	0	0	0	1	1	0	0	2	0	1	3
2.07	0	0	0	0	1	1	0	0	2	0	1	3
2.08	0	0	0	0	0	0	0	0	1	0	3	1
2.09	0	0	0	0	0	0	0	0	0	0	0	0
2.10	0	0	0	0	2	9	0	1	2	0	2	11
2.11	0	0	0	0	1	2	0	0	1	0	1	3
2.12	0	0	0	0	1	4	0	1	6	0	2	10
2.13	0	0	0	0	0	0	0	2	0	0	0	0
2.14	0	0	0	0	0	1	0	0	0	0	0	1
2.15	0	0	0	0	1	7	0	1	1	0	0	3
2.16	0	0	0	0	0	1	0	0	0	0	0	1
2.17	0	0	0	0	1	0	0	0	2	0	1	2
2.18	0	0	0	0	0	2	0	1	3	0	1	5
2.19	0	0	0	0	0	0	0	1	1	0	1	1
2.20	0	0	0	0	0	0	0	0	1	0	0	6
2.21	0	0	0	0	0	3	0	0	2	0	0	2
2.22	0	0	0	0	0	1	0	2	1	0	2	2
2.23	0	0	0	0	1	1	0	0	3	0	1	4
2.24	0	0	0	0	0	3	0	0	1	0	0	4
2.25	0	0	0	0	1	2	0	0	1	0	1	3
2.26	0	0	0	0	0	3	0	1	1	0	1	4
2.27	0	0	0	0	1	0	0	0	1	0	1	1
2.28	0	0	0	0	0	4	0	0	0	0	0	4
2.29	0	0	0	0	0	0	0	1	1	0	1	1
2.30	0	0	0	0	0	1	0	1	3	0	1	4
2.31	0	0	0	0	0	2	0	0	0	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	1	0	0	1
2.34	0	0	0	0	0	0	0	0	1	0	0	1
2.35	0	0	0	0	0	0	0	0	3	0	0	3
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	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
TOTAL	0	0	0	0	13	54	0	17	47	0	36	101

TOP SECRET [redacted]

Table A-2

[redacted]

VISION * 1240-1 * INSTRUMENT * AFT 9/25/66 DENSITY FREQ DISTR

QUALITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SUM			0	173	173	124	72	72	69	245	245	195

VISION 1240-1 INSTR - AFT 9/25/66 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	173	5 PC	12 PC	65 PC	17 PC	6 PC
FULL	72	3 PC	0 PC	61 PC	36 PC	0 PC
ALL LEVELS	245	1 PC	0 PC	64 PC	22 PC	4 PC

PROCESS LEVEL	BASE FOG	UNDER EXPOSED	UNDER PROCESSED	CORRECT EXP+PROC	OVER PROCESSED	OVER EXPOSED
PRIMARY	[illegible]	0.01-0.09	0.14-0.39	0.40-0.90	----------	0.91 AND UP
INTERMEDIATE	[illegible]	0.01-0.20	0.21-0.39	0.40-0.90	0.91-1.69	1.35 AND UP
FULL	[illegible]	0.01-0.39	----------	0.40-0.90	0.91-1.69	1.70 AND UP

[redacted]

Table A-2

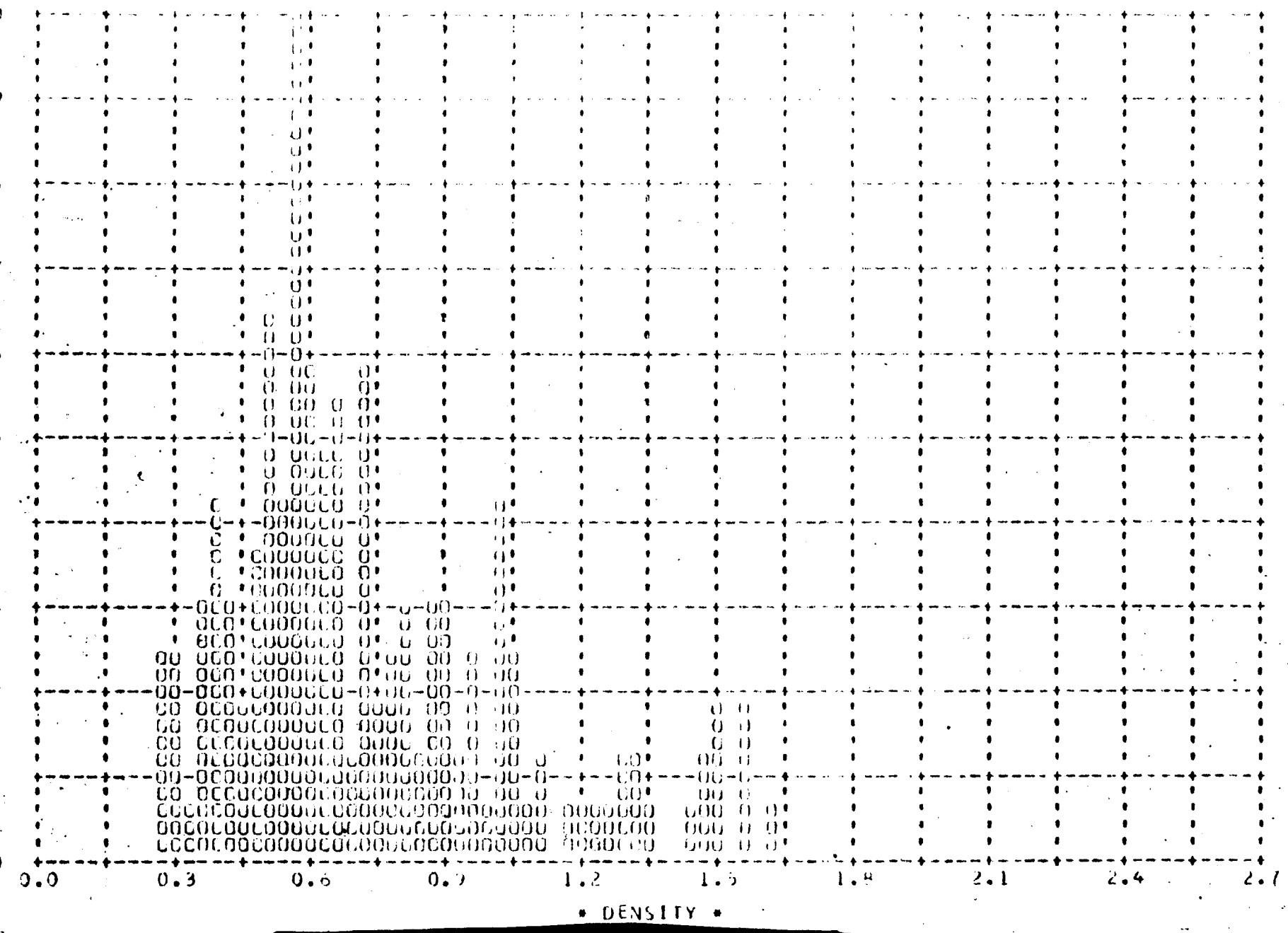
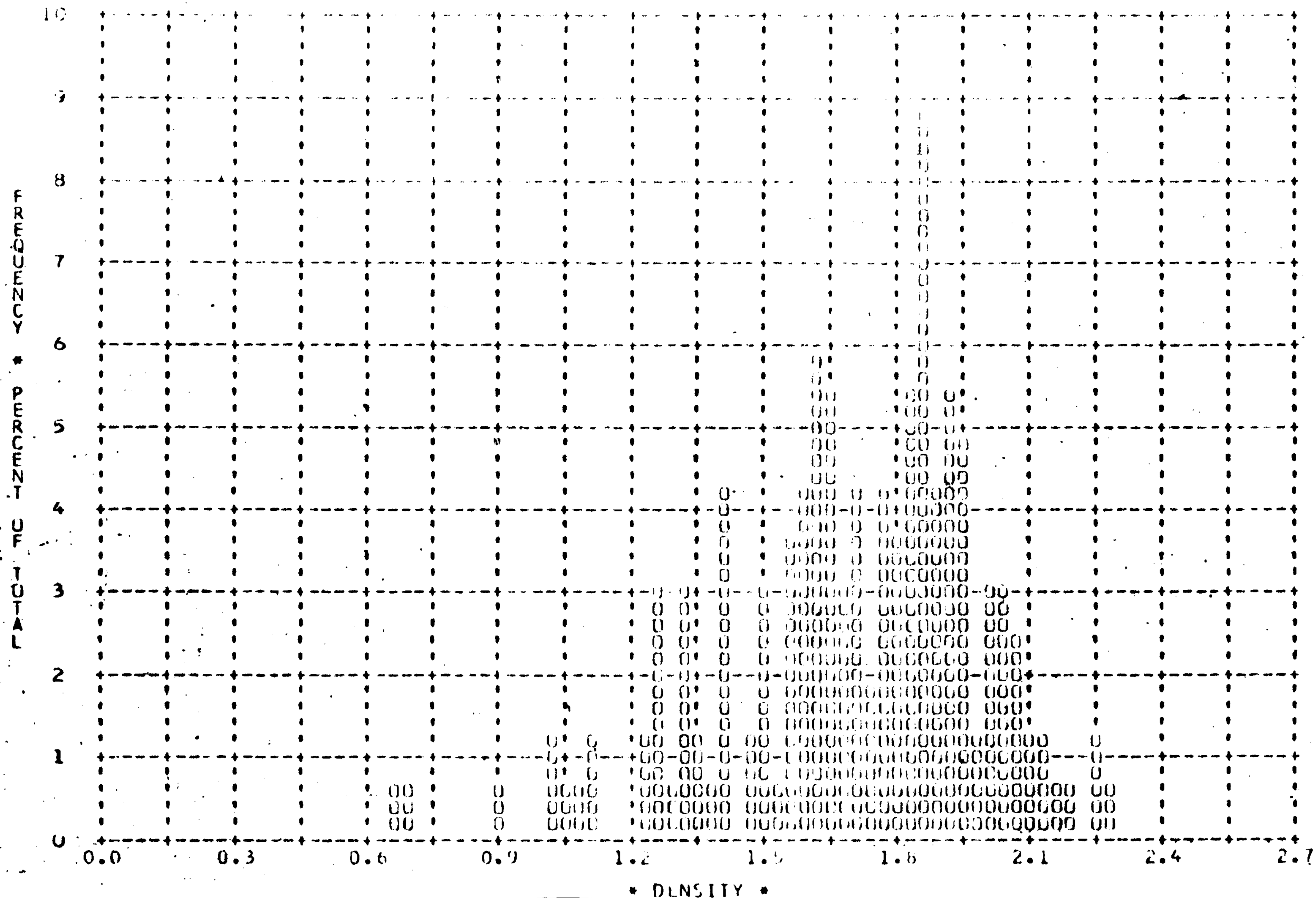

FREQUENCY * PERCENT OF TOTAL
10
9
8
7
6
5
4
3
2
1
0
0.0
0.3
0.6
0.9
1.2
1.5
1.8
2.1
2.4
2.7
* DENSITY *

Figure A-13

SECRET [redacted]

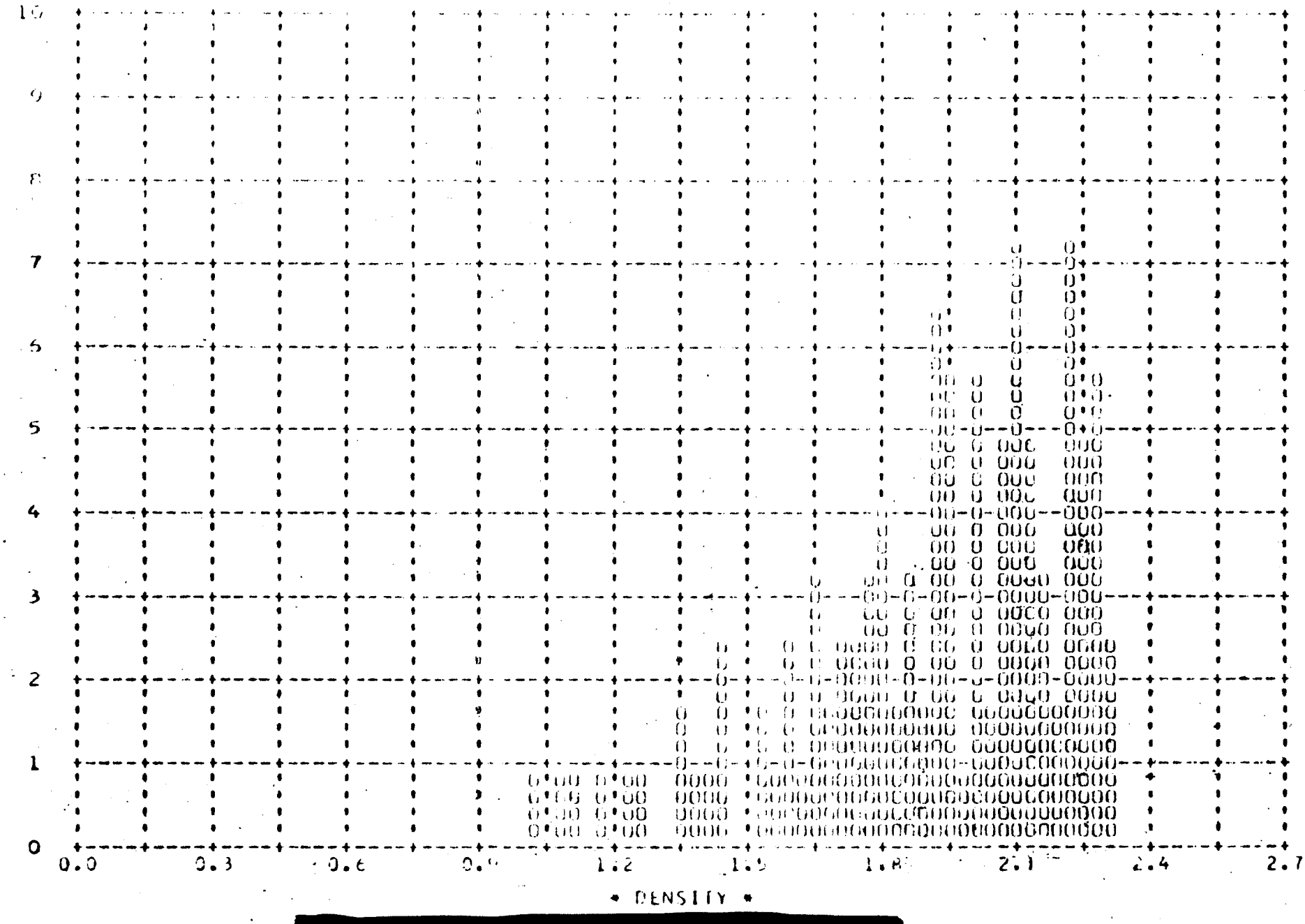
MISSION * 1030-1 * INSTR * AFT * 8/25/66 PLOT OF D MAX * TERRAIN * PROCESSING * INTERMEDIATE

ARITH MEAN * 1. * MEDIAN * 1.74 * STD DEV * * RANGE * 0.6 TO 2.27 WITH 175 SAMPLES



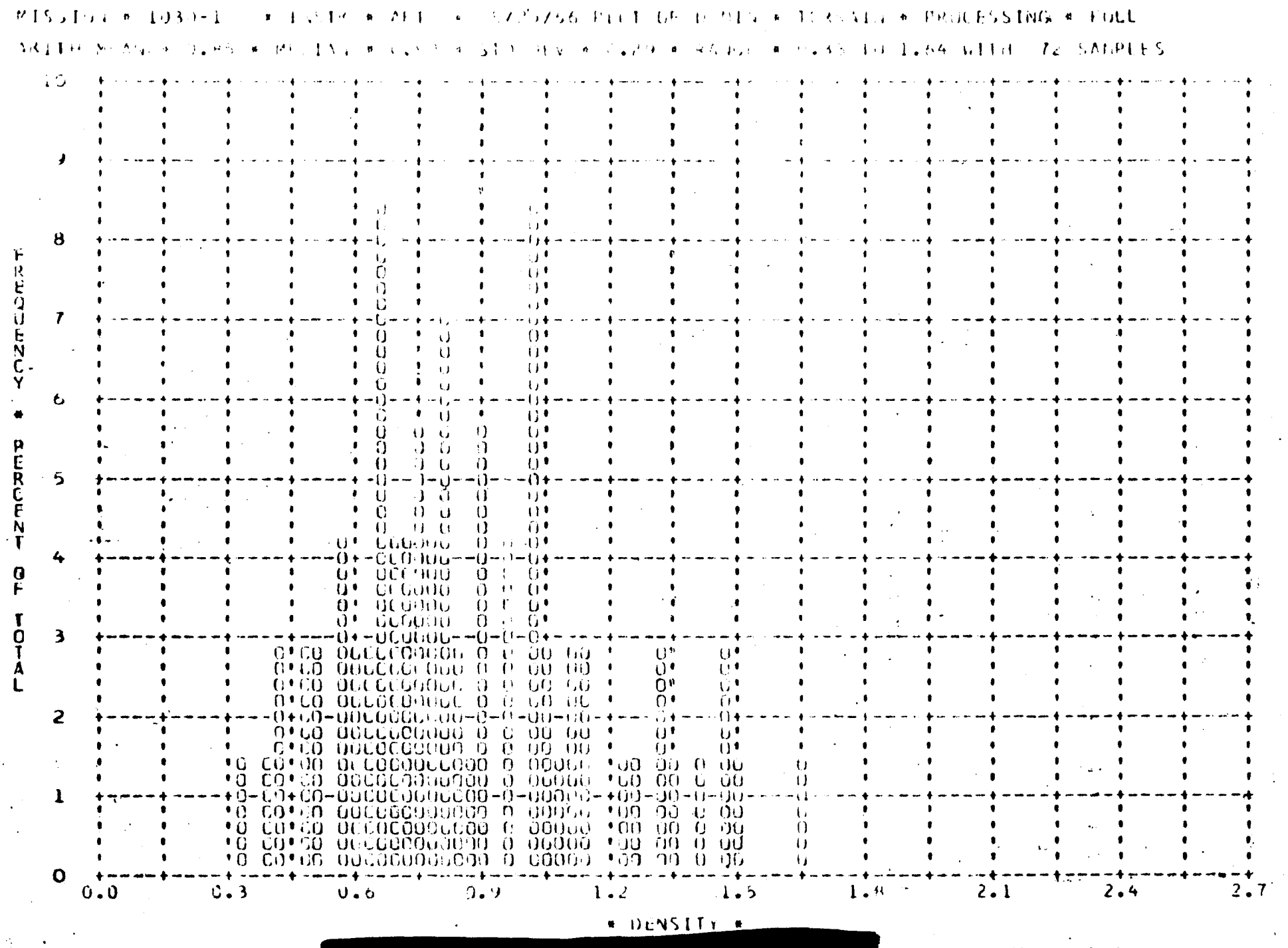
TOP SECRET [redacted]

[redacted]



[redacted]

[redacted]



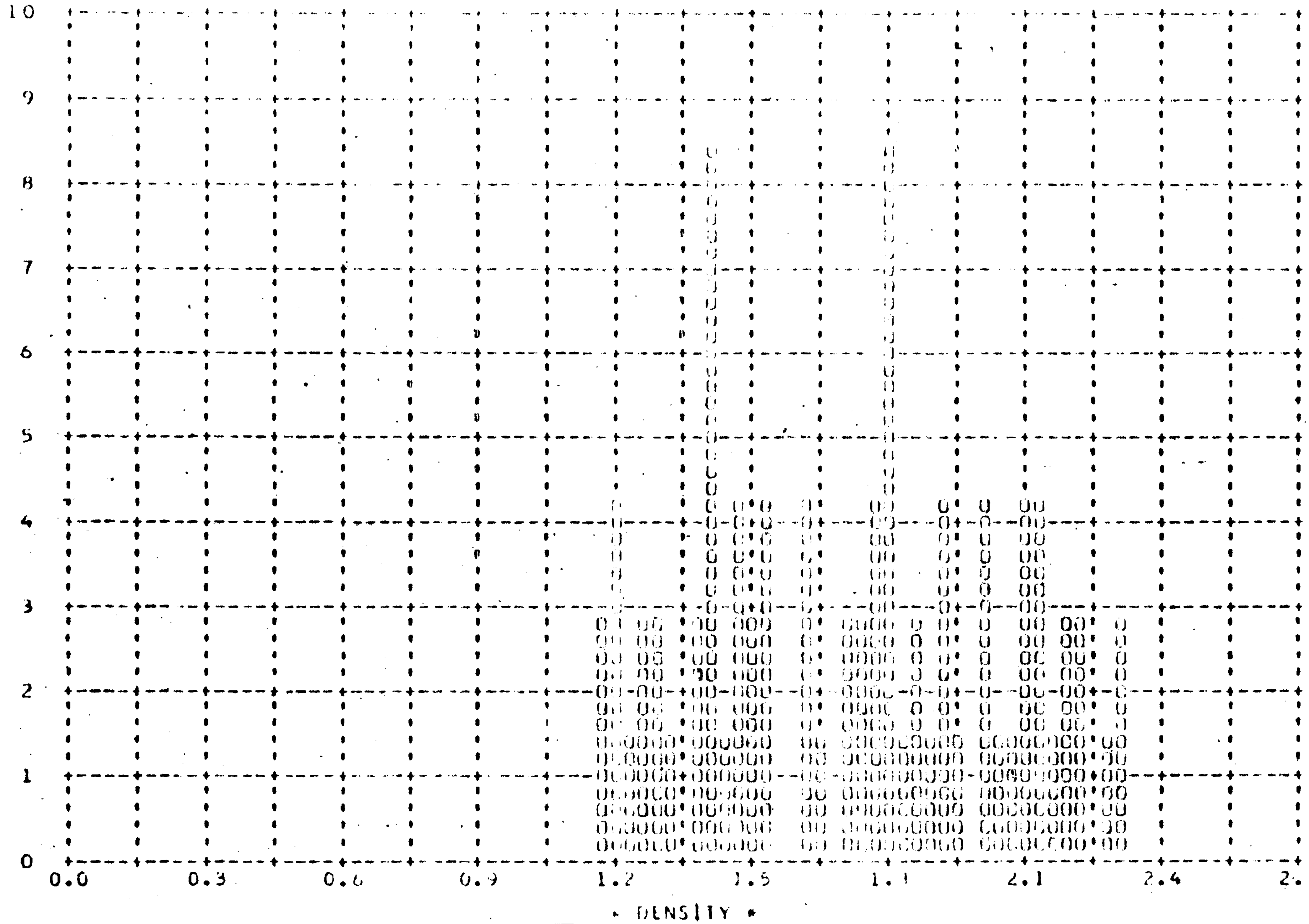
[redacted]

Figure A-16

[redacted]

MISSION * 1050[illegible] * [illegible] * [illegible] 5/66 [illegible] MAX * TERRAIN * PROCESSING * FULL

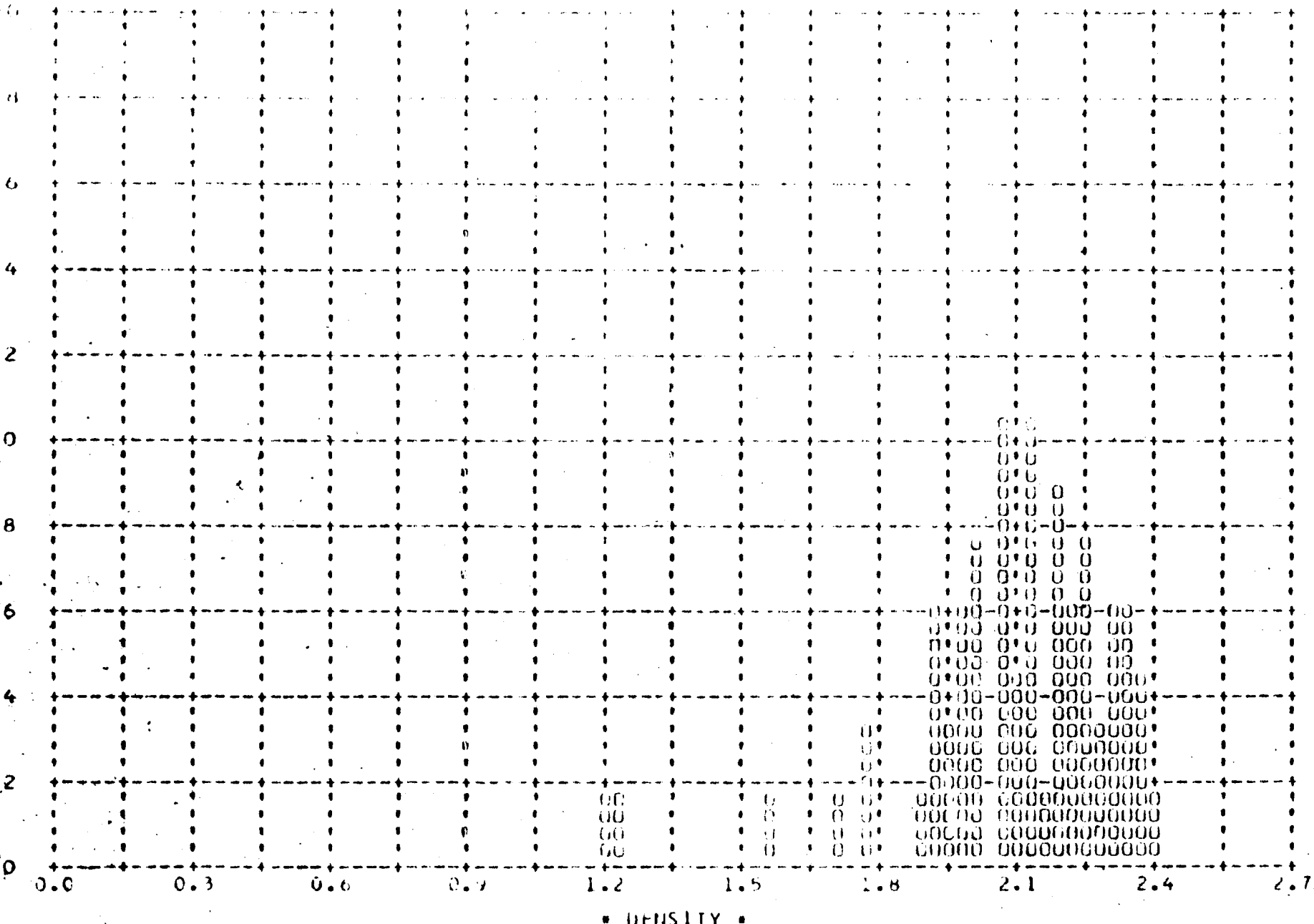
ARITH MEAN * 1.71 * MEDIAN * 1.7[illegible] * STD DEV * 0.33 * RANGE * 1.1[illegible] TO 2.30 WITH 72 SAMPLES



~~TOP SECRET~~ [redacted]

Figure A-17

[redacted]



[redacted]

Figure A-18

MISSION * 10[illegible] * REGION * ALL * [illegible] PLOT OF 1 MIN * [illegible] * PROCESSING * ALL LEVELS

ARITH MEAN * 0.77 * MEDIAN * [illegible] * STD DEV * 0.31 * RANGE * [illegible] TO 1.24 WITH 245 SAMPLES

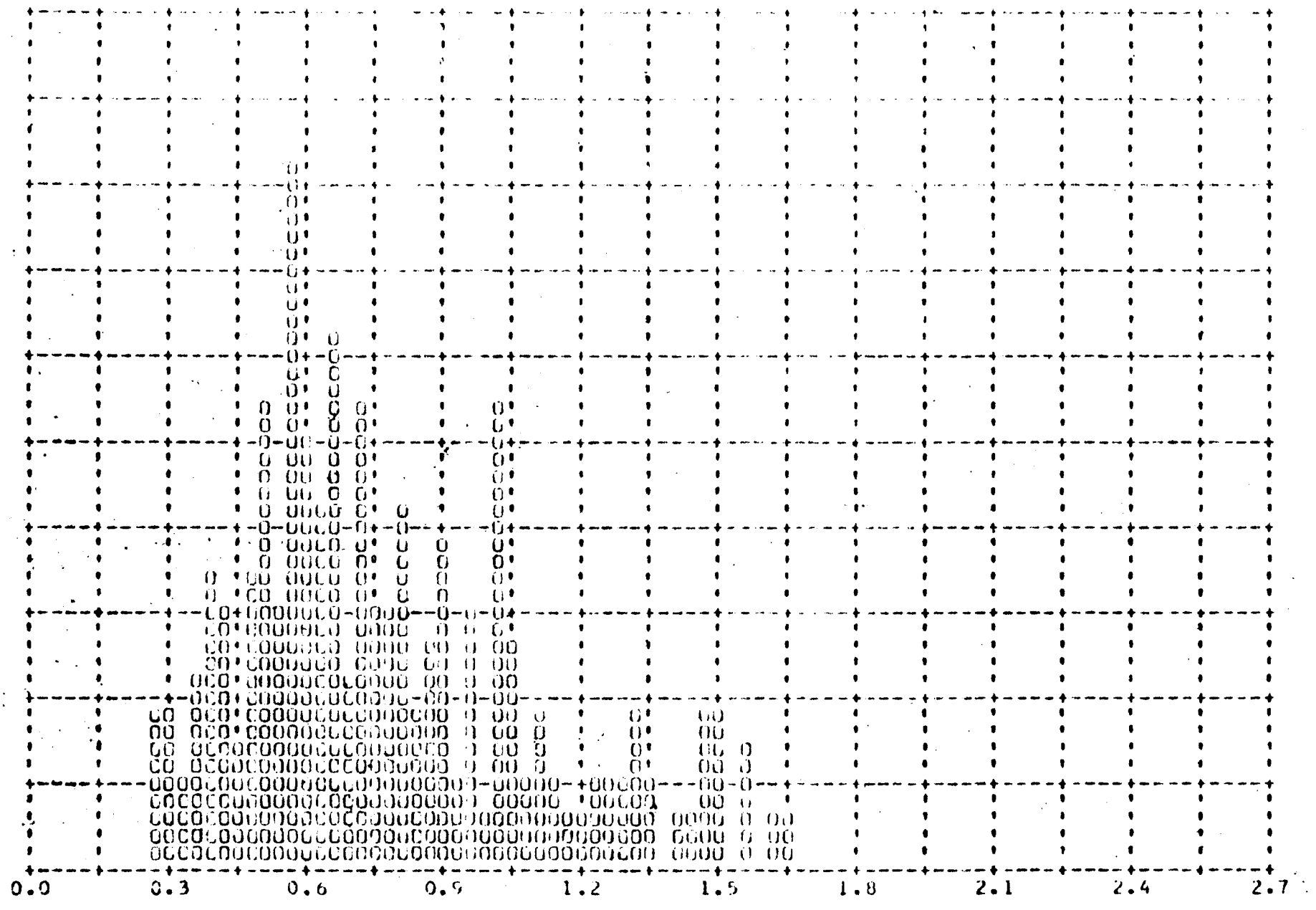
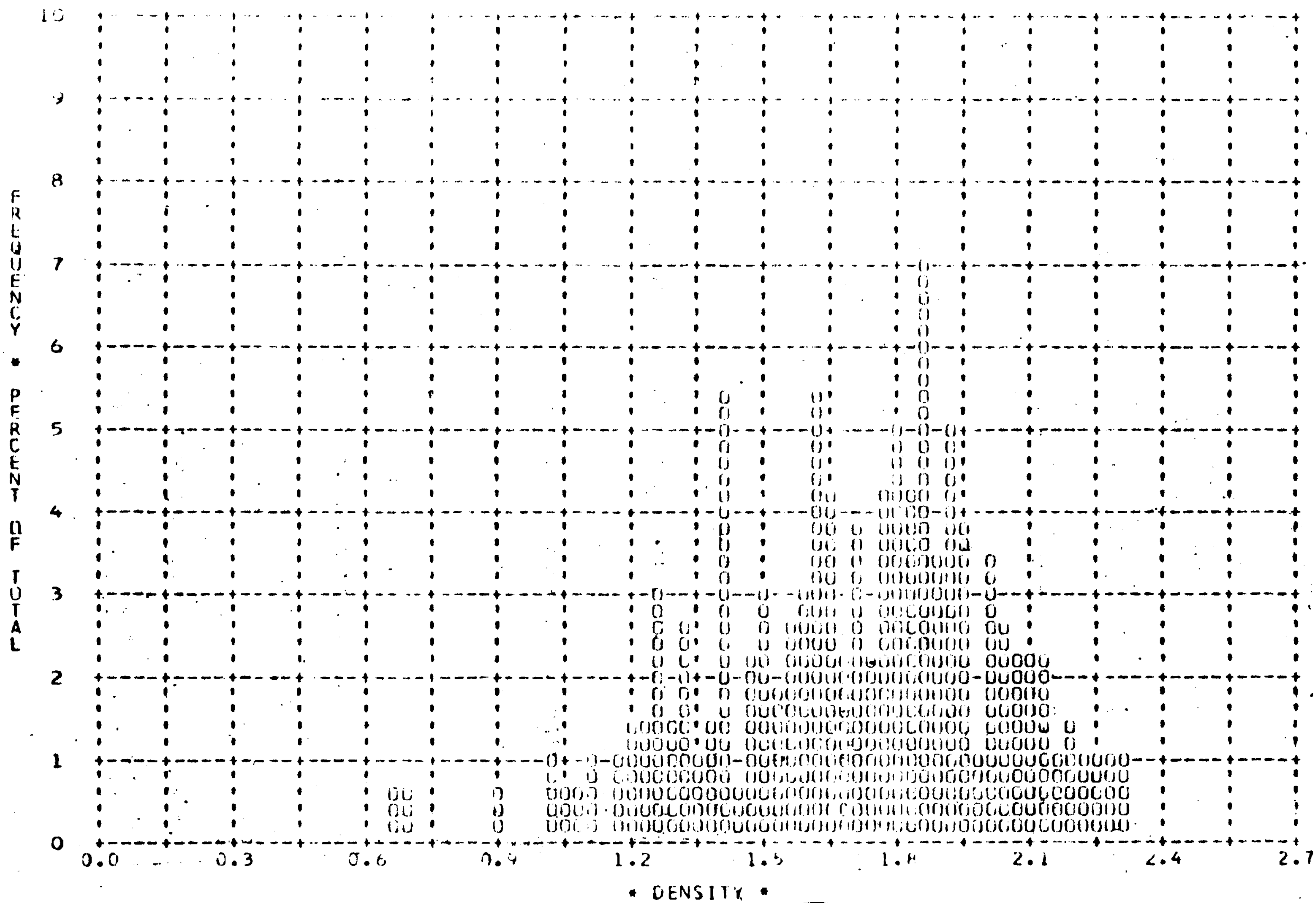


Figure A-19

[redacted]

MISSION * 1030-1 * [illegible] * [illegible] * 08/25/65 PLOT OF D MAX * TERRAIN * PROCESSING * ALL LEVELS

ARITH MEAN * 1.69 * MEDIAN * 1.74 * STD DEV * 0.30 * RANGE * 0.64 TO 2.30 WITH 245 SAMPLES



~~TOP SECRET~~ [redacted]

Figure A-20

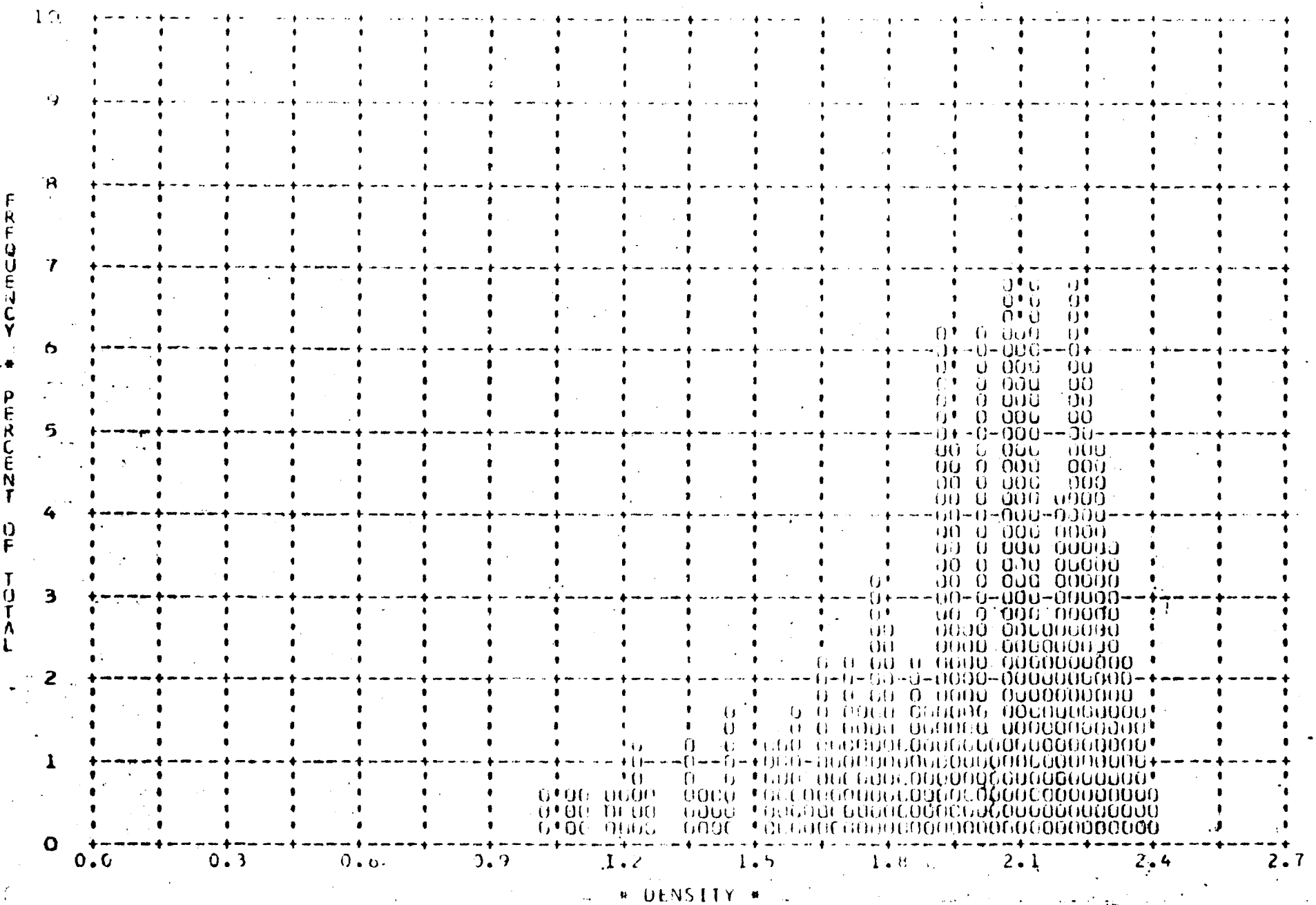

FREQUENCY * PERCENT OF TOTAL
0
1
2
3
4
5
6
7
8
9
10
0.0
0.3
0.6
0.9
1.2
1.5
1.8
2.1
2.4
2.7
* DENSITY *

Figure A-21

TOP SECRET [redacted]

MISSION * 1[illegible]-2 * INSTRUMENT * FRWD 8/25/66 DENSITY FREQ DISTR

DENSITY	PRIMARY			INTERMEDIATE			FULL			ALL-LEVELS		
VALUE	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	1	0	0	1	0	0
0.25	0	0	0	1	0	0	0	0	0	1	0	0
0.26	0	0	0	1	0	0	0	0	0	1	0	0
0.27	0	0	0	1	0	0	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	3	0	0	0	0	0	3	0	0
0.30	0	0	0	1	0	0	1	0	0	2	0	0
0.31	0	0	0	1	0	0	0	0	0	1	0	0
0.32	0	0	0	2	0	0	0	0	0	2	0	0
0.33	0	0	0	1	0	0	2	0	0	3	0	0
0.34	0	0	0	2	0	0	2	0	0	4	0	0
0.35	0	0	0	2	0	0	1	0	0	3	0	0
0.36	0	0	0	4	0	0	3	0	0	7	0	0
0.37	0	0	0	0	0	0	0	0	0	0	0	0
0.38	0	0	0	2	0	0	1	0	0	3	0	0
0.39	0	0	0	1	0	0	1	0	0	2	0	0
0.40	0	0	0	5	0	0	2	0	0	7	0	0
0.41	0	0	0	1	0	0	1	0	0	2	0	0
0.42	0	0	0	4	0	0	0	0	0	4	0	0
0.43	0	0	0	5	0	0	2	0	0	7	0	0
0.44	0	0	0	4	0	0	2	0	0	6	0	0
0.45	0	0	0	4	0	0	1	0	0	5	0	0
0.46	0	0	0	5	0	0	1	0	0	6	0	0
0.47	0	0	0	2	0	0	0	0	0	2	0	0
0.48	0	0	0	5	0	0	4	0	0	9	0	0
0.49	0	0	0	3	0	0	0	0	0	3	0	0
0.50	0	0	0	7	0	0	2	0	0	9	0	0
SUBTOTAL	0	0	0	67	0	0	27	0	0	94	0	0

TOP SECRET [redacted]

Table A-3

[redacted]

MISSION • 1030-? • INSTRUMENT • FR10 8/25/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	AGE LEVELS MIN	AGE LEVELS MAX	AGE LEVELS LIM
0.01			0	3		0	1		0	4		0
0.02			0	3		0	1		0	4		0
0.03			0	3		0	1		0	3		0
0.04			0	3		0	2		0	3		0
0.05			0	4		0	2		0	2		0
0.06			0	4		0	2		0	4		0
0.07			0	4		0	2		0	4		0
0.08			0	4		0	3		0	2		0
0.09			0	4		0	3		0	7		0
0.10			0	3		0	1		0	3		0
0.11			0	3		0	1		0	5		0
0.12			0	3		0	1		0	4		0
0.13			0	3		0	1		0	3		0
0.14			0	3		0	1		0	1		0
0.15			0	3		0	1		0	2		0
0.16			0	3		0	1		0	4		0
0.17			0	3		0	1		0	1		0
0.18			0	3		0	1		0	2		0
0.19			0	3		0	1		0	3		0
0.20			0	3		0	1		0	3		0
0.21			0	3		0	1		0	3		0
0.22			0	3		0	1		0	3		0
0.23			0	3		0	1		0	3		0
0.24			0	3		0	1		0	3		0
0.25			0	3		0	1		0	3		0
0.26			0	3		0	1		0	3		0
0.27			0	3		0	1		0	3		0
0.28			0	3		0	1		0	3		0
0.29			0	3		0	1		0	3		0
0.30			0	3		0	1		0	3		0
0.31			0	3		0	1		0	3		0
0.32			0	3		0	1		0	3		0
0.33			0	3		0	1		0	3		0
0.34			0	3		0	1		0	3		0
0.35			0	3		0	1		0	3		0
0.36			0	3		0	1		0	3		0
0.37			0	3		0	1		0	3		0
0.38			0	3		0	1		0	3		0
0.39			0	3		0	1		0	3		0
0.40			0	3		0	1		0	3		0
0.41			0	3		0	1		0	3		0
0.42			0	3		0	1		0	3		0
0.43			0	3		0	1		0	3		0
0.44			0	3		0	1		0	3		0
0.45			0	3		0	1		0	3		0
0.46			0	3		0	1		0	3		0
0.47			0	3		0	1		0	3		0
0.48			0	3		0	1		0	3		0
0.49			0	3		0	1		0	3		0
0.50			0	3		0	1		0	3		0
0.51			0	3		0	1		0	3		0
0.52			0	3		0	1		0	3		0
0.53			0	3		0	1		0	3		0
0.54			0	3		0	1		0	3		0
0.55			0	3		0	1		0	3		0
0.56			0	3		0	1		0	3		0
0.57			0	3		0	1		0	3		0
0.58			0	3		0	1		0	3		0
0.59			0	3		0	1		0	3		0
0.60			0	3		0	1		0	3		0
0.61			0	3		0	1		0	3		0
0.62			0	3		0	1		0	3		0
0.63			0	3		0	1		0	3		0
0.64			0	3		0	1		0	3		0
0.65			0	3		0	1		0	3		0
0.66			0	3		0	1		0	3		0
0.67			0	3		0	1		0	3		0
0.68			0	3		0	1		0	3		0
0.69			0	3		0	1		0	3		0
0.70			0	3		0	1		0	3		0
0.71			0	3		0	1		0	3		0
0.72			0	3		0	1		0	3		0
0.73			0	3		0	1		0	3		0
0.74			0	3		0	1		0	3		0
0.75			0	3		0	1		0	3		0
0.76			0	3		0	1		0	3		0
0.77			0	3		0	1		0	3		0
0.78			0	3		0	1		0	3		0
0.79			0	3		0	1		0	3		0
0.80			0	3		0	1		0	3		0
0.81			0	3		0	1		0	3		0
0.82			0	3		0	1		0	3		0
0.83			0	3		0	1		0	3		0
0.84			0	3		0	1		0	3		0
0.85			0	3		0	1		0	3		0
0.86			0	3		0	1		0	3		0
0.87			0	3		0	1		0	3		0
0.88			0	3		0	1		0	3		0
0.89			0	3		0	1		0	3		0
0.90			0	3		0	1		0	3		0
0.91			0	3		0	1		0	3		0
0.92			0	3		0	1		0	3		0
0.93			0	3		0	1		0	3		0
0.94			0	3		0	1		0	3		0
0.95			0	3		0	1		0	3		0
0.96			0	3		0	1		0	3		0
0.97			0	3		0	1		0	3		0
0.98			0	3		0	1		0	3		0
0.99			0	3		0	1		0	3		0
1.00			0	3		0	1		0	3		0
SUBTOTAL			0	86	4	0	37	4	0	123	8	0

[redacted]

Table A-8

~~TOP SECRET~~ [redacted]

MISSION • 1030-2 • INSTRUMENT • FWD 8/25/66 DENSITY FREQ DIST

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SUBTOTAL	0	0	0	19	35	7	8	21	2	27	56	9

~~TOP SECRET~~ [redacted]

Table A-3

[redacted]

MISSION * [illegible] * INSTRUMENT * FRWD 8/25/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
[illegible]												
TOTAL	0	0	0	0	113	54	2	33	13	2	146	67

[redacted]

Table A-3

[redacted]

MISSION • 1030-2 • INSTRUMENT • FRED 8/25/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
2.11	0	0	0	0	2	2	0	0	0	0	2	2
2.22	0	0	0	0	1	1	0	1	1	0	2	3
2.33	0	0	0	0	3	3	0	4	4	0	3	3
2.44	0	0	0	0	2	2	0	1	1	0	3	3
2.55	0	0	0	0	1	1	0	1	1	0	2	3
2.66	0	0	0	0	0	0	0	0	0	0	0	0
2.77	0	0	0	0	0	0	0	0	0	0	0	0
2.88	0	0	0	0	0	0	0	0	0	0	0	0
2.99	0	0	0	0	0	0	0	0	0	0	0	0
3.10	0	0	0	0	0	0	0	0	0	0	0	0
3.21	0	0	0	0	0	0	0	0	0	0	0	0
3.32	0	0	0	0	0	0	0	0	0	0	0	0
3.43	0	0	0	0	0	0	0	0	0	0	0	0
3.54	0	0	0	0	0	0	0	0	0	0	0	0
3.65	0	0	0	0	0	0	0	0	0	0	0	0
3.76	0	0	0	0	0	0	0	0	0	0	0	0
3.87	0	0	0	0	0	0	0	0	0	0	0	0
3.98	0	0	0	0	0	0	0	0	0	0	0	0
4.09	0	0	0	0	0	0	0	0	0	0	0	0
4.20	0	0	0	0	0	0	0	0	0	0	0	0
4.31	0	0	0	0	0	0	0	0	0	0	0	0
4.42	0	0	0	0	0	0	0	0	0	0	0	0
4.53	0	0	0	0	0	0	0	0	0	0	0	0
4.64	0	0	0	0	0	0	0	0	0	0	0	0
4.75	0	0	0	0	0	0	0	0	0	0	0	0
4.86	0	0	0	0	0	0	0	0	0	0	0	0
4.97	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0			20	51		0	16	45	0	36	96

[redacted]

Table A-3

[redacted]

MISSION • 1030-2 • INSTRUMENT • FRWD 8/25/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS 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	172	172	112	74	74	60	246	246	172

MISSION 1030-2 INSTR - FRWD 8/25/66 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	172	0 PC	13 PC	73 PC	12 PC	3 PC
FULL	74	16 PC	0 PC	66 PC	18 PC	0 PC
ALL LEVELS	246	5 PC	9 PC	71 PC	13 PC	2 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
INTERMEDI	0.10-0.17	0.01-0.20	0.21-0.39	0.40-0.90	0.91-1.34	1.35 AND
FULL	0.10-0.17	0.01-0.39	----------	0.40-0.90	0.91-1.69	1.70 AND

[redacted]

Table A-3

MISSION * 1030-2 * INSTR * ERWD * 8/29/76 PLOT OF L MIN * TERRAIN * PROCESSING * INTERMEDIATE

ARITH MEAN * 0.54 * MEDIAN * 0.57 * STD DEV * 0.26 * RANGE * 0.25 TO 1.40 WITH 172 SAMPLES

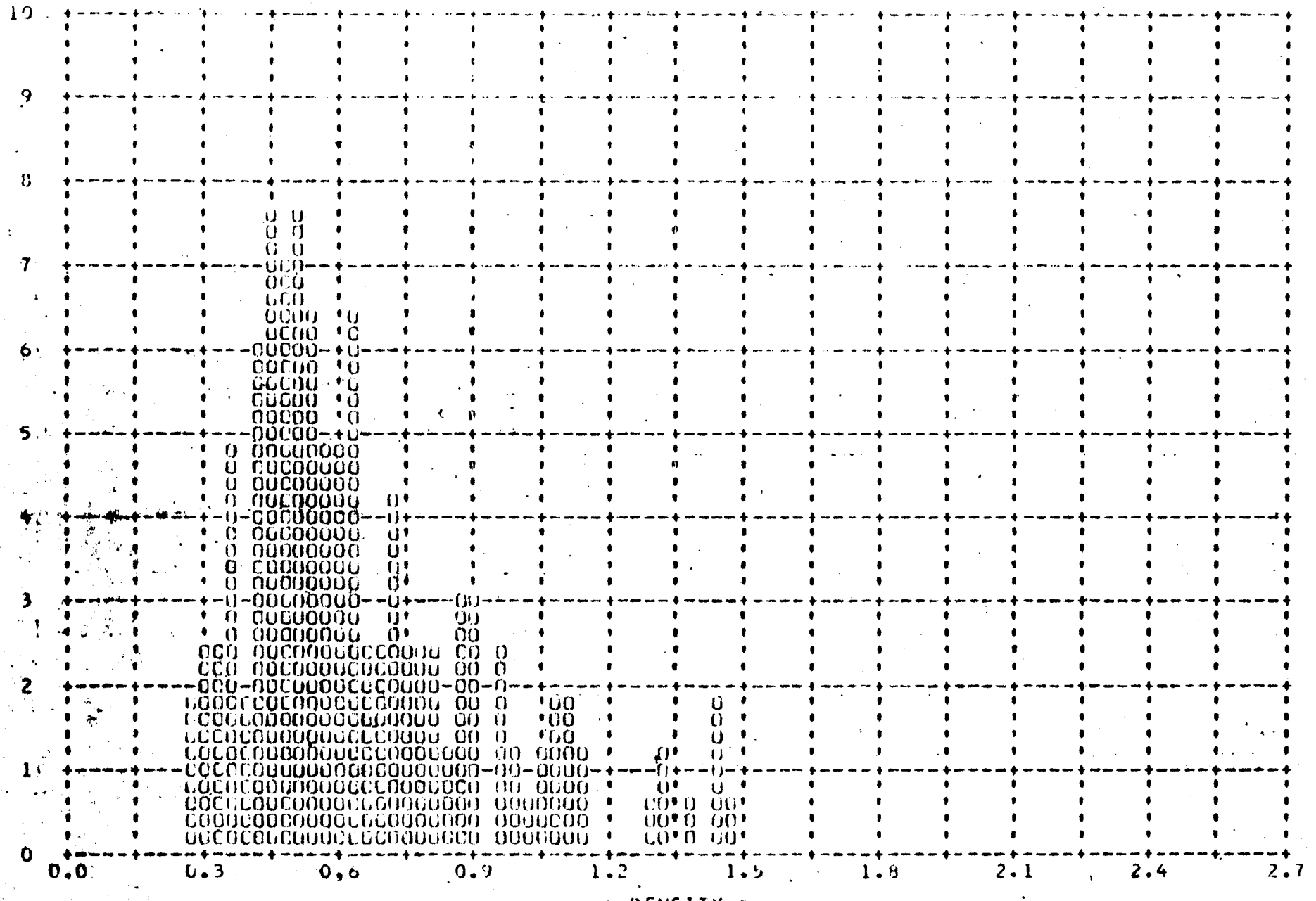
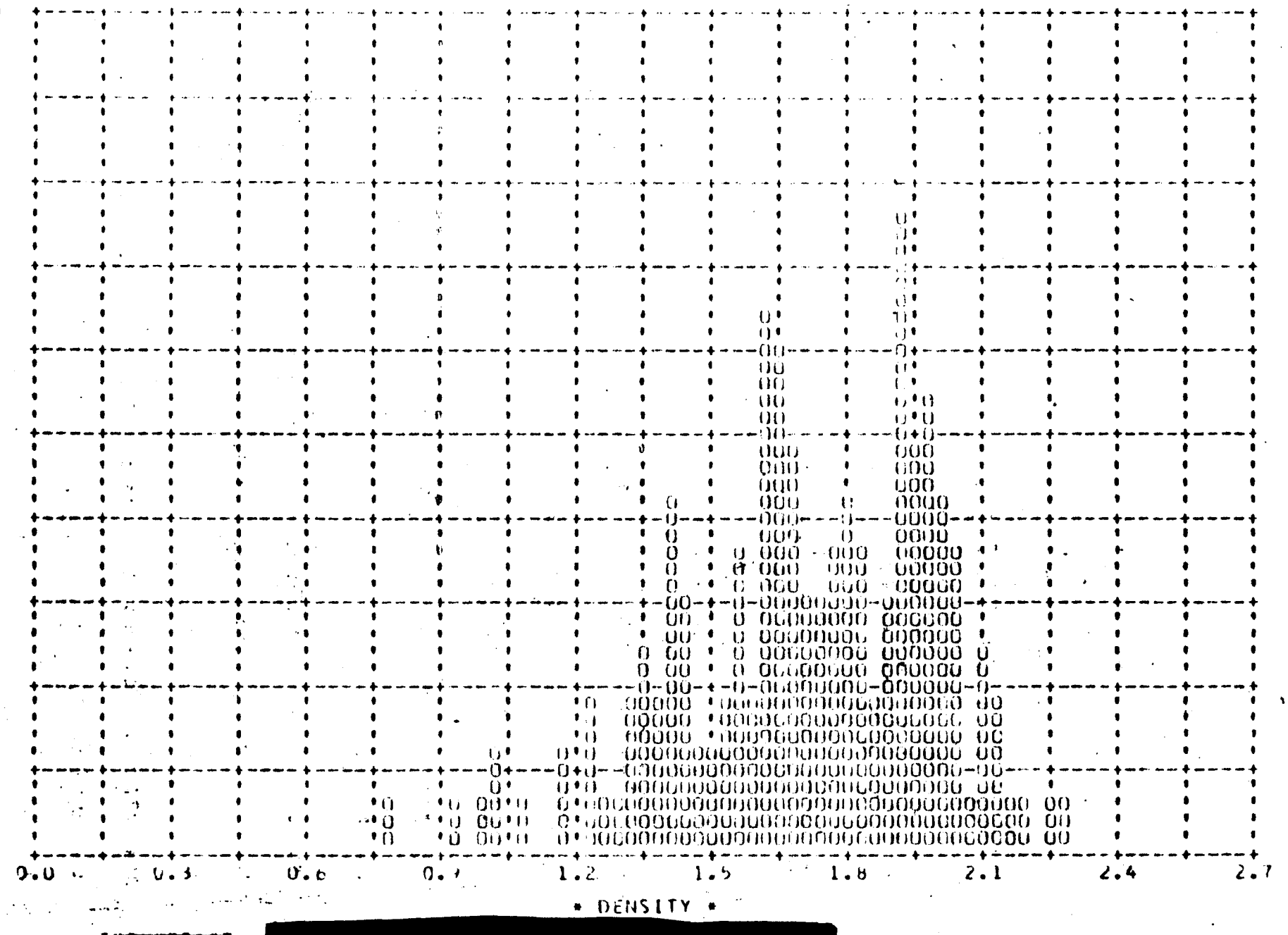


Figure A-22

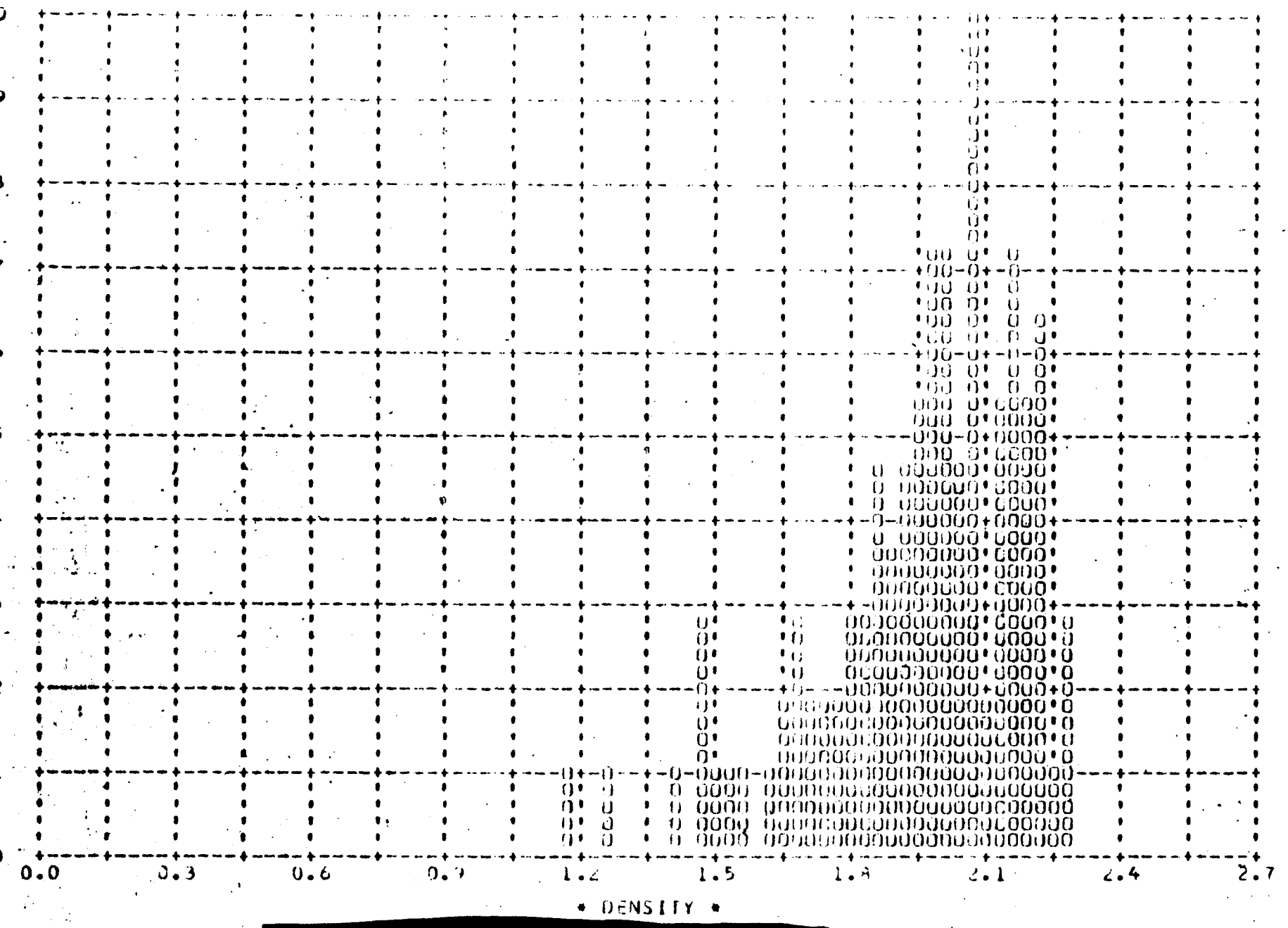
[redacted]



[redacted]

Figure A-23

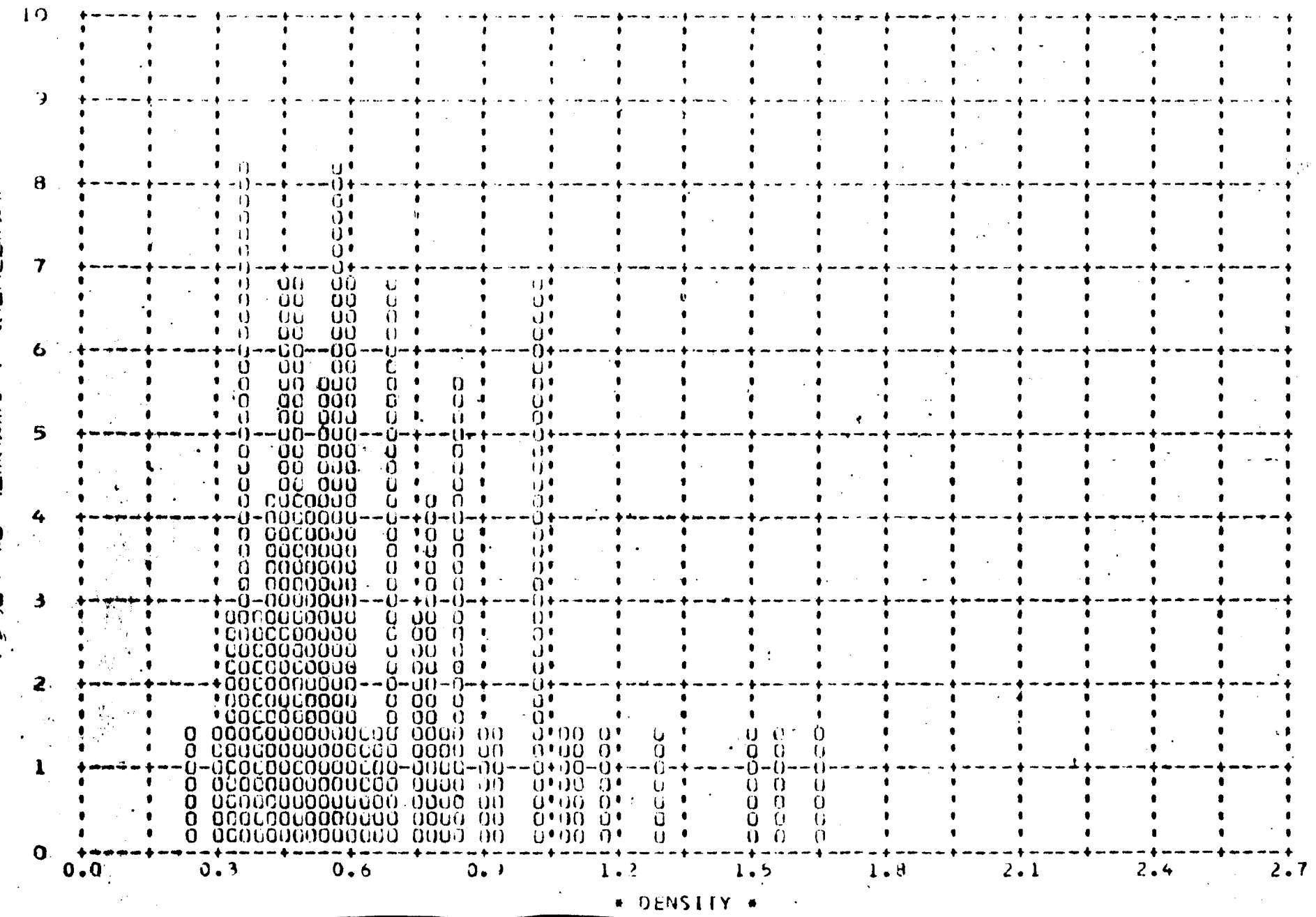
[redacted]



[redacted]

Figure A-24

[redacted]



[redacted]

Figure A-25

MISSION * 1031-2 * FOSTR * FRWD * 5/25/76 PLOT OF D MAX * T-GRAIN * PROCESSING * FULL

ARITH MEAN * 1.57 * MEDIAN * 1.65 * STD DEV * 0.36 * RANGE * 0.32 TO 2.26 WITH 74 SAMPLES

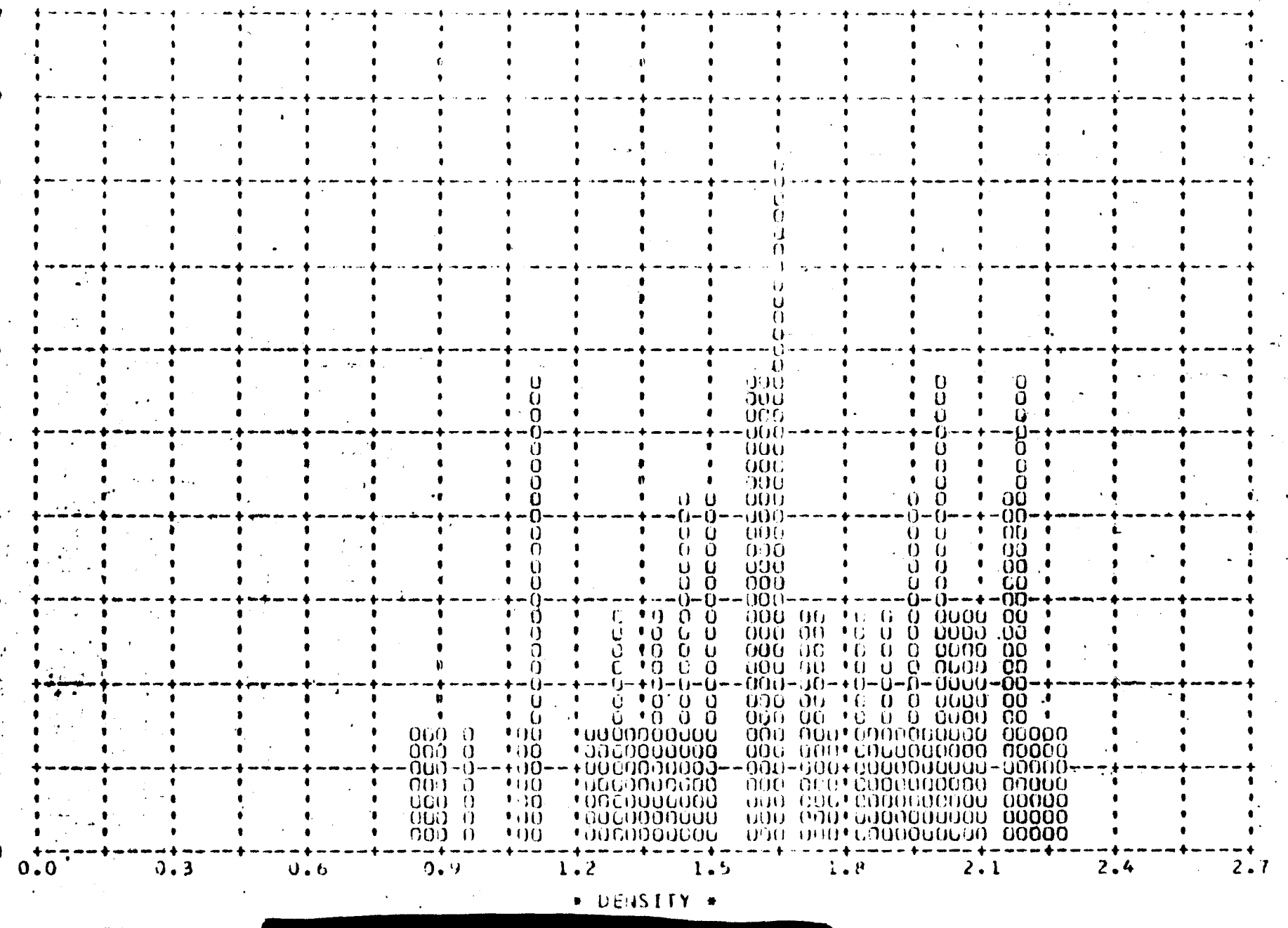


Figure A-26

MISSION * 1030-2 * EAST * FWD * 72256 PLOT OF D MAX * CLOUD * PROCESSING * FULL

ARITH MEAN * 2.09 * MEDIAN * 2.15 * STD DEV * 0.21 * RANGE * 1.35 TO 2.35 WITH 60 SAMPLES

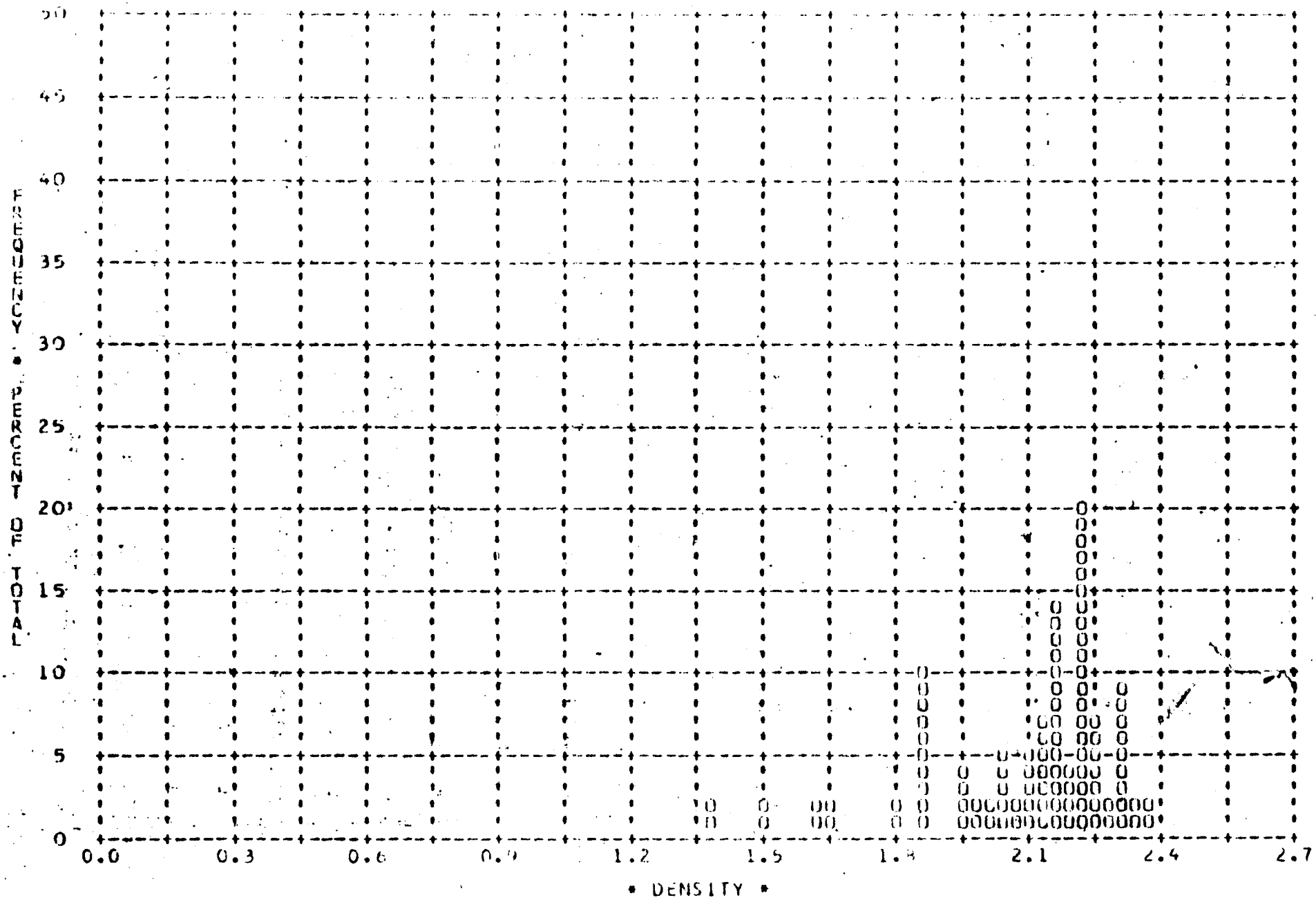
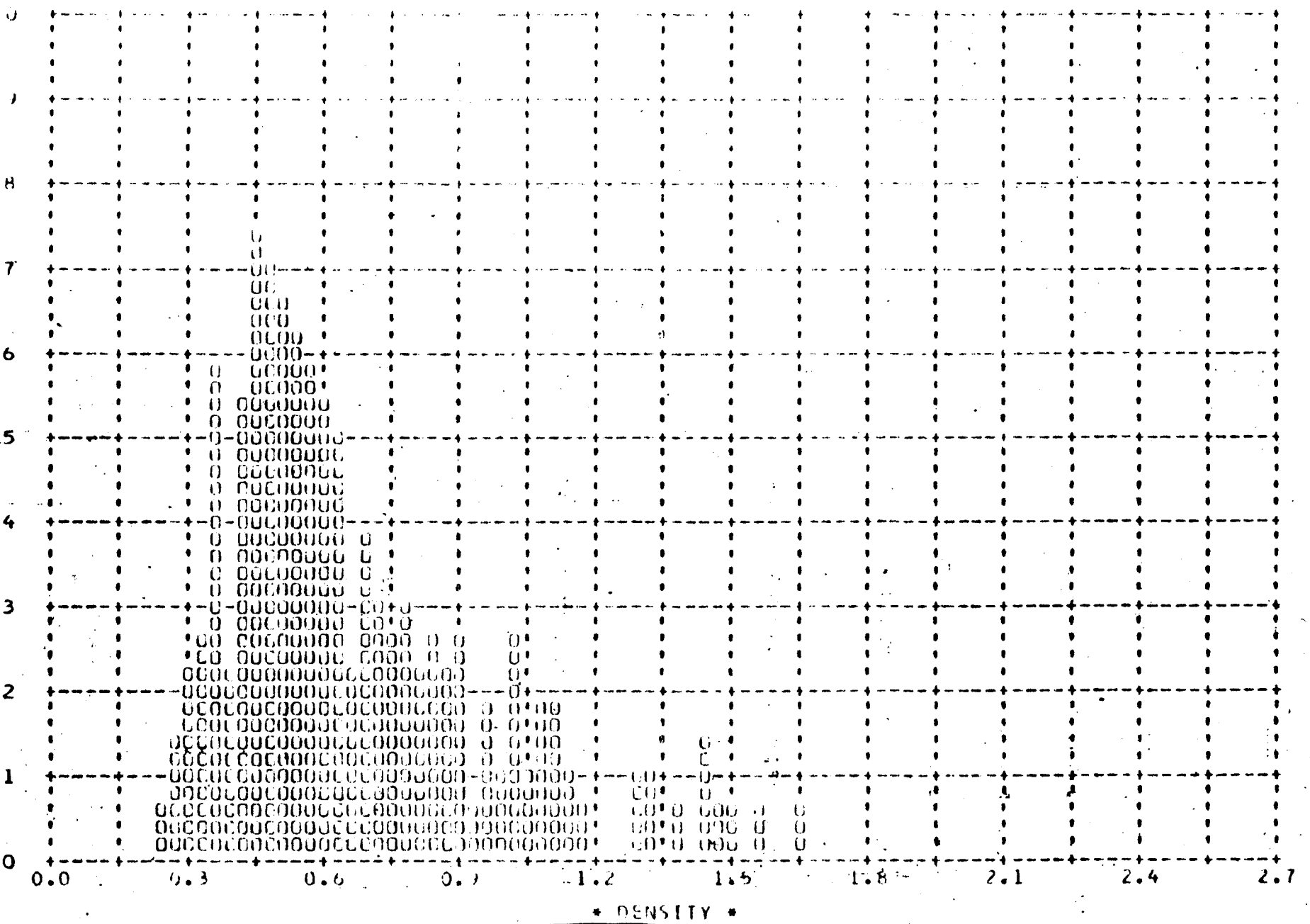


Figure A-27

[redacted]



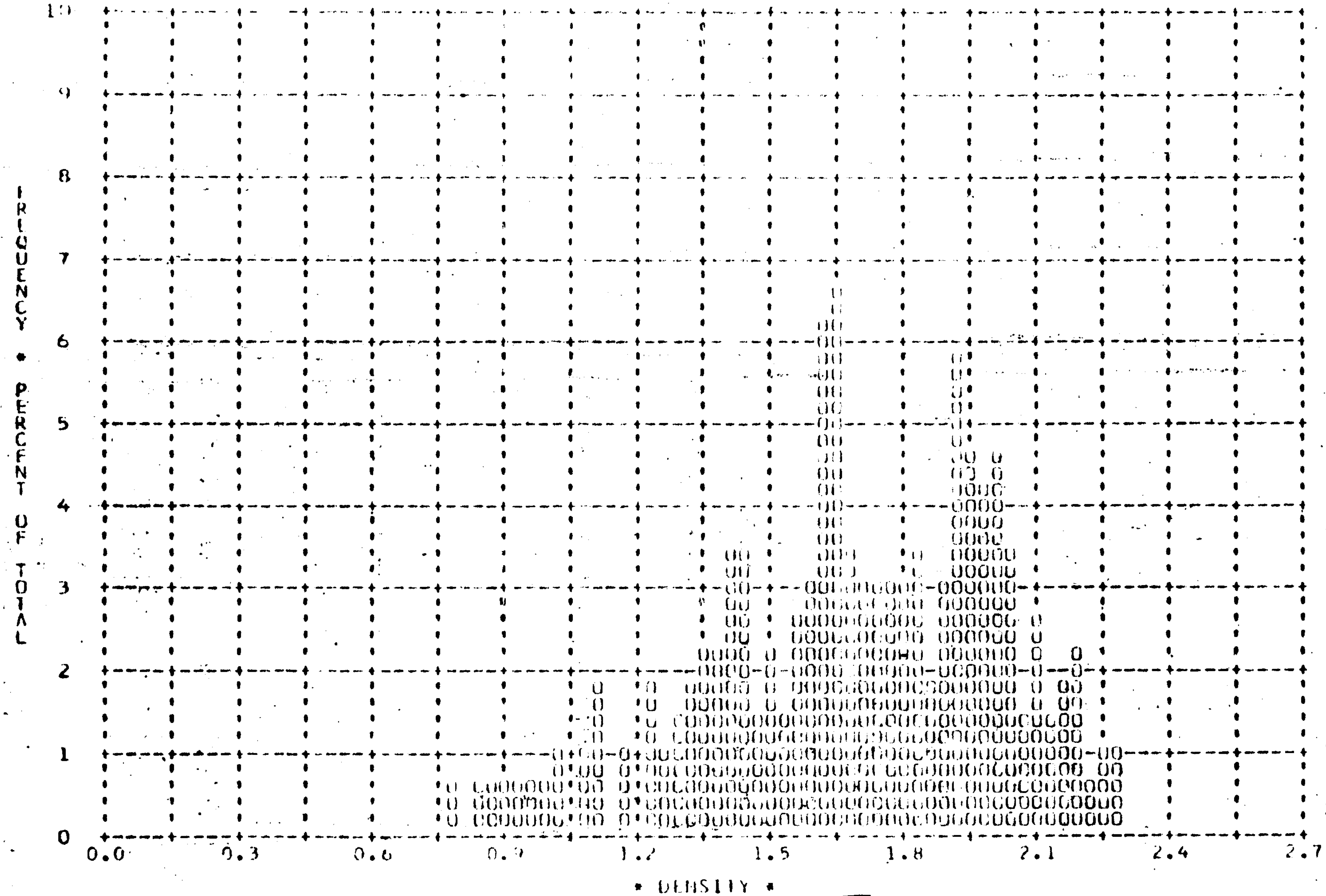
[redacted]

Figure A-28

~~TOP SECRET~~ [redacted]

MISSION * [illegible] * [illegible] * D MAX * [illegible] * PROCESSING * ALL LEVELS

ARITH MEAN * 1.6? * MEDIAN * 1.70 * [illegible] * RANGE * [illegible] TO 2.26 WITH 246 SAMPLES



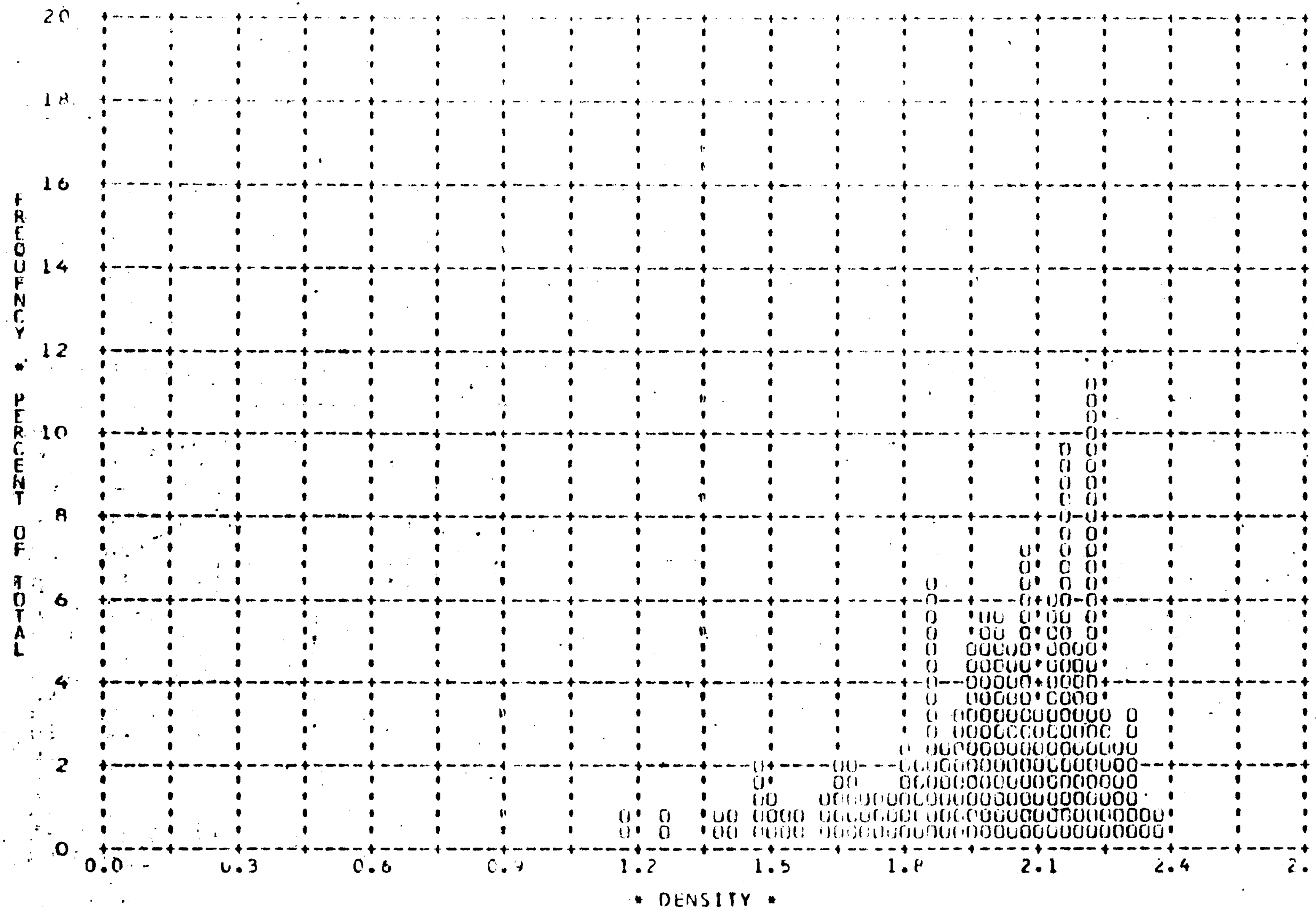
~~TOP SECRET~~ [redacted]

Figure A-29

[redacted]

MISSION * 1036-[illegible] * [illegible] * FEED * [illegible] 6 PCT OF [illegible] MAX * [illegible] * PROCESSING * ALL LEVELS

ARITH MEAN * 1.99 * MEDIAN * 2.0[illegible] * STD DEV * .23 * RANGE * 1.17 TO 2.3[illegible] WITH 172 SAMPLES



TOP SECRET [redacted]

Figure A-30

[redacted] SECRET [redacted]

MISSION • 1030-2 • INSTRUMENT • AFT 8/25/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM.	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
.01	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
.03	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
.05	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
.07	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
.09	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
.11	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
.13	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
.15	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
.17	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
.19	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
.21	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
.23	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
.25	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
.27	0	0	0	0	0	0	0	0	0	0	0	0
.28	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
.30	0	0	0	0	0	0	0	0	0	0	0	0
.31	0	0	0	0	0	0	0	0	0	0	0	0
.32	0	0	0	0	0	0	0	0	0	0	0	0
.33	0	0	0	0	0	0	0	0	0	0	0	0
.34	0	0	0	0	0	0	0	0	0	0	0	0
.35	0	0	0	0	0	0	0	0	0	0	0	0
.36	0	0	0	0	0	0	0	0	0	0	0	0
.37	0	0	0	0	0	0	0	0	0	0	0	0
.38	0	0	0	0	0	0	0	0	0	0	0	0
.39	0	0	0	0	0	0	0	0	0	0	0	0
.40	0	0	0	0	0	0	0	0	0	0	0	0
.41	0	0	0	0	0	0	0	0	0	0	0	0
.42	0	0	0	0	0	0	0	0	0	0	0	0
.43	0	0	0	0	0	0	0	0	0	0	0	0
.44	0	0	0	0	0	0	0	0	0	0	0	0
.45	0	0	0	0	0	0	0	0	0	0	0	0
.46	0	0	0	0	0	0	0	0	0	0	0	0
.47	0	0	0	0	0	0	0	0	0	0	0	0
.48	0	0	0	0	0	0	0	0	0	0	0	0
.49	0	0	0	0	0	0	0	0	0	0	0	0
.50	0	0	0	0	0	0	0	0	0	0	0	0
.51	0	0	0	0	0	0	0	0	0	0	0	0
.52	0	0	0	0	0	0	0	0	0	0	0	0
.53	0	0	0	0	0	0	0	0	0	0	0	0
.54	0	0	0	0	0	0	0	0	0	0	0	0
.55	0	0	0	0	0	0	0	0	0	0	0	0
.56	0	0	0	0	0	0	0	0	0	0	0	0
.57	0	0	0	0	0	0	0	0	0	0	0	0
.58	0	0	0	0	0	0	0	0	0	0	0	0
.59	0	0	0	0	0	0	0	0	0	0	0	0
.60	0	0	0	0	0	0	0	0	0	0	0	0
.61	0	0	0	0	0	0	0	0	0	0	0	0
.62	0	0	0	0	0	0	0	0	0	0	0	0
.63	0	0	0	0	0	0	0	0	0	0	0	0
.64	0	0	0	0	0	0	0	0	0	0	0	0
.65	0	0	0	0	0	0	0	0	0	0	0	0
.66	0	0	0	0	0	0	0	0	0	0	0	0
.67	0	0	0	0	0	0	0	0	0	0	0	0
.68	0	0	0	0	0	0	0	0	0	0	0	0
.69	0	0	0	0	0	0	0	0	0	0	0	0
.70	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
.72	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
.74	0	0	0	0	0	0	0	0	0	0	0	0
.75	0	0	0	0	0	0	0	0	0	0	0	0
.76	0	0	0	0	0	0	0	0	0	0	0	0
.77	0	0	0	0	0	0	0	0	0	0	0	0
.78	0	0	0	0	0	0	0	0	0	0	0	0
.79	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
.81	0	0	0	0	0	0	0	0	0	0	0	0
.82	0	0	0	0	0	0	0	0	0	0	0	0
.83	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
.85	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
.87	0	0	0	0	0	0	0	0	0	0	0	0
.88	0	0	0	0	0	0	0	0	0	0	0	0
.89	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
.91	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
.93	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
.95	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
.97	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
.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
1.01	0	0	0	12	0	0	21	0	0	33	0	0

[redacted] SECRET [redacted]

Table A-4

MISSION • 2039-2 • INSTRUMENT • AFT 8/25/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
0.51	0	0	0	0	0	0	1	0	0	1	0	0
0.52				1			1			2		
0.53				1			0			1		
0.54				1			2			3		
0.55				2			3			4		
0.56				2			4			6		
0.57				2			2			4		
0.58				2			4			6		
0.59				0			6			6		
0.60				0			6			6		
0.61				0			1			1		
0.62				0			1			1		
0.63				1			2			3		
0.64				1			2			3		
0.65				2			1			3		
0.66				1			3			4		
0.67				3			2			5		
0.68				3			4			7		
0.69				3			3			6		
0.70				4			6			10		
0.71				1			0			1		
0.72				2			0			2		
0.73				1			1			2		
0.74				2			3			5		
0.75				3			1			4		
0.76				3			3			6		
0.77				5			4			9		
0.78				3			4			7		
0.79				1			0			1		
0.80				1			1			2		
0.81				2			2			4		
0.82				1			2			3		
0.83				2			3			5		
0.84				1			3			4		
0.85				2			4			6		
0.86				1			4			5		
0.87				1			3			4		
0.88				1			0			1		
0.89				0			3			3		
0.90				1			2			3		
0.91				0			1			1		
0.92				1			2			3		
0.93				0			1			1		
0.94				1			1			2		
TOTAL	0	0	0	49	2	0	105	0	1	154	5	1

Table A-4

[redacted]

MISSION • 1230-2 • INSTRUMENT • AFT 8/25/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
1.01	0	0	0	1	0	0	1	0	0	2	0	0
1.02	0	0	0	0	0	0	2	0	0	2	0	0
1.03	0	0	0	0	0	0	0	0	0	0	0	0
1.04	0	0	0	0	0	0	1	0	0	1	0	0
1.05	0	0	0	0	0	0	2	0	0	2	0	0
1.06	0	0	0	0	0	0	1	0	0	1	0	0
1.07	0	0	0	0	0	0	1	0	0	1	0	0
1.08	0	0	0	0	0	0	0	0	0	0	0	0
1.09	0	0	0	0	0	0	2	0	0	2	0	0
1.10	0	0	0	0	0	0	0	0	0	0	0	0
1.11	0	0	0	0	0	0	1	0	0	1	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
1.46	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				11	13	1	41	28	4	52	38	5

[redacted]

Table A-4

[illegible] • 2030-2 • INSTRUMENT • AFT 8/25/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
1.51	0	0	0	0	1	0	0	0	0	0	1	0
1.52	0	0	0	0	1	0	0	0	1	0	1	1
1.53	0	0	0	1	0	0	1	1	0	2	1	0
1.54	0	0	0	0	0	0	0	3	1	0	3	1
1.55	0	0	0	0	2	0	0	6	1	0	8	1
1.56	0	0	0	0	2	0	0	2	0	0	4	0
1.57	0	0	0	0	0	0	0	0	0	0	0	0
1.58	0	0	0	0	0	1	0	0	0	0	0	1
1.59	0	0	0	0	0	0	0	3	0	0	3	0
1.60	0	0	0	0	0	0	0	3	0	0	3	0
1.61	0	0	0	0	0	0	0	0	0	0	0	0
1.62	0	0	0	0	0	0	0	0	1	0	0	1
1.63	0	0	0	0	1	0	0	2	1	0	3	1
1.64	0	0	0	0	0	0	0	0	0	0	0	0
1.65	0	0	0	0	0	0	0	2	1	0	2	1
1.66	0	0	0	0	1	0	0	3	1	0	4	1
1.67	0	0	0	0	0	0	1	2	0	1	2	0
1.68	0	0	0	0	0	0	1	2	0	1	2	0
1.69	0	0	0	0	0	0	0	0	0	0	0	0
1.70	0	0	0	0	2	0	0	10	3	0	12	3
1.71	0	0	0	0	0	0	0	4	0	0	4	0
1.72	0	0	0	0	0	0	0	0	0	0	0	0
1.73	0	0	0	0	1	1	0	1	0	0	2	1
1.74	0	0	0	0	1	0	0	1	0	0	2	0
1.75	0	0	0	0	0	0	0	0	0	0	0	0
1.76	0	0	0	0	2	1	0	2	0	0	4	1
1.77	0	0	0	0	1	0	0	0	0	0	1	0
1.78	0	0	0	0	0	0	0	4	0	0	4	0
1.79	0	0	0	0	1	0	0	0	0	0	1	0
1.80	0	0	0	0	3	0	0	5	2	0	8	2
1.81	0	0	0	0	1	0	0	1	0	0	2	0
1.82	0	0	0	0	3	0	0	3	2	0	6	2
1.83	0	0	0	0	0	0	0	4	0	0	4	0
1.84	0	0	0	0	2	1	0	4	1	0	6	2
1.85	0	0	0	0	2	1	0	1	0	0	3	1
1.86	0	0	0	0	0	0	0	3	0	0	3	0
1.87	0	0	0	0	0	0	0	0	0	0	0	0
1.88	0	0	0	0	0	1	0	1	1	0	1	2
1.89	0	0	0	0	0	0	0	0	0	0	0	0
1.90	0	0	0	0	3	1	0	0	2	0	3	3
1.91	0	0	0	0	0	1	0	1	1	0	1	2
1.92	0	0	0	0	3	1	0	0	3	0	3	4
1.93	0	0	0	0	0	0	0	0	0	0	0	0
1.94	0	0	0	0	4	1	1	0	1	1	4	2
1.95	0	0	0	0	2	0	0	2	1	0	4	1
1.96	0	0	0	0	2	2	0	0	0	0	2	2
1.97	0	0	0	0	0	1	0	1	0	0	1	1
1.98	0	0	0	0	1	1	0	1	0	0	2	1
1.99	0	0	0	0	1	0	0	2	0	0	3	0
2.00	0	0	0	0	4	3	0	9	6	0	13	9
SUBTOTAL	0	0	0	1	47	17	4	90	30	5	137	47

Table A-4

[redacted]

MISSION * 1030-2 * INSTRUMENT * AFT 8/25/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS LIM
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
TOTAL	0	0	0	0	14	38	0	50	69	0	64	107

[redacted]

Table A-4

[redacted]

MISSION • 1040-2 • INSTRUMENT • AFT 8/25/66 DENSITY FREQ DISTR

DENSITY VALUE	PRIMARY MIN	PRIMARY MAX	PRIMARY LIM	INTERMEDIATE MIN	INTERMEDIATE MAX	INTERMEDIATE LIM	FULL MIN	FULL MAX	FULL LIM	ALL LEVELS MIN	ALL LEVELS MAX	ALL LEVELS 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	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	0	0	0	0	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	0	0	0	0
2.09	0	0	0	0	0	0	0	0	0	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
SUBTOTAL	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	73	72	56	171	171	104	244	244	160

MISSION 1040-2 INSTR - AFT 8/25/66 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	73	0 PC	1 PC	75 PC	19 PC	4 PC
FULL	171	2 PC	0 PC	63 PC	35 PC	1 PC
ALL LEVELS	244	2 PC	0 PC	66 PC	30 PC	2 PC

PROCESS LEVEL	LAST + 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	0.17 AND UP	0.01-0.39	----------	0.40-0.90	0.91-1.69	1.70 AND UP

[redacted]

Table A-4

MISSION * [illegible] * INSTR * SET * [illegible] PLOT OF D IN * TERRAIN * ~~PROCESSING~~ * INTERMEDIATE

ARITH MEAN * 0.77 * MEDIAN * [illegible] * STD DEV * [illegible] * RANGE * 0.34 TO 1.53 WITH 73 SAMPLES

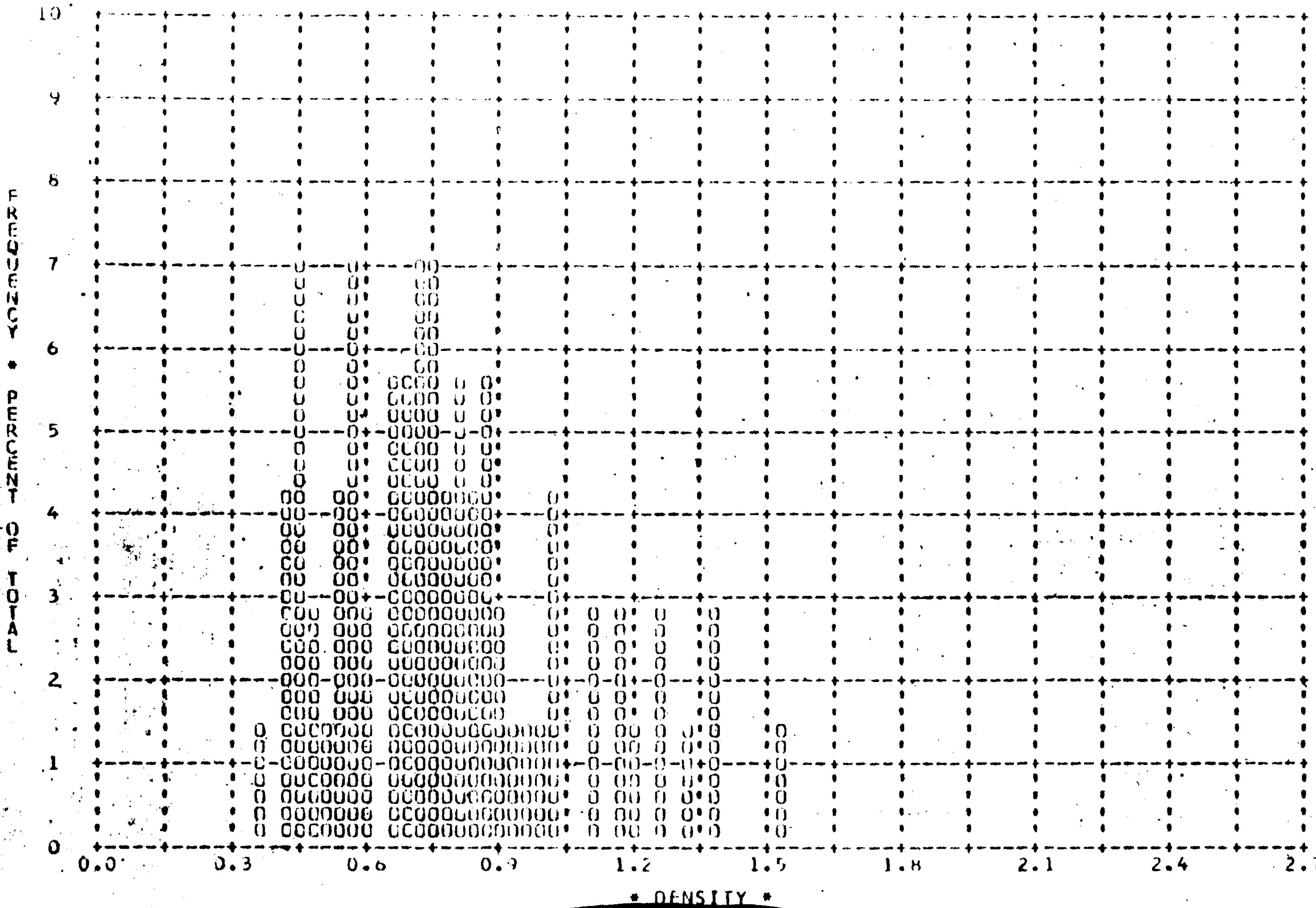
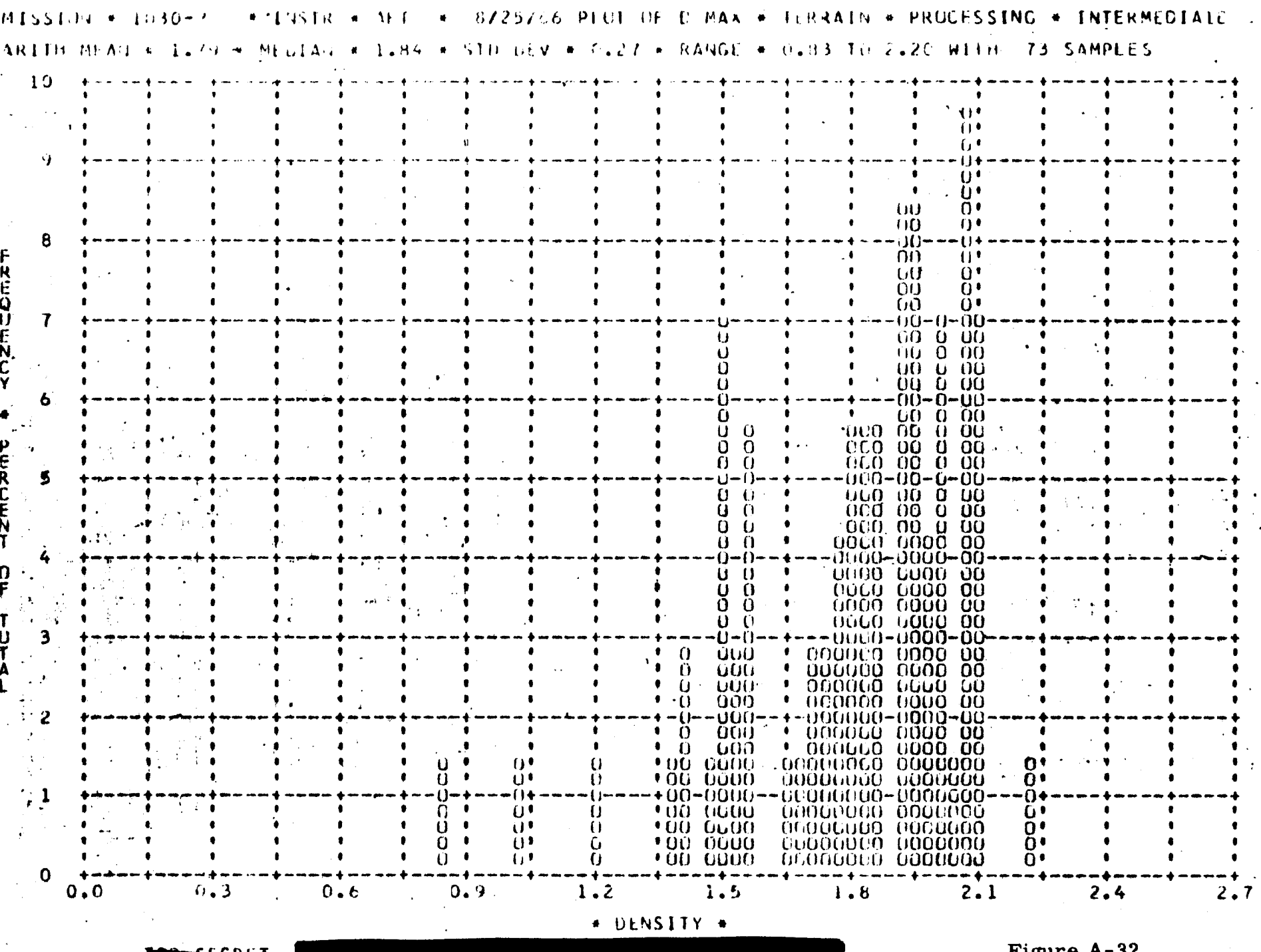


Figure A-31

[redacted]



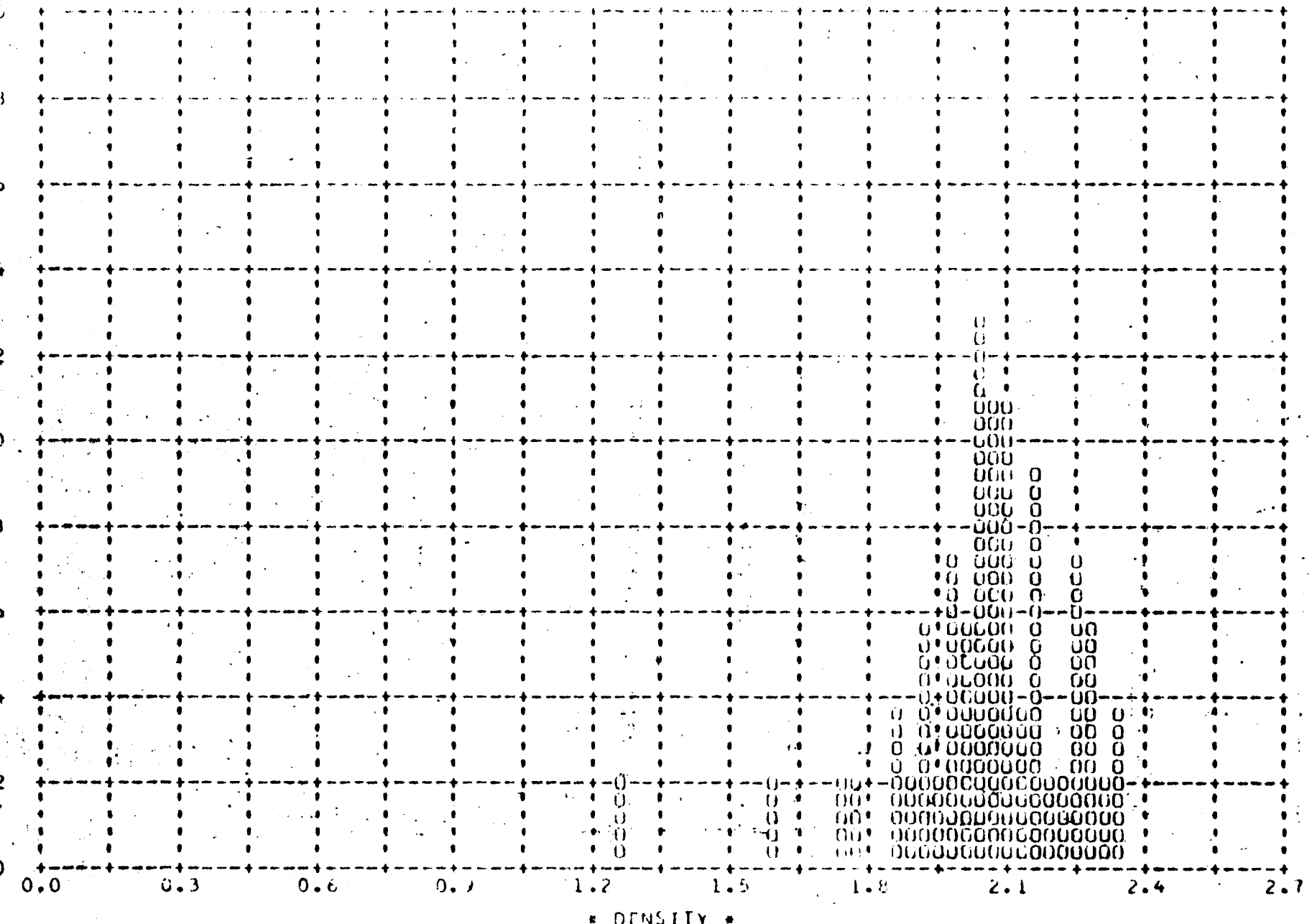
TOP SECRET [redacted]

Figure A-32

[redacted]

MISSION * 1030-[redacted] * INSTR * MET * 9/25/66 PLOT OF [redacted] MAX * [redacted]LOOD * PROCESSING * INTERMEDIATE

ARITH MEAN * 2.05 * MEDIAN * 2.05 * STD DEV * 0.1[redacted] * RANGE * 1.24 TO 2.34 WITH 56 SAMPLES

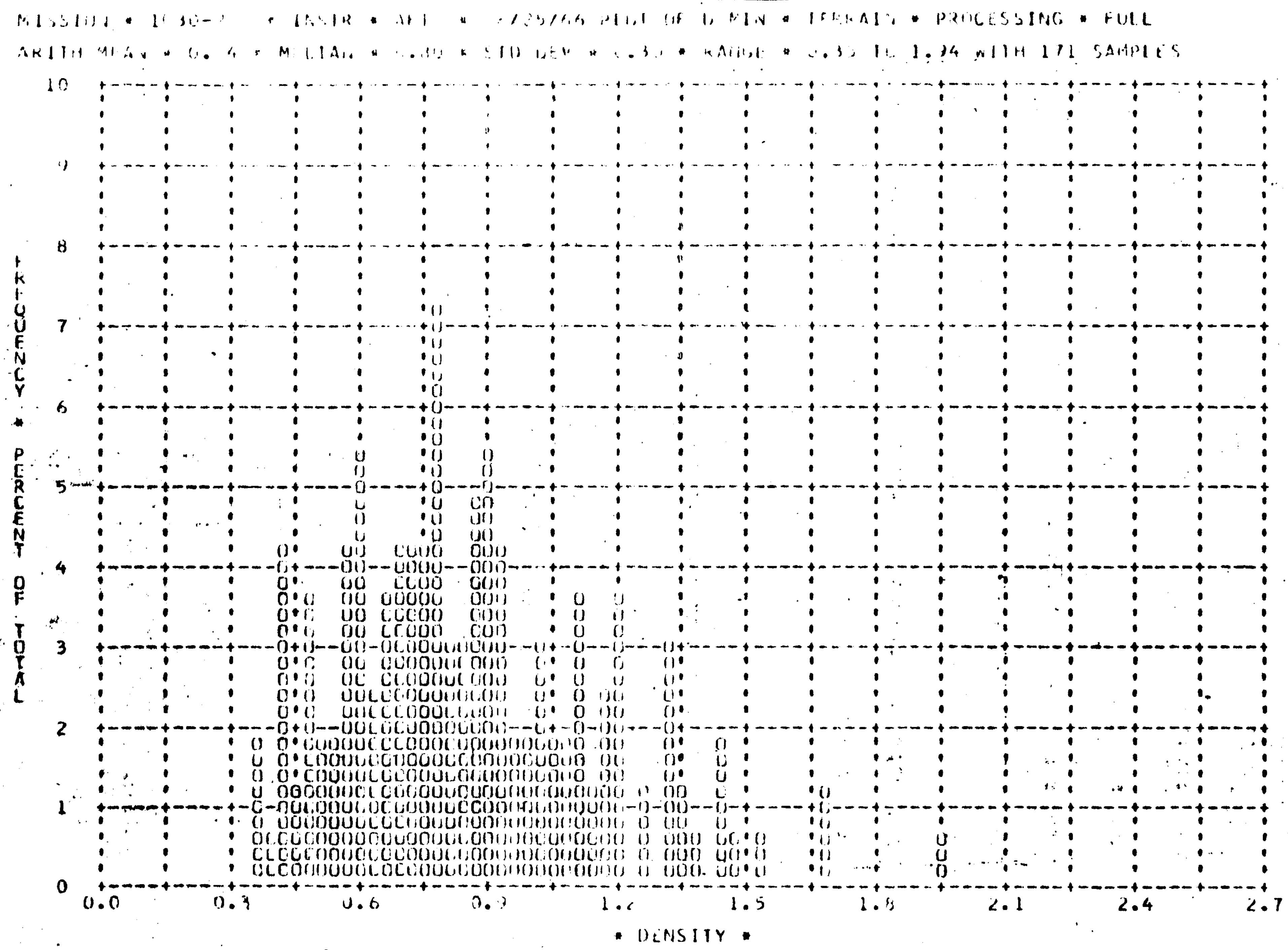


[redacted]

~~TOP SECRET~~ [redacted]

Figure A-33

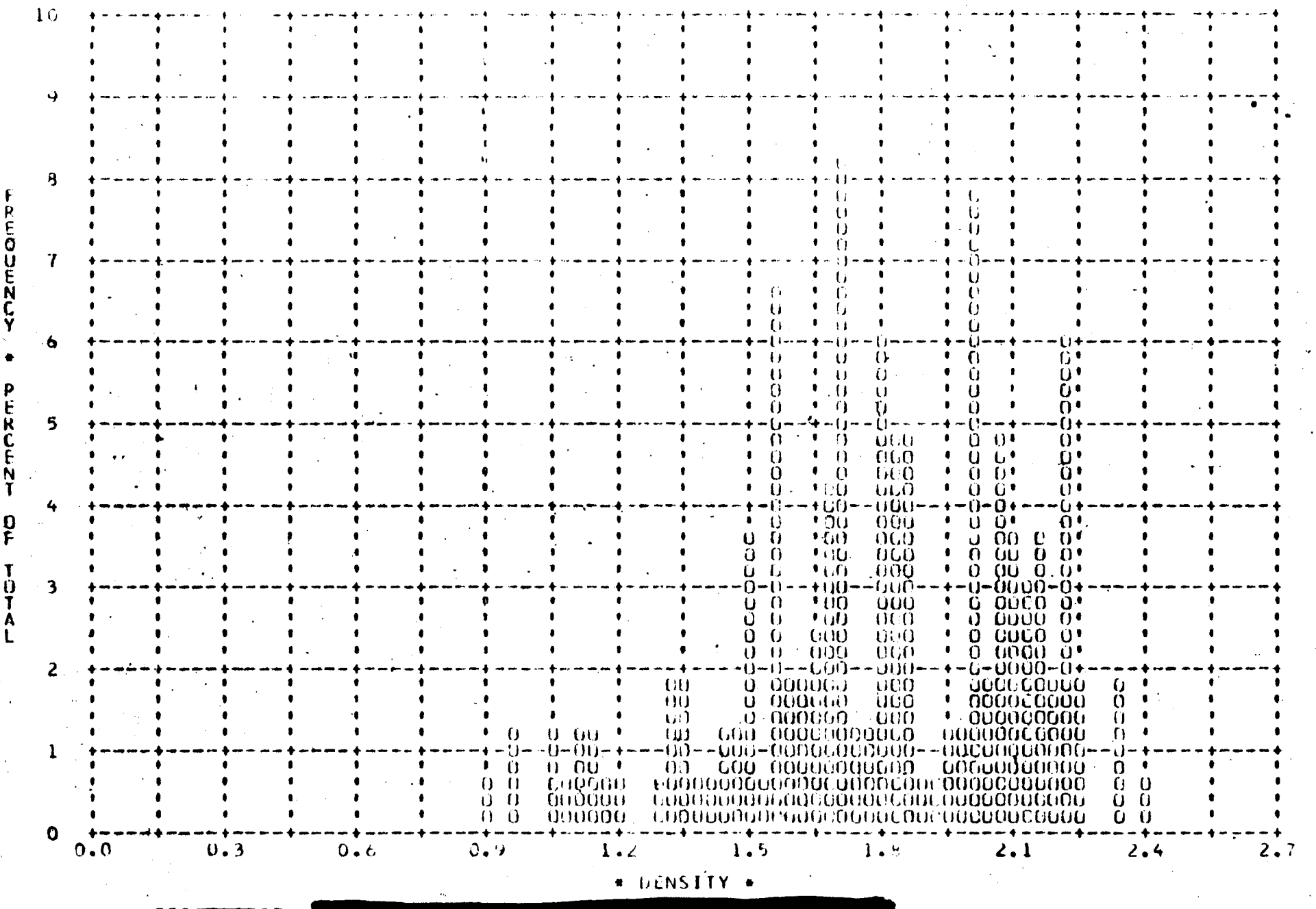
[redacted]



~~TOP SECRET~~ [redacted]

Figure A-34

[redacted]

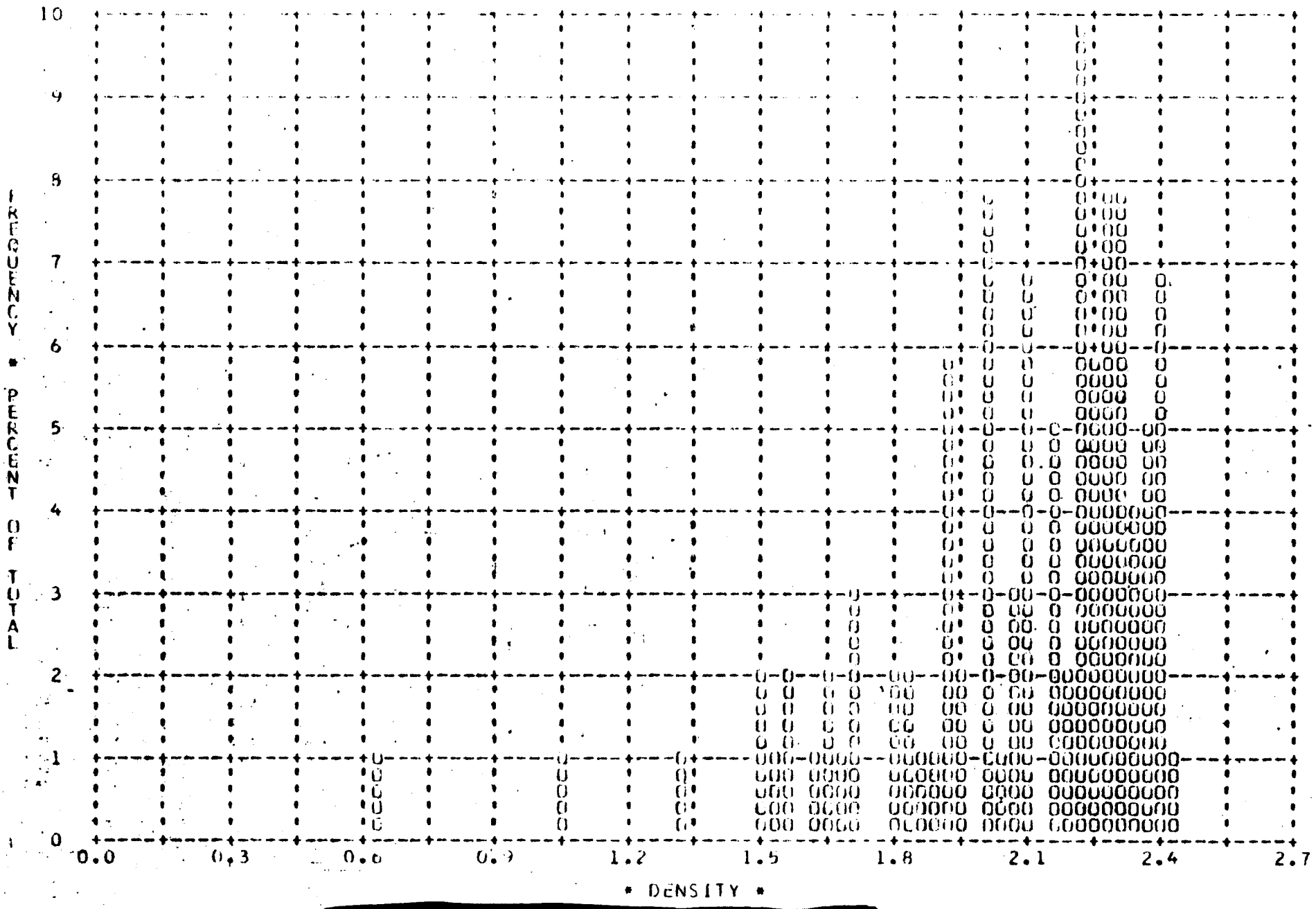


[redacted]

TOP SECRET

Figure A-35

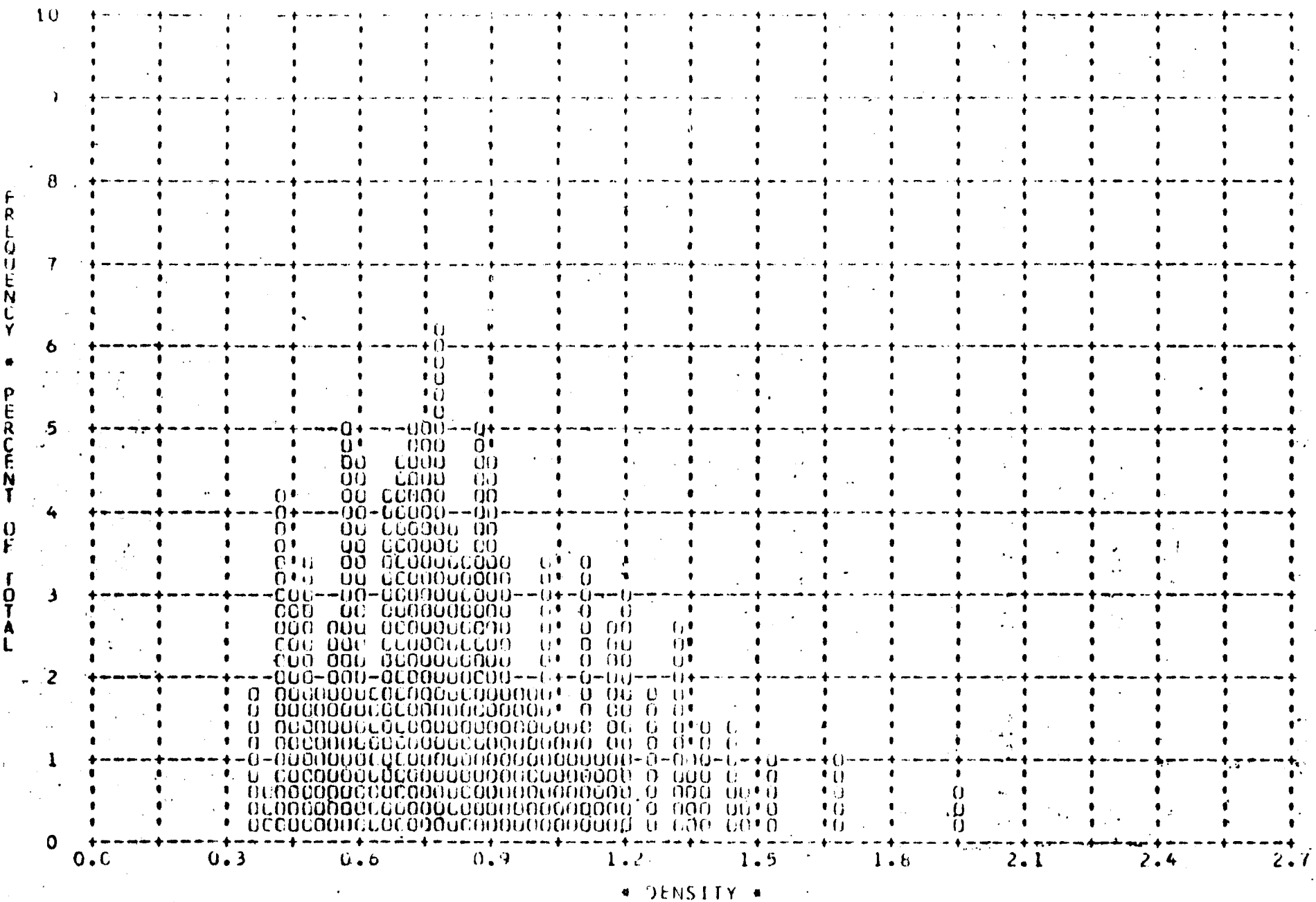
[redacted]



[redacted]

Figure A-36

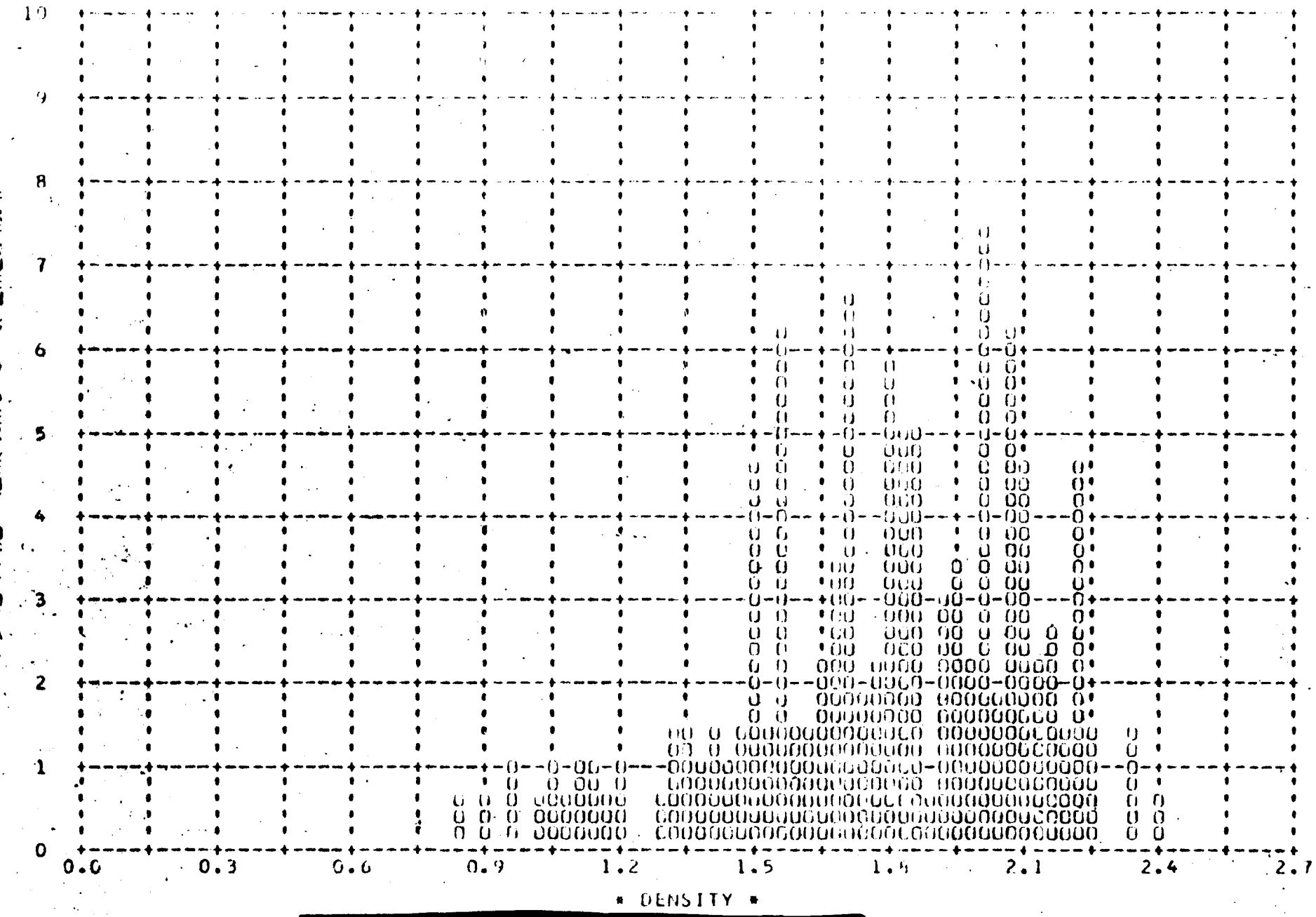
[redacted]



TOP SECRET [redacted]

Figure A-37

[redacted]

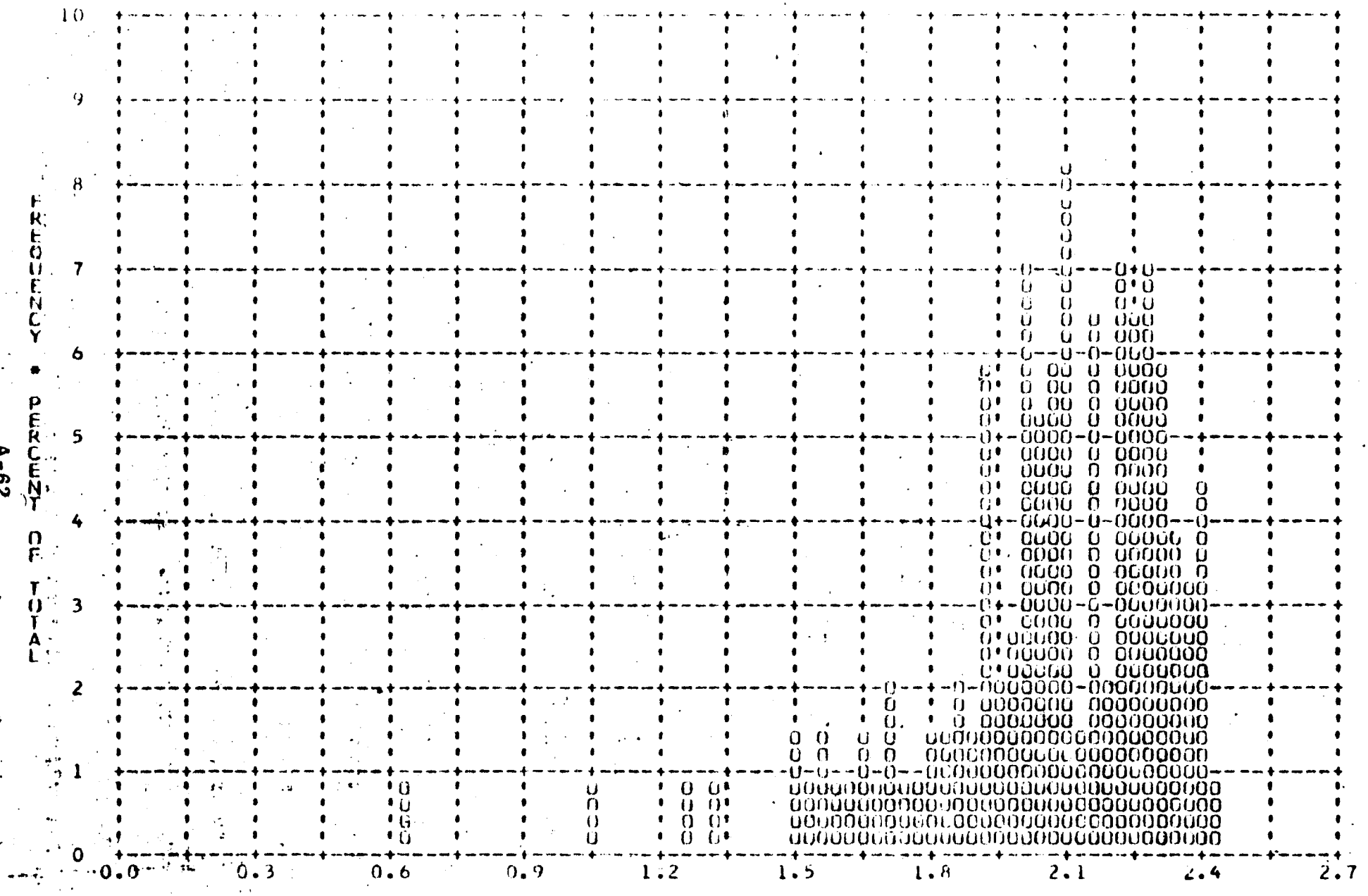


TOP SECRET [redacted]

Figure A-38

[redacted] * PROCESSING * ALL LEVELS

WITH MEAN * 2.[illegible] * MEDIAN * 2.10 * STD DEV * [illegible] * RANGE * [illegible] TO 2.43 WITH 160 SAMPLES



TOP SECRET [redacted]

Figure A-39

Distribution:

Copy No.	To
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