TECHNICAL EVALUATION REPORT

ON ORIGINAL NEGATIVES

FROM

MISSION SEGMENTS 1018-1 AND 1018-2

9 JUNE 1965

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This report consists of 238 pages.

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Notice of Missing Page(s)

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FOREWORD

THIS REPORT PREPARED FOR AND BY DIRECTION OF

THE UNDER SECRETARY OF THE AIR FORCE

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ABSTRACT

Reconnaissance Satellite Mission 1018 was launched on 25 March 1965 from Point Arguello, Vandenberg AFB, California. The first segment, 1018-1, was recovered in flight on 29 March 1965. The System was reactivated for another three and a half days before the second Mission Segment, 1018-2, was recovered in flight on 1 April 1965.

The following report presents the results of a technical photographic evaluation of the original negatives, which total approximately 30,606 feet of 70mm, Type 4404 Film, excluding the pre-flight portion. This imagery was obtained from 51 of the total 97 orbits.

The evaluation by the SPPL Team includes inspecting the film for physical degradations, measuring density, photographic overlap and Visual-Reciprocal Edge Spread (V-RES) values, and analyzing imagery by edge scan techniques. In the accomplishment of edge scan analysis, a 1μ x 80μ slit was used on a Mann-Data Micro-Analyzer. An additional analysis by edge scan techniques was performed by the Scientist/Consultant Team using a 1μ x 80μ slit on the Eastman Kodak Model 5 Microdensitometer.

The Wratten 25 Filter experiment was continued on Mission 1018. This experiment consisted of utilizing a Wratten 25 Filter on the Forward Camera while retaining the Wratten 21 Filter on the Aft. This Wratten 25 (red) Filter was used for the purpose of compensating for the existing "facing-illumination" condition. The experiment has also been conducted on Missions 1007 and 1014-1017.

Analysis by edge scan techniques performed by the SPPL Team produced the following results when converted to ground resolution: 14.3' for MTF/AIM, 13.4' for 50% Spread, and 15.4' for M-RES on the Forward Camera; and 14.5' for MTF/AIM, 12.6' for 50% Spread, and 15.4' for M-RES on the Aft Camera. The results of the Scientist/Consultant Team are 13.2' for MTF/AIM and 10.8' for 50% Spread on the Forward Camera; and 11.2' for MTF/AIM and 8.8' for 50% Spread on the Aft Camera. The analysis from the SPPL Team shows similar image quality for both Panoramic Cameras, while the Scientist/Consultant Team shows the Aft Camera to have higher resolution than the Forward Camera.

The V-RES values range from 45 to 125 with an average of 83. This average V-RES value represents a ground resolution of 12.6 feet.

Five CORN displays (4 mobile and 1 fixed) were activated for Mission 1018. Photographic coverage was obtained only on Mission Segment 1018-1. The displays covered were the mobile and fixed Bar Targets at Pahrump, Nevada; the fixed Bar Target at Indian Springs, Nevada (this target was not activated for Mission 1018); and a mobile 200' Controlled Scene Brightness Target at Palomas Plain, Arizona. The ground resolution read from the Bar Targets averaged 13.1 feet. The fixed target at Indian Springs could not be resolved. Analysis of the 200' Controlled Scene Brightness Target by edge scan techniques resulted

in the following average values: 16.1' for MTF/AIM, 12.3' for 50% Spread, and 13.6' for M-RES. Included in this report is a tabulation of weather data recorded at the Pahrump, Nevada, and Palomas Plain, Arizona, CORN displays. The data was obtained from instrumented weather balloons designed to record temperature, humidity, wind, dew point, and pressure data.

The average density values from the Forward and Aft Cameras of the two Mission Segments are similar: however, due to the higher percentage of Full processing on the Aft Camera of Segment 1018-2, the average density values are significantly higher than those of the Forward Camera. Overall processing of this Mission is considered good.

A "Stereo-Suppress" feature was introduced on Passes D05, D06, D07, and D21 of Mission Segment 1018-1. A visual evaluation performed on these Passes showed little to no effect on the pitch and roll of the vehicle.

This is the first mission evaluation that presents the frequency distribution of Dmin and Dmax values for both mission segments by sun angle and processing level. These illustrations portray the actual Dmin and Dmax values within, below, or above the desired density range.

The overall image quality of Mission 1018 is higher than Mission 1017. Physical degradations are minor.

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SECTION I

INTRODUCTION

A technical photographic analysis was performed on the original negatives from Reconnaissance Satellite Mission 1018. The results of this photographic evaluation are presented in the following report.

The "J" Modification of the CORONA Camera System used for this Mission was designed to obtain stereo coverage from the two Panoramic Cameras. This System incorporates two separate film recoveries, with one supply source for each Panoramic Camera. The vehicle for Mission 1018 was launched from Point Arguello, Vandenberg AFB, California, on 25 March 1965. The first film recovery, designated Mission Segment 1018-1, was accomplished in flight after 65 orbits. The second Mission Segment, 1018-2, was recovered in flight after 32 orbits.

Section II, paragraph A., "Known Information," outlines specific mission data, a brief description of the CORONA Camera System, resolution capabilities, and subject environmental information (sun angle and latitude). Paragraph B., "Information Derived from Analysis," includes data derived from the film inspection, processing, laboratory evaluations, image analysis, Wratten 25 Filter experiment, film format characteristics, visual evaluation of a "Stereo-Suppress" feature, and all information pertaining to the Controlled Range Network (CORN) Operations for this Mission.

There were no additional or revised procedures, methods, or equipment used in the evaluation of Mission 1018; hence Section III refers to the descriptions outlined in the corresponding section of SPPL Technical Report No [redacted] Mission 1017).

Section IV presents observations and summaries of data resulting from the mission analysis and concludes with a brief description of the more important photographic physical characteristics.

Section V lists all referenced messages and documents.

Section VI, the Appendix, includes tabulations of density and edge analysis data, photographic enlargements (10X and 40X) with the respective Micro-Analyzer traces, CORN weather data, and a processing profile for all frames.

Sections II, III, and IV are supplemented with graphs, tables, and illustrations which further clarify the Mission evaluation.

SECTION II

TECHNICAL DATA AND RESULTS

This section presents information obtained from associated mission documents concerning the camera system and data derived from the photographic physical characteristics evaluation of the original negatives from Mission 1018.

A. Known Information

1. Mission Data

a. Mission Segment Number and Dates of Photography:[1]

1018-1: 25 March 1965 (2110Z) - 29 March 1965 (2338Z).

1018-2: 29 March 1965 - 1 April 1965 (0029Z).

b. Ephemeris: "Performance Estimate" data was available.[2]

c. Mission Product: Listed by Mission, Camera Position, Passes, Rolls, and Frames. (Table 1, Appendix 1, pages 1-1 and 1-2).

d. Footage Received:

1018-1: 15,874 feet (approximate), including 886 feet of pre-flight.

1018-2: 15,618 feet (approximate). See Illustration 1, page 20.

2. Camera System

a. Camera

(1) The "J" Modification of the CORONA Camera System used for this Mission included ten cameras: two Panoramic Cameras (Fwd and Aft), four Horizon Cameras (a pair mounted to each Panoramic Camera), two Stellar and two Index Cameras (one Stellar/Index for each film recovery). The System incorporates two separate film recoveries with one supply spool for each Panoramic Camera. The first film load was recovered after five days of operation. This package recovery is designated Mission Segment 1018-1. Reactivated on 29 March 1965, the System operated for another three and one-half days before recovery of the remaining film load which was designated Mission Segment 1018-2. The CORONA Camera System is designed to obtain stereo coverage from the two main Panoramic Cameras. The Horizon and Stellar/Index Cameras obtain vehicle attitude and positional data. For specific information on the Camera System, see Table 2, Appendix 2, pages 2-1 and 2-2.

(2) A Wratten 25 Filter was used on the Forward Camera and a Wratten 21 Filter on the Aft Camera of this Mission: Normally in this System the Wratten 21 Filter is used for both cameras. The Wratten 25 is a red filter used primarily to reduce glare and haze. The exposure setting for the

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1 Messages: 25 and 29 March 1965, and 1 April 1965.

2 Messages: 30 March 1965 (1018-1) and 1 April 1965 (1018-2).

Forward Camera on Mission 1018 was adjusted to compensate for this filter by increasing the exposure time and the slit width.

b. Film[3]

Types of film used on Mission Segments 1018-1 and 1018-2 are presented in Table 3, Appendix 3, page 3-1.

c. Resolution Capabilities[4]

Prior to launch, photographic resolution testing is conducted on all lenses except the Stellar lens. The two Panoramic Cameras are tested dynamically in flight configuration while the remaining lenses are statically bench-tested as components. The high contrast photographic resolution test results are listed in the following table:

TABLE 4 - CAMERA RESOLUTION CAPABILITIES

	Panoramic		Horizon Fwd		Horizon Aft		Index		Stellar	
	Fwd	Aft	Take-up	Supply	Take-up	Supply	-1	-2	-1	-2
Film	4404	4404	4404	4404	4404	4404	4400	4400	4401	4401
Camera Resolution	168 1/mm (Avg)	178 1/mm (Avg)	87 1/mm (Avg)	112 1/mm (Avg)	109 1/mm (Avg)	111 1/mm (Avg)	75.8 1/mm (Avg)	78.6 1/mm (Avg)	n/a	n/a

3. Description of Subject Environment

a. Sun Angle

Sun angles of the frames evaluated from Mission 1018 range from 6° to 77° and are correlated with the density readings in Table 6, Appendix 5, pages 5-1 through 5-12, and Illustration 16, pages 45 and 46. Sun angles are correlated with V-RES values in Illustration 23, pages 55 and 56.

b. Geographic Latitude

Geographic latitude of the frames evaluated from Mission 1018 range from 1°N to 81°N, and are correlated with the density readings in Table 6, Appendix 5, pages 5-1 through 5-12, and Illustration 17, pages 47 and 48. Latitude is correlated with V-RES values in Illustration 24, pages 57 and 58.

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[3] Manual of Physical Properties of Kodak Aerial and Special Sensitized Materials, Eastman Kodak Company, Rochester, New York.

[4] Message: 25 March 1965.

B. Information Derived from Analysis

1. Physical Degradations

a. Mission Segment 1018-1: One hundred and fourteen rolls of original negative film comprising the total product of the Panoramic and Horizon Cameras, excluding the pre-flight portion, were examined for physical degradations.

(1) Imaged

(a) Forward Panoramic Camera

1 A fogged area, approximately 2" wide, was noted extending the entire width of the image format at the center of Frame 001 on all passes except D01, D02, D07, A08E, and D08.

2 Unidentified fogging, varying in pattern and density, was observed near the head of the next to last frame on all passes except D01, A08E, D32, and D65.

3 A fogged area, approximately 6" wide, is visible extending across the entire width of the image format near the center of the sixth from the last frame on all passes except A08E, A24E, and D65.

4 Dendritic fogging was observed along the non-titled edge near the head of Frame 037, Pass D40.

(b) Aft Panoramic Camera

1 A fogged area, approximately 3" wide, was noted extending the entire width of the image format in the center of Frame 001 and the first frame after each camera start-up operation on all passes except D01, D02, D06, and D58.

2 Several streaks of fog, varying in density and length, occur within the image format area along the non-titled edge of the third or fourth from the last frame on all passes except D01, D05, D07, A08E, D21, D23, A24E, D25, D31, D37, D39, D40, D42, and D65.

3 Equipment shadow graphs were noted on Passes D37, Frame 082; D40, Frame 030; D52, Frame 023; and D65, Frame 001.

4 Dendritic fog, varying in length, was observed extending from the non-titled edge into the image format area intermittently throughout Passes D24, D25, D55, D57, D58, and D65.

5 A minus-density streak is visible extending across the entire length of Frame 006, Pass D05.

6 Numerous parallel, minus-density streaks, approximately 1/8" wide and varying in length, were noted throughout Passes D02, D06, and D08.

(2) Superficial

(a) Forward Panoramic Camera

1 A small emulsion scratch appears adjacent to each format edge. These two scratches are aligned directly under the camera number on all frames and passes.

2 Numerous fine-lined, short, parallel, emulsion scratches were noted within 1" of the non-titled edge throughout all passes except D22, D32, D52, D57, and D65.

3 A processing comet was found on Pass D26, Frames 029 and 116.

4 A post-processing splice was noted between Frames 003 and 004, Pass D16E.

5 A pre-processing splice was observed on Frame 018 of Pass D10 and Frame 104 of Pass D39.

6 Approximately 75% of Frame 001, Pass D65, is missing.

7 Foreign matter and a few minor pinholes, scratches, and abrasions were noted throughout this segment of the Mission.

(b) Aft Panoramic Camera

1 A series of fine-lined, short, parallel, emulsion scratches, directly adjacent to both format edges, was noted at the head and tail of all frames and passes except D23, D31 and D65.

2 A small emulsion scratch appears adjacent to each format edge. These two scratches are aligned directly under the camera number on all frames and passes.

3 A processing comet was noted on Passes D06, Frames 002 and 095; D08. Frames 043, 051, and 137; and D26, Frame 026.

4 A post-processing splice was found between Frames 009 and 010 of Pass D16E.

5 A pre-processing splice was observed on Passes D24, Frame 090; D57, Frame 106; and D65, Frame 009.

6 Approximately 50% of Frame 010, Pass D65, is missing.

7 A continuous crease was observed extending from Frames 102 through 107 of Pass D06.

8 Foreign matter and a few minor pinholes, scratches, and abrasions were noted throughout this segment of the Mission.

b. Mission Segment 1018-2: One hundred and seven rolls of original negative film comprising the total product of the Panoramic and Horizon Cameras, excluding the pre-flight portion, were examined for physical degradations.

(1) Imaged

(a) Forward Panoramic Camera

1 Unidentified fogging, varying in pattern and density, was noted near the head of the next to last frame on all passes except A73E and D97.

2 Dendritic fog, varying in length, was observed extending from the non-titled and/or titled edges into the image format area intermittently throughout Passes D70-D73, D81, D84, D86, and D88-D91.

3 Several plus-density spots were noted on Frame 003, Pass D66.

(b) Aft Panoramic Camera

1 A narrow band of fog extending from the non-titled edge to the titled edge was visible at the center of Frame 001 on the following Passes: D66, A73E, D79, D87, and D95.

2 Dendritic fog was noted intermittently on the titled and/or non-titled edge of Passes D70, Frames 014-394; D71, Frames 005-008, 011, 015-054, 084, and 089-157; D72, Frames 027-029, 036, 086-090, and 228-233; and A73E, Frames 001-016.

3 Numerous plus-density lines, approximately 3/8" wide, are visible extending across the entire width of the image format area intermittently throughout all passes and frames. These lines are especially noticeable on frames of light density.

(2) Superficial

(a) Forward Panoramic Camera

1 A small emulsion scratch appears adjacent to each format edge. These two scratches are aligned directly under the camera number on all frames and passes.

2 Numerous fine-lined, short, parallel, emulsion scratches were noted within 1" of the non-titled edge throughout all passes.

3 A processing comet was found on Passes D70, Frames 15, 31, and 310; D72 Frame 033; D73, Frame 138; and D84, Frame 023.

4 A fine-lined emulsion scratch is visible extending the entire length of Frames 179 through 189 of Pass D70. Also noted on these frames were 1/4" emulsion scratches spaced approximately every 7 1/2 inches.

5 Several small, smeared, plus-density spots were observed in the margin area of the non-titled edge of Pass D70, Frames 273, 275, and 279.

6 Two deep emulsion scratches were noted 1 1/4" from the titled edge, one 5 inches and the other 8 inches from the tail of Frame 044, Pass D96.

7 Foreign matter and several pinholes, scratches, and abrasions were found throughout this segment of the Mission.

(b) Aft Panoramic Camera

1 A small emulsion scratch appears adjacent to each format edge. These two scratches are aligned directly under the camera number on all frames and passes.

2 A series of fine-lined, short, parallel, emulsion scratches was noted at the head and tail of all frames on Pass D70.

3 A processing comet was found on Pass D70, Frames 025 and 222, and Pass D90, Frame 176.

4 A severe emulsion scratch, approximately 3/4" long, was observed parallel to the major axis 1 1/2" from the non-titled edge and 10" from the head of Frame 273, Pass D71.

5 Five deep emulsion scratches, varying in length from 3/4" to 2 1/2", were noted adjacent to the non-titled edge of Frame 198, Pass D73.

6 A pre-processing splice was found on Pass D90, Frame 001.

7 Foreign matter and numerous pinholes, scratches, and abrasions were noted throughout this segment of the Mission.

2. Film Processing Data

In order to control density, both Segments 1018-1 and 1018-2 made 51 development level changes on the Forward Camera and 46 on the Aft Camera. The following table shows the percentage of the original negatives processed at the three levels of development:

Mission Segment	Development Level	Forward Camera	Aft Camera
1018-1	Primary	9%	9%
	Intermediate	53%	63%
	Full	38%	28%
1018-2	Primary	18%	1%
	Intermediate	74%	50%
	Full	8%	49%

A complete listing of the development level for each frame is shown in Table 5, Appendix 4, pages 4-1 through 4- 8. The standard processing curves for the three development levels are shown in Illustration 2, page 21. The control curves for the head and tail of each Mission Segment and camera position are shown in Illustration 3, pages 22 through 25.

3. Laboratory Evaluations

a. Sensitometric

Two unexposed 70mm strips of Type 4404 Film from Mission 1018 (one from each Panoramic Camera) were received for evaluation. These two unexposed strips, along with a sample of the SPPL Control Stock for comparison, were exposed on the Eastman Kodak Intensity Scale Sensitometer, Type 1B. Model IV. The three strips were processed in D-19 developer. The sensitometric measurements are graphically presented in Illustrations 4 and 5, pages 26 through 28.

b. Chemical

A sample of the original negative film was tested for archival quality resulting in

0.005(± 0.001) milligrams per square inch of residual thiosulfate. Archival tests should be made within 24 hours after processing, and a test sample should be chosen from an image area. Although these two conditions were not met, the resultant test values were sufficiently low to indicate with reasonable confidence that the processed film is of archival quality.

4. Image Analysis

Image analysis consists of densitometry, analysis by edge scan techniques, analysis of Controlled Range Network (CORN) targets, Visual-Reciprocal Edge Spread (V-RES), and image motion evaluations from the original negatives.

a. Densitometry

Specific information as to the number of values included in the density data summaries can be found by referring to the frequency distribution graphs, Illustrations 10 through 13, pages 37 through 40.

(1) Image Minimum Density Values (Dmin)

Image Dmin values for all negatives examined on Mission 1018 range from 0.16 to 1.78 with a 0.27 standard deviation (σ) and an overall average of 0.64. The average, range, and standard deviation data as computed for each Mission Segment by camera position are as follows:

Mission Segment	Camera Position	Range From	Range To	Average	Standard Deviation
1018-1	Forward	0.19	1.46	0.56	0.21
	Aft	0.18	1.36	0.62	0.22
1018-2	Forward	0.16	1.78	0.57	0.29
	Aft	0.22	1.50	0.81	0.29

The range and average of Dmin by Mission Segment, camera position, and pass are shown in Illustration 6, pages 29 and 30. The distribution of Dmin values is shown by Mission Segment and camera position in Illustration 10, page 37. Illustration 14, pages 41 and 42, portrays the frequency distribution of Dmin values by sun angle, density range, and processing level for each Mission Segment and camera position.

(2) Image Maximum Density Values (Dmax)

Image Dmax values for all negatives examined on Mission 1018 range from 0.50 to 2.26 with a 0.34 standard deviation (σ) and an overall average of 1.63. The average, range, and standard deviation data as computed for each Mission Segment by camera position are as follows:

Mission Segment	Camera Position	Range From	Range To	Average	Standard Deviation
1018-1	Forward	0.64	2.22	1.66	0.33
	Aft	0.68	2.20	1.68	0.34

1018-2	Forward	0.50	2.24	1.50	0.38
	Aft	0.94	2.26	1.70	0.28

The range and average of Dmax by Mission Segment, camera position, and pass are shown in Illustration 7, pages 31 and 32. The distribution of Dmax values is shown by Mission Segment and camera position in Illustration 11, page 38. Illustration 15, pages 43 and 44, portrays the frequency distribution of Dmax values by sun angle, density range, and processing level for each Mission Segment and camera position.

(3) Image Average Density Values ($\bar{D}$)

Image $\bar{D}$ values for all negatives examined on Mission 1018 range from 0.35 to 1.93 with a 0.24 standard deviation (σ) and an overall average of 1.14. The average, range, and standard deviation data as computed for each Mission Segment by camera position are as follows:

Mission Segment	Camera Position	Range From	Range To	Average	Standard Deviation
1018-1	Forward	0.58	1.68	1.11	0.19
	Aft	0.50	1.61	1.15	0.21
1018-2	Forward	0.35	1.93	1.03	0.25
	Aft	0.69	1.85	1.25	0.22

The range and average of $\bar{D}$ by Mission Segment, camera position, and pass are shown in Illustration 8, pages 33 and 34. The distribution of $\bar{D}$ values is shown by Mission Segment and camera position in Illustration 12, page 39 .

(4) Image Density Difference Values (ΔD)

Image ΔD values for all negatives examined on Mission 1018 range from 0.07 to 1.89 with a 0.40 standard deviation (σ) and an overall average of 0.99. The average, range, and standard deviation data as computed for each Mission Segment by camera position are as follows:

Mission Segment	Camera Position	Range From	Range To	Average	Standard Deviation
1018-1	Forward	0.07	1.89	1.10	0.40
	Aft	0.07	1.79	1.06	0.38
1018-2	Forward	0.13	1.85	0.93	0.43
	Aft	0.15	1.80	0.89	0.36

The range and average of ΔD by Mission Segment, camera position, and pass are shown in Illustration 9, pages 35 and 36 . The distribution of ΔD values is shown by Mission Segment and camera position in Illustration 13, page 40.

(5) Gross Fog Values (Base plus Fog)

Gross Fog values for all negatives examined on Mission 1018 range from 0.07 to

0.20 with a 0.03 standard deviation (σ) and an overall average of 0.13. The average, range, and standard deviation data as computed for each Mission Segment by camera position are as follows:

Mission Segment	Camera Position	Range From	Range To	Average	Standard Deviation
1018-1	Forward	0.07	0.20	0.11	0.02
	Aft	0.10	0.19	0.14	0.03
1018-2	Forward	0.08	0.20	0.13	0.03
	Aft	0.08	0.20	0.14	0.03

(6) Cloud Maximum Density Values (Dmax Clouds)

Dmax Cloud values for all negatives examined on Mission 1018 range from 0.90 to 2.35 with a 0.26 standard deviation (σ) and an overall average of 1.93. The average, range, and standard deviation data as computed for each Mission Segment by camera position are as follows:

Mission Segment	Camera Position	Range From	Range To	Average	Standard Deviation
1018-1	Forward	0.90	2.26	1.85	0.29
	Aft	1.09	2.35	1.98	0.25
1018-2	Forward	1.00	2.32	1.96	0.20
	Aft	1.03	2.28	1.95	0.23

(7) Density Tables

A complete listing of density data is presented in Table 6, Appendix 5, pages 5-1 through 5-12. This is the first time that the processing level for each frame entry is listed in the diffuse density table.

(8) Dmin and Dmax Versus Sun Angle and Latitude

Illustrations 14 and 15, pages 41 through 44, show the frequency distribution of Dmin and Dmax values for Mission Segments 1018-1 and 1018-2 by sun angle and processing level. These Illustrations portray the actual Dmin and Dmax values within, below, or above the desired density range. The average Dmin and Dmax values are plotted against each degree of sun angle and latitude in Illustrations 16 and 17, pages 45 through 48.

b. Analysis by Edge Scan Techniques

Analysis by edge scan techniques produced values for the Modulation Transfer Function (MTF), Spread Function Width at 50% Amplitude (50% Spread), and Machine-Reciprocal Edge Spread (M-RES). This analysis is performed by two teams: the SPPL Technical Evaluation (SPPL Team) and a group of scientists and consultants from Industry (S/C Team).

(1) SPPL Team

(a) The computations, comparisons, and analyses of edge scan data are completely

mechanical. The IBM 1710 Computer method for smoothing edge analysis curves is described in Section III. Although no "hand-smoothing" of the edge traces is accomplished, some visual smoothing of MTF curves is necessary for determining the MTF/AIM intersection. Edge scan data is reduced by an IBM computer programmed to perform these tasks. This function is also described in Section III.

(b) One hundred and fourteen traces were accomplished from Mission 1018, using a $1\mu \times 80\mu$ slit, with a Mann-Data Micro-Analyzer.

(c) A complete tabulation of data from the various methods of edge analyses is listed in Table 7, Appendix 7, pages 7-1 through 7-4.

1 The MTF curves are plotted against the Aerial Image Modulation (AIM) curve (low contrast 2:1) for Type 4404 Film. The intersection of the MTF and AIM curves is the MTF/AIM value recorded in cycles/mm. Approximately 25% of these values could be determined only after smoothing the MTF curves.

2 The 50% Spread value extracted from the exposure curve is recorded in microns and also as the reciprocal of this measurement.

3 The M-RES value computed from the edge slope of the exposure curve is recorded as a reciprocal edge spread measurement.

4 Table 7, Edge Scan Data, includes MTF/AIM, 50% Spread, M-RES, Visual-Reciprocal Edge Spread (V-RES), Dmin and Dmax values, location of subject on the frame, subject type, and the orientation of each scene edge traced. For comparison purposes, the MTF/AIM, 50% Spread (reciprocal of width), M-RES, and V-RES values are equivalent measures of image quality.

(d) The average MTF curve with a $\pm 1\sigma$ of all edges for Mission 1018 is shown in Illustration 18, page 49. The frequency distribution of MTF/AIM, 50% Spread, M-RES, and V-RES is portrayed in Illustration 19, page 50. A summary of the SPPL edge analysis data is presented in Table 8, page 17.

(2) Scientist and Consultant Team

(a) An Eastman Kodak Model 5 Microdensitometer with a $1\mu \times 80\mu$ slit was utilized to trace 78 edges similar to those selected and measured by the SPPL Team. The MTF and 50% Spread methods are used by this team for analysis. The MTF/AIM intersection values are listed as lines/mm and the 50% Spread values are recorded in microns. The complete report of the Scientist/Consultant Team analysis is included as Appendix 8, pages 8-1 through 8-25.

(b) To facilitate a comparison of similar values from both teams, the reciprocal of the 50% Spread values (width in microns) is computed by SPPL, and the resultant average of these values is recorded in the summary tables. A summary of data from the Scientist/Consultant Team for Mission 1018 is presented in Table 9, page 18.

c. Controlled Range Network (CORN) Operations

(1) Five CORN displays (4 mobile and 1 fixed) were activated for Mission 1018.

(a) Mission Segment 1018-1: The following CORN resolution targets were covered:

1 A mobile, Medium Contrast "T" Bar Target at Pahrump, Nevada, 26 March 1965, on Pass D16E, Frames 009 (Fwd) and 015 (Aft).

2 The fixed, High Contrast Bar Target at Pahrump, Nevada, 26 March 1965, on Pass D16E, Frames 008 (Fwd) and 014 (Aft).

3 The fixed, High Contrast Bar Target at Indian Springs, Nevada, 26 March 1965, on Pass D16E, Frames 005 (Fwd) and 011 (Aft). This display was not activated for this Mission.

4 A mobile, 200' Controlled Scene Brightness Target at Palomas Plain, Arizona, 27 March 1965, on Pass D32, Frames 010 (Fwd) and 016 (Aft). This site was also to include a mobile Medium Contrast "T" Bar Target; however, it could not be located.

(b) Mission Segment 1018-2:

1 A mobile display located at Lompoc Airport, California, was completely covered by clouds.

2 A mobile target scheduled to be displayed at Miramar NAS, California, was cancelled due to bad weather.

(2) The resolution of the "T" Bar Targets at Pahrump and Indian Springs, Nevada, were read by three observers, and their findings are recorded in Table 10, page 19. Micro-Analyzer traces were made for density analysis and are included in Appendix 6, pages 6-5, 6-11, 6-17, 6-23, 6-29, and 6-35.

(3) The 200' Controlled Scene Brightness Target at Palomas Plain, Arizona, was traced on a Mann-Data Micro-Analyzer with a 1μ x 80μ slit for analysis by edge scan techniques. The results of this analysis are recorded in Table 11, page 19.

(4) Photographic enlargements (10X and 40X) of the CORN displays, in addition to Micro-Analyzer traces and other significant data pertaining to the photographing and processing of the CORN targets, are presented in Appendix 6, pages 6-1 through 6-51.

(5) An instrumented weather balloon, designed to measure temperature, humidity, wind, and pressure up to an approximate altitude of 75,000 feet, was launched by the Air Weather Service over the Pahrump display at 2025Z on 26 March 1965, and the Palomas Plain display at 2000Z on 27 March 1965. Included in Appendix 6, pages 6-37 and 6-51, is the weather data obtained from these operations. The pressure is recorded in millibars (standard sea level pressure is 1013.2 mbs) and altitude recordings are in feet. The temperature and dew point are recorded in degrees centigrade. The winds are expressed in direction (0°-360°) and speed (knots). The dew point is frequently missing due to a lack of instrument response at low temperatures.

d. Blackbird Mission

No Blackbird Missions were scheduled.

e. Visual-Reciprocal Edge Spread (V-RES)

(1) V-RES data consisted of 1,006 measurements. The values range from 45 to 125 with an average of 83. V-RES measurements are recorded in Table 12, Appendix 9, pages 9-1 through 9-6. The range, average, and number of measurements by Mission Segment and camera position are listed below:

Mission Segment	Camera Position	Range	Average	No. of Measurements
1018-1	Forward	55 - 111	83	251
	Aft	55 - 118	82	255
1018-2	Forward	54 - 125	89	256
	Aft	45 - 111	77	244

(2) The frequency distribution of V-RES values is presented in Illustration 20, page 51. Average V-RES values for each pass were computed and are portrayed in Illustration 21, pages 52 and 53. Illustration 22, page 54, shows the average V-RES for the five areas of the frame.

(3) Average V-RES values are plotted against each degree of sun angle and latitude in Illustration 23 and 24, pages 55 through 58.

(4) Two measurements were made for each subject selected: one "With the line-of-flight (W)" and the other "Across the line-of-flight (A)." These values are recorded by Mission Segment, camera position, and frame in Table 12, Appendix 9, pages 9-1 through 9-6.

f. Image Motion

Comparison of V-RES values recorded under "W" and "A" in Table 12, Appendix 9, pages 9-1 through 9-6, will give an indication of image motion as explained in Section III.

g. Wratten 25 Filter Experiment on CORONA Missions.

(1) Mission 1018 is the sixth in a series of missions which are experimenting in the use of a Wratten 25 Filter to compensate for "facing-illumination."

(2) The illumination of subjects photographed by CORONA missions varies significantly from winter to summer. The satellite vehicle normally travels in a polar orbit. One end of each panoramic frame from both the Forward and Aft Cameras virtually faces the sub-solar point during the summer months while, during the winter months, only the Forward Camera frames face the sub-solar point (Illustration 25, page 59). When a lens faces the source of illumination, it is extremely difficult to obtain a good exposure. Due to this situation, the Forward Camera photography has been generally inferior to Aft Camera imagery during winter months. Previous missions of this series, with the exception of 1007 and 1014-1017, have used a Wratten 21 Filter on both Panoramic Cameras. In an attempt to improve the quality of imagery, a series of experiments were initiated in which a Wratten 25 (red) Filter was used on the Forward Camera.

The Wratten 21 (orange) Filter was retained on the Aft Camera. A summary of pertinent data resulting from the analysis of this Mission is presented in Table 13 below:

TABLE 13 - SUMMARY DATA FOR FILTER EXPERIMENT (MISSION 1018)

Mission Segment & Date	Camera Position	Filter	Exposure Slit Width	Exposure Time (avg)	Sun Angles	Latitudes	Density				*Processing			Image Quality			
							Dmin Average	Dmax Average	$\bar{D}$ Average	ΔD Average	P	I	F	MTF/AIM	50% Spread	M-RES	V-RES
1018-1 & -2 25 March through 1 April 1965	Fwd	Wratten 25	0.350"	1/260 (sec)	8° - 77°	1°N - 81°N	0.57	1.58	1.07	1.01	14	83	23	73	78	68	82
	Aft	Wratten 21	0.175"	1/390 (sec)	7° - 77°	1°N - 81°N	0.71	1.80	1.20	0.98	5	56	39	72	83	68	83

*Percentage of Primary, Intermediate, and Full Processing.

h. Subjective Evaluation of Imagery Using "Graded Estimated Measuring Samples" (GEMS)

A subjective method for photographic evaluation utilizing "Graded Estimated Measuring Samples" (GEMS) was recommended by the Drell-Chapman Committee. A brief description of this technique was introduced in Section II, para 4.g. of SPPL Technical Report No. [redacted] (Mission 1006). An analysis of each mission in this series will be accomplished by the National Team responsible for the evaluation using GEMS. The GEMS data, when available, will be incorporated into the technical evaluation report series in order to permit a correlation with an objective method of image analysis by edge scan techniques.

i. "Stereo-Suppress" Visual Evaluation

A "Stereo-Suppress" feature was introduced on Passes D05, D06, D07, and D21 of Mission Segment 1018-1. This feature consisted of the starting up or shutting down of one of the Panoramic Cameras while the other remains in operation. The test was conducted to see if it had any effect on vehicle attitude. A visual evaluation performed on these Passes by the SPPL Team showed little to no effect on the pitch and roll of the vehicle. No unusual image degradations or smearing were noted.

5. Analysis of Film Format Characteristics

a. Titling

(1) Mission Segment 1018-1

(a) Titling produced a double image on Pass D25, Frames 017, 020, 027, and 030 (Aft).

(b) Titling is smeared on Pass D25, Frame 024 (Aft).

(2) Mission Segment 1018-2

Titling was sharply defined throughout this segment of the Mission.

b. Data Block

(1) Mission Segment 1018-1

The binary data was clear and distinguishable throughout this segment of the Mission.

(2) Mission Segment 1018-2

The binary "blips" are smeared on Pass D97, Frame 044 (Fwd).

c. Frequency Marks

(1) Mission Segment 1018-1

The frequency marks appeared very light and in some areas were non-existent throughout this segment of the Mission.

(2) Mission Segment 1018-2

The frequency marks appeared very light and in some areas were non-existent on all passes up to D87 of the Aft Panoramic Camera. From Pass D87 (Aft) throughout the remainder of the Mission they are clear and distinguishable with the exception of the last 1 1/2" of all frames, where the marks are not visible. The frequency marks are light but distinguishable throughout all passes of the Forward Panoramic Camera.

d. Fiducial Marks

Fiducial marks are clear and distinct throughout the Mission.

e. Frame Size

The frame size was measured on Mission Segment 1018-1, Pass D55, Aft Camera, on every tenth frame from 005 through 065. Frames vary in half-length from 14.977" to 14.992". Area one varies in width from 2.178" to 2.180"; area three varies in width from 2.169" to 2.179"; and area five varies in width from 2.178" to 2.182". On Mission Segment 1018-2, Pass D90, every tenth frame from 005 through 075 of the Forward Camera was measured, resulting in a half-length variation from 14.923" to 14.939". Area one varies in width from 2.164" to 2.173"; area three varies in width from 2.165" to 2.172"; and area five varies in width from 2.168" to 2.179".

f. Overlap

Average overlap for Mission 1018 is 4.4% for 403 measurements. The average overlap and number of measurements by Mission Segment and camera position are listed below:

Mission Segment	Camera Position	Average Overlap	No. of Measurements
1018-1	Forward	4.2%	102
	Aft	4.6%	110
1018-2	Forward	3.5%	101
	Aft	5.4%	90

TABLE 8 - SUMMARY OF EDGE SCAN ANALYSIS (SPPL TEAM)

Mission Segment 1018-1 — No. of Edges 56

Method of Analysis		Arithmetic Mean		Standard Deviation		Coefficient of Dispersion	
		Fwd	Aft	Fwd	Aft	Fwd	Aft
Spread Function Width at 50% Amplitude	Width in Microns	13.6	12.8	3.1	4.4	23%	34%
	Reciprocal of Width	77	86	15.9	23.8	21%	28%
Machine-RES		67	68	16.0	18.2	24%	27%
MTF AIM		70	74	16.4	18.0	24%	24%
Visual-RES		79	77	6.6	8.6	8%	11%

Mission Segment 1018-2 — No. of Edges 58

Method of Analysis		Arithmetic Mean		Standard Deviation		Coefficient of Dispersion	
		Fwd	Aft	Fwd	Aft	Fwd	Aft
Spread Function Width at 50% Amplitude	Width in Microns	13.2	13.0	2.8	2.8	21%	22%
	Reciprocal of Width	79	81	15.1	17.0	19%	21%
Machine-RES		69	69	12.3	15.8	18%	23%
MTF AIM		75	71	21.4	15.8	28%	22%
Visual-RES		84	88	6.7	7.2	8%	8%

Mission 1018 (Averages) — No. of Edges - 114

Method of Analysis		Arithmetic Mean		Standard Deviation		Coefficient of Dispersion	
		Fwd	Aft	Fwd	Aft	Fwd	Aft
Spread Function Width at 50% Amplitude	Width in Microns	13.4	12.9	2.9	3.7	22%	28%
	Reciprocal of Width	78	83	15.4	20.6	20%	25%
Machine-RES		68	68	14.2	16.8	21%	25%
MTF/AIM		73	72	19.2	16.8	26%	23%
Visual-RES		82	83	7.0	9.6	9%	12%

TABLE 9 - SUMMARY OF EDGE SCAN ANALYSIS
(S/C TEAM)

Mission Segment 1018-1 — No. of Edges - 34

Method of Analysis		Arithmetic Mean		Standard Deviation		Coefficient of Dispersion	
		Fwd	Aft	Fwd	Aft	Fwd	Aft
Spread Function Width at 50% Amplitude	Width in Microns	10.3	8.8	2.3	2.5	22%	29%
	Reciprocal of Width	101	121	22.6	31.4	22%	26%
MTF/AIM		82	96	15.8	18.3	19%	19%

Mission Segment 1018-2 — No. of Edges - 44

Method of Analysis		Arithmetic Mean		Standard Deviation		Coefficient of Dispersion	
		Fwd	Aft	Fwd	Aft	Fwd	Aft
Spread Function Width at 50% Amplitude	Width in Microns	11.3	9.6	2.3	2.0	21%	22%
	Reciprocal of Width	93	115	21.9	27.6	24%	24%
MTF/AIM		77	91	16.5	16.1	21%	18%

Mission 1018 (Averages) — No. of Edges - 78

Method of Analysis		Arithmetic Mean		Standard Deviation		Coefficient of Dispersion	
		Fwd	Aft	Fwd	Aft	Fwd	Aft
Spread Function Width at 50% Amplitude	Width in Microns	10.8	9.0	2.3	2.2	22%	25%
	Reciprocal of Width	97	118	22.3	29.0	23%	25%
MTF AIM		79	93	16.1	17.0	20%	18%

TABLE 10 - CORN TARGET EVALUATION

Pass	Frame	Subject and Location	Target Orientation	OBSERVER No. 1 BAR GROUPS READ GROUND RESOLUTION A	OBSERVER No. 1 BAR GROUPS READ GROUND RESOLUTION B	OBSERVER No. 2 BAR GROUPS READ GROUND RESOLUTION A	OBSERVER No. 2 BAR GROUPS READ GROUND RESOLUTION B	OBSERVER No. 3 BAR GROUPS READ GROUND RESOLUTION A	OBSERVER No. 3 BAR GROUPS READ GROUND RESOLUTION B
D16E	005 (Fwd)	*Fixed Bar Target Indian Springs, Nevada	Line of Flight b a	0 / -	0 / -	0 / -	0 / -	0 / -	0 / -
	011 (Aft)			0 / -	0 / -	0 / -	0 / -	0 / -	0 / -
D16E	008 (Fwd)	Fixed Bar Target Pahrump, Nevada	Line of Flight b a	2 / 12' 2"	2 / 12' 2"	2 / 12' 2"	2 / 12' 2"	2 / 12' 2"	2 / 12' 2"
	014 (Aft)			2 / 12' 2"	2 / 12' 2"	2 / 12' 2"	2 / 12' 2"	2 / 12' 2"	2 / 12' 2"
D16E	009 (Fwd)	Mobile "T" Bar Pahrump, Nevada	Line of Flight a b	1 / 16'	2 / 12'	1 / 16'	2 / 12'	1 / 16'	2 / 12'
	015 (Aft)			1 / 16'	2 / 12'	1 / 16'	2 / 12'	1 / 16'	2 / 12'

* The largest Bar size in this target is 5' 5.125".

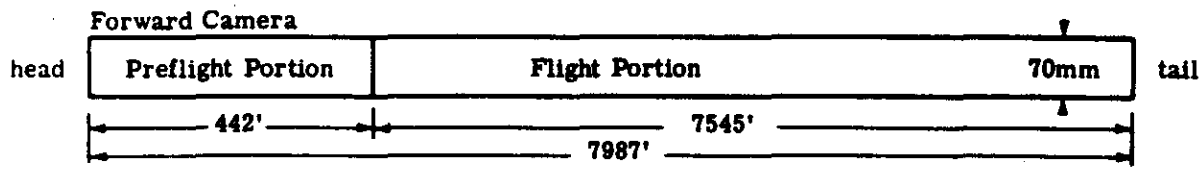
TABLE 11 - IMAGE ANALYSIS OF CONTROLLED SCENE BRIGHTNESS TARGETS

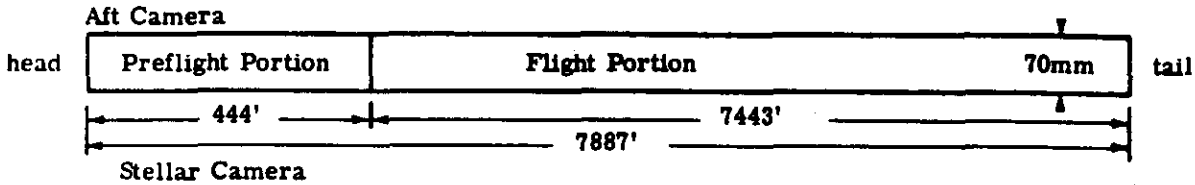
Pass	Frame	Analysis Techniques	Value/Ground Resolution Trace No. CE-1	Value/Ground Resolution Trace No. CE-2	Target Orientation	Target Location
D32	010* (Fwd)	MTF/AIM	58 / 17.0'	51 / 19.4'	Line of Flight CE-1 CE-2	200' Controlled Scene Brightness Target Palomas Plain, Arizona
		50% SPREAD	90 / 11.0'	71 / 14.4'		
		M-RES	88 / 11.2'	53 / 18.7'		
	016* (Aft)	MTF AIM	61 / 16.7'	81 / 12.0'		
		50% SPREAD	64 / 15.4'	111 / 8.9'		
		M-RES	68 / 14.5'	95 / 10.3'		

* Photo Scale Reciprocal was 302,000.

ORIGINAL NEGATIVE FOOTAGE DIAGRAM

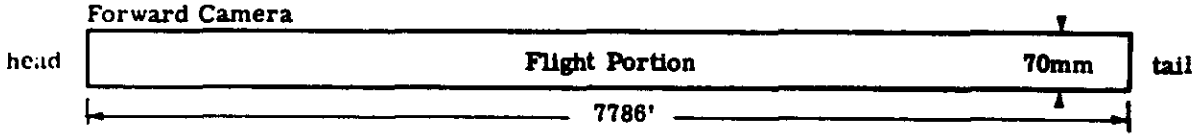
Mission Segment 1018-1

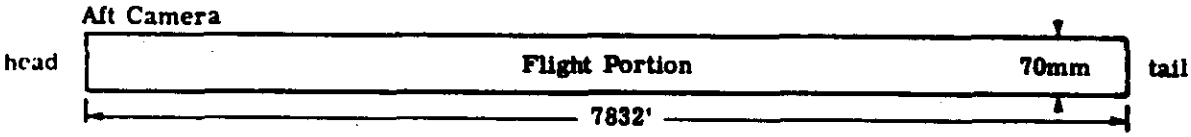




Stellar Camera
4401, 35mm x 12'
Index Camera
4400, 70mm x 23'

Mission Segment 1018-2





Stellar Camera
4401, 35mm x 4'
Index Camera
4400, 70mm x 10'

STANDARD PROCESSING CONTROL CURVES

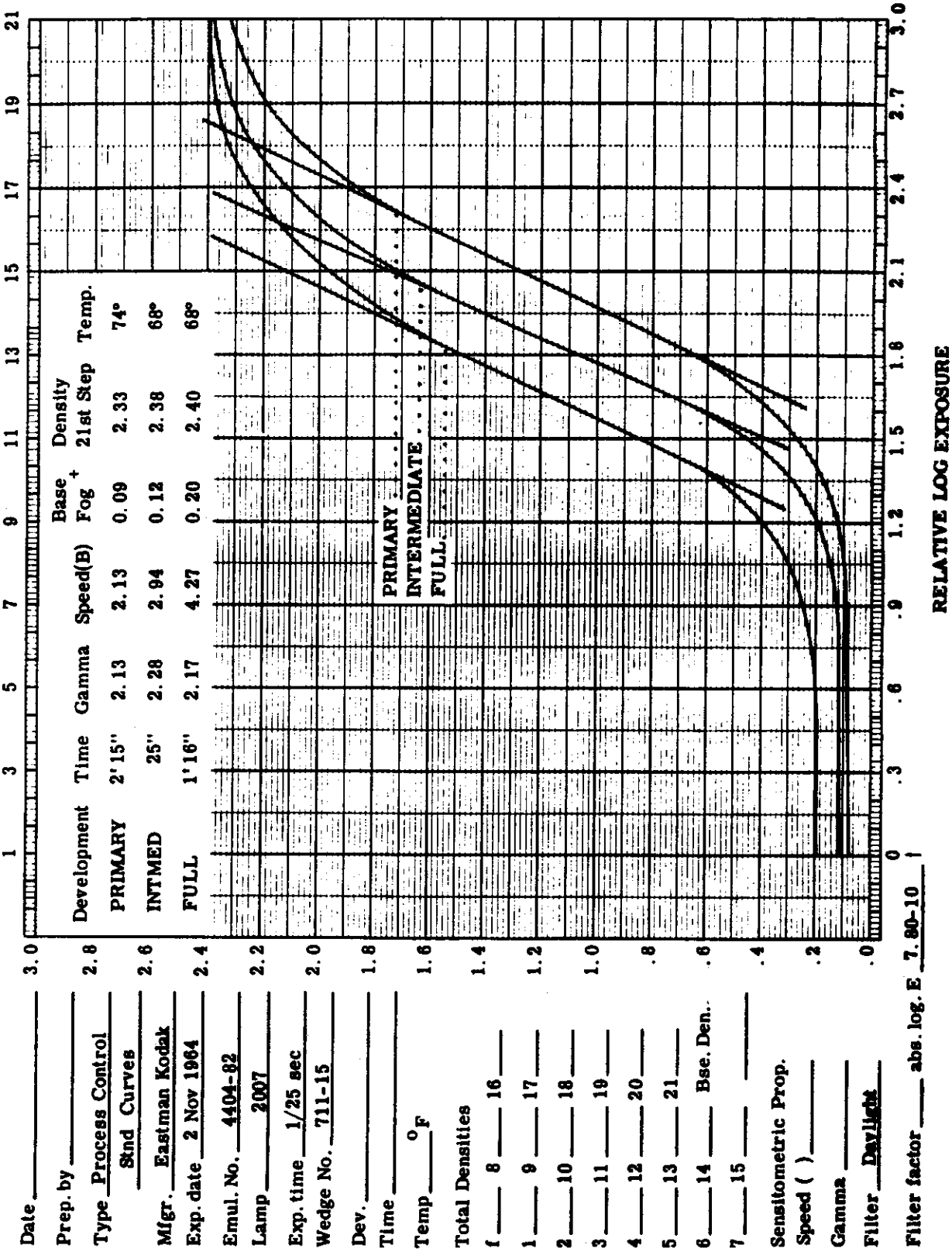


ILLUSTRATION 2

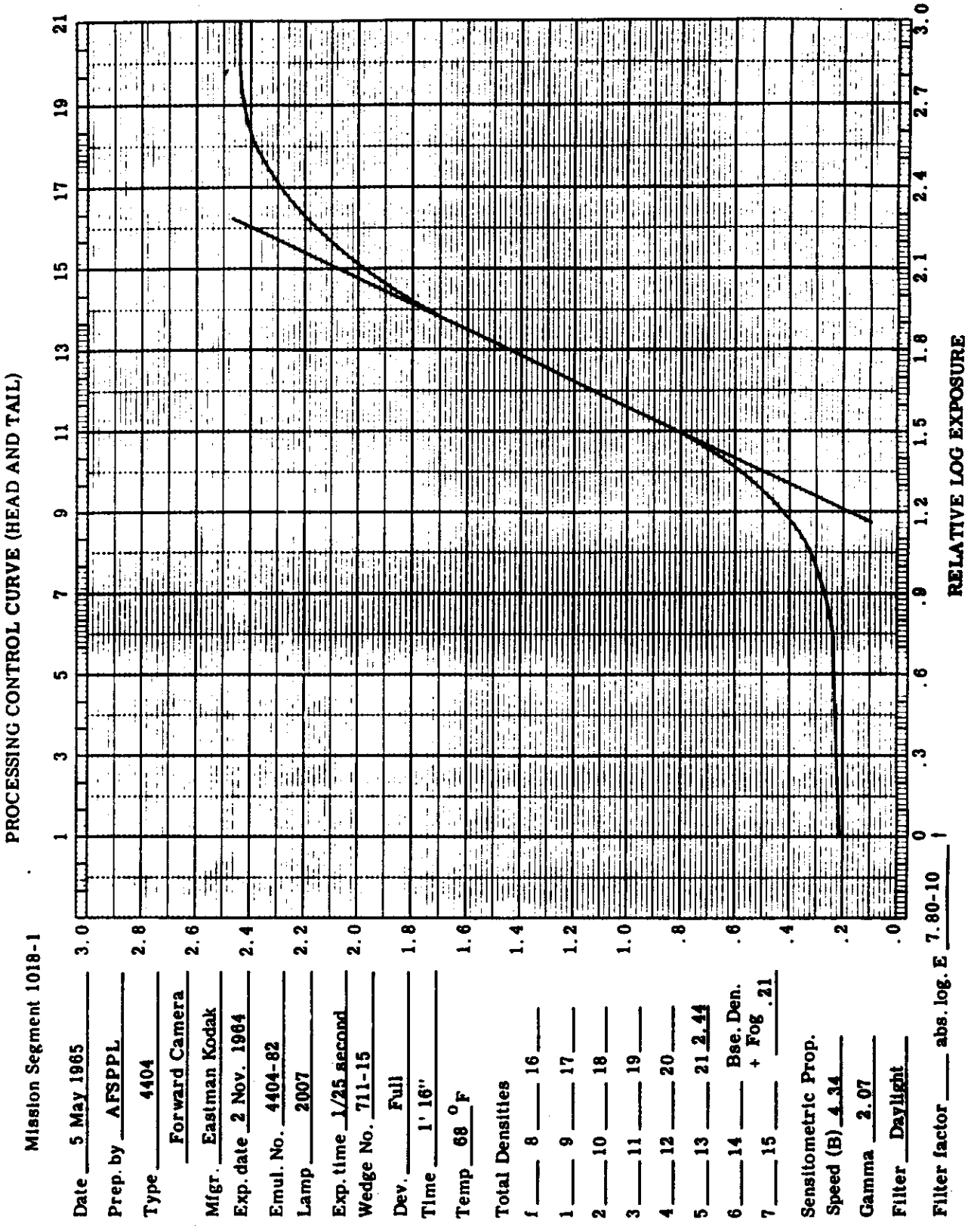


ILLUSTRATION 3

SPPL TECHNICAL REPORT NO. [redacted]

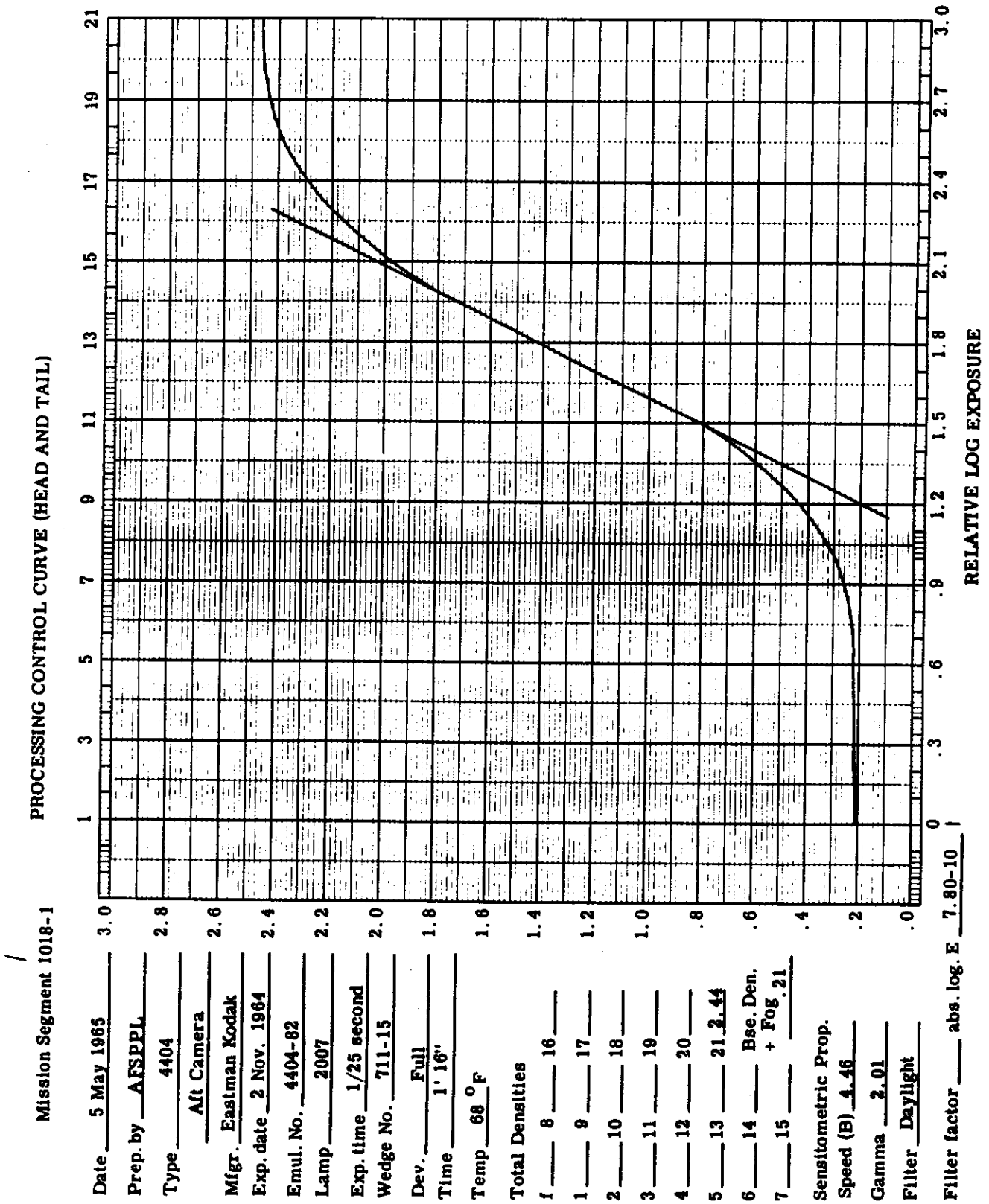
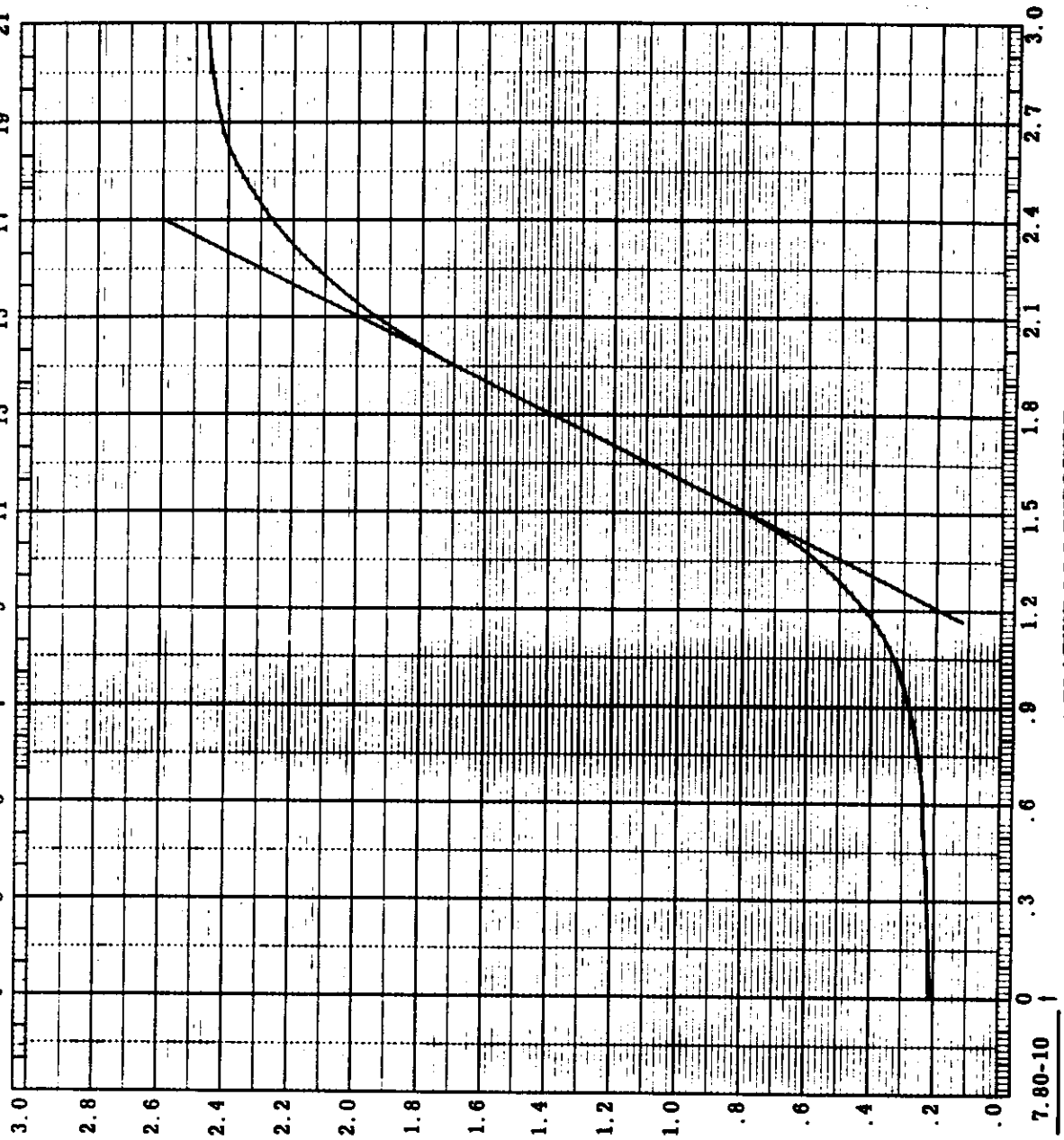


ILLUSTRATION 3

PROCESSING CONTROL CURVE (HEAD AND TAIL)

Mission Segment 1018-2



Date 5 May 1965
Prep. by AFSPPL
Type 4404
Forward Camera
Mfgr. Eastman Kodak
Exp. date 2 Nov. 1964
Emul. No. 4404-82
Lamp 2007
Exp. time 1/25 second
Wedge No. 711-15
Dev. Full
Time 1' 16"
Temp 68 °F

Total Densities

f ___ 8 ___ 16 ___
1 ___ 9 ___ 17 ___
2 ___ 10 ___ 18 ___
3 ___ 11 ___ 19 ___
4 ___ 12 ___ 20 ___
5 ___ 13 ___ 21 2.44
6 ___ 14 ___ Bse. Den. + Fog .21
7 ___ 15 ___

Sensitometric Prop.
Speed (B) 4.46
Gamma 1.98
Filter Daylight

Filter factor ___ abs. log. E 7.80-10

ILLUSTRATION 3

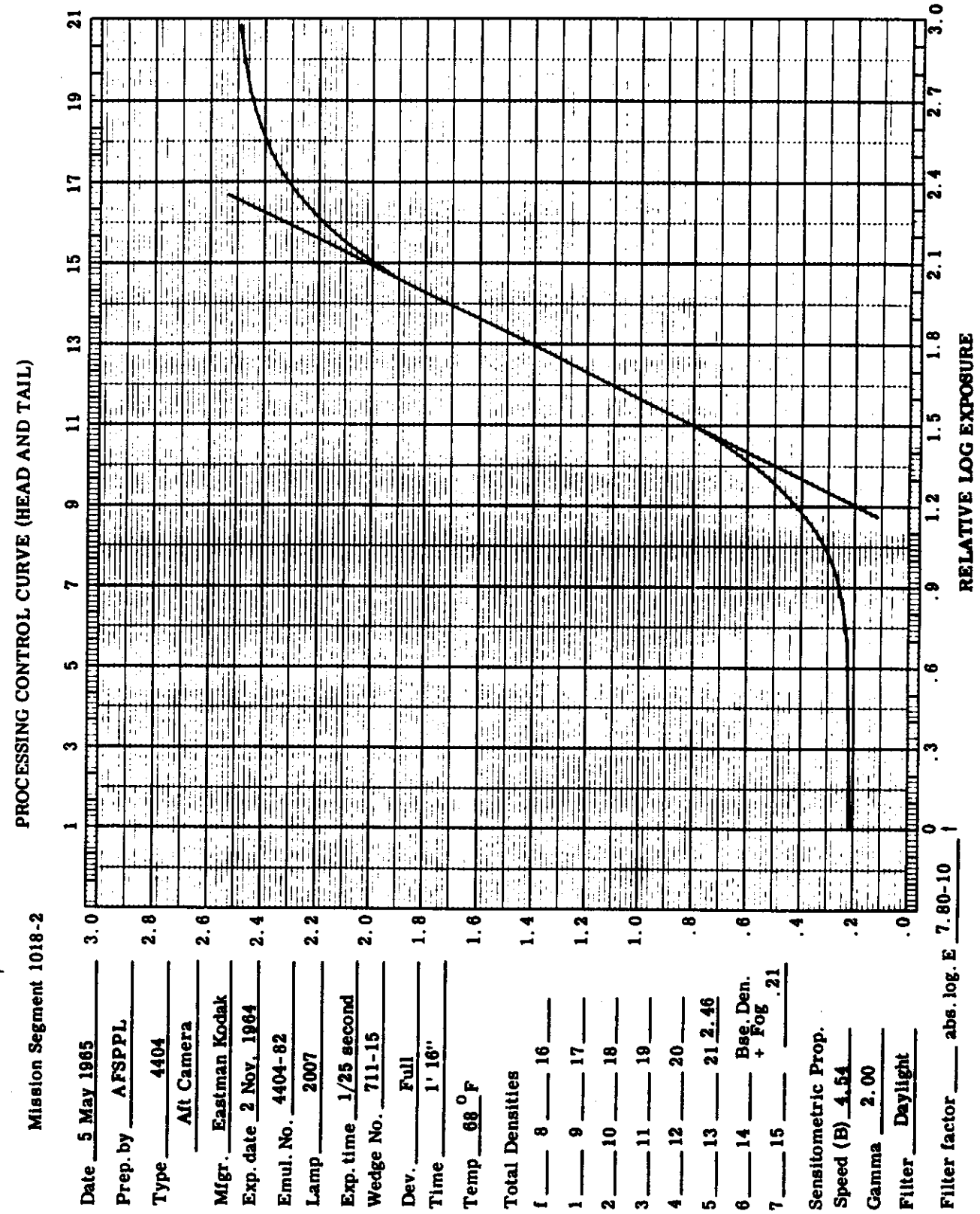


ILLUSTRATION 3

SENSITOMETRIC CURVES (AFSPPL CONTROL STOCK)

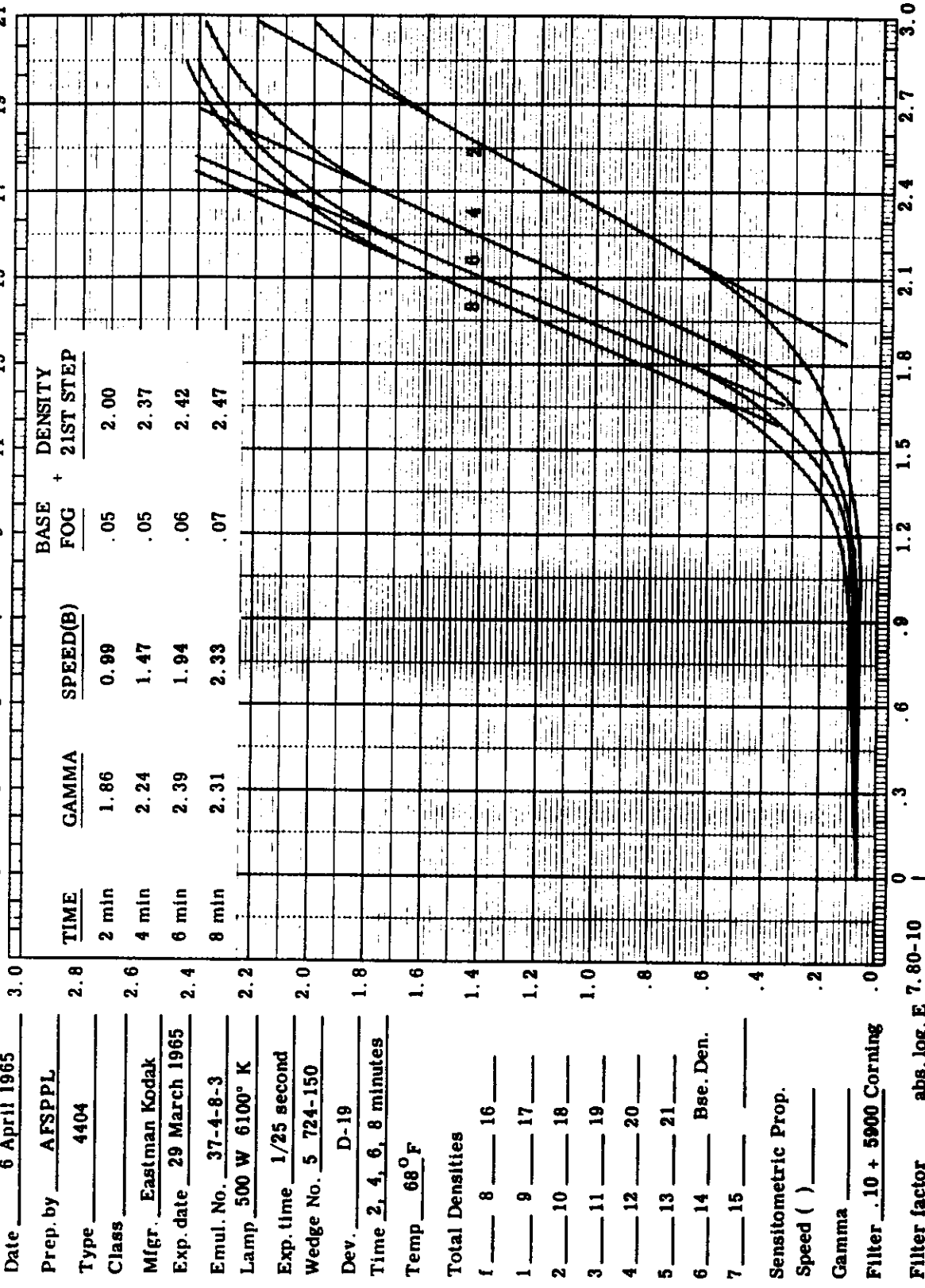
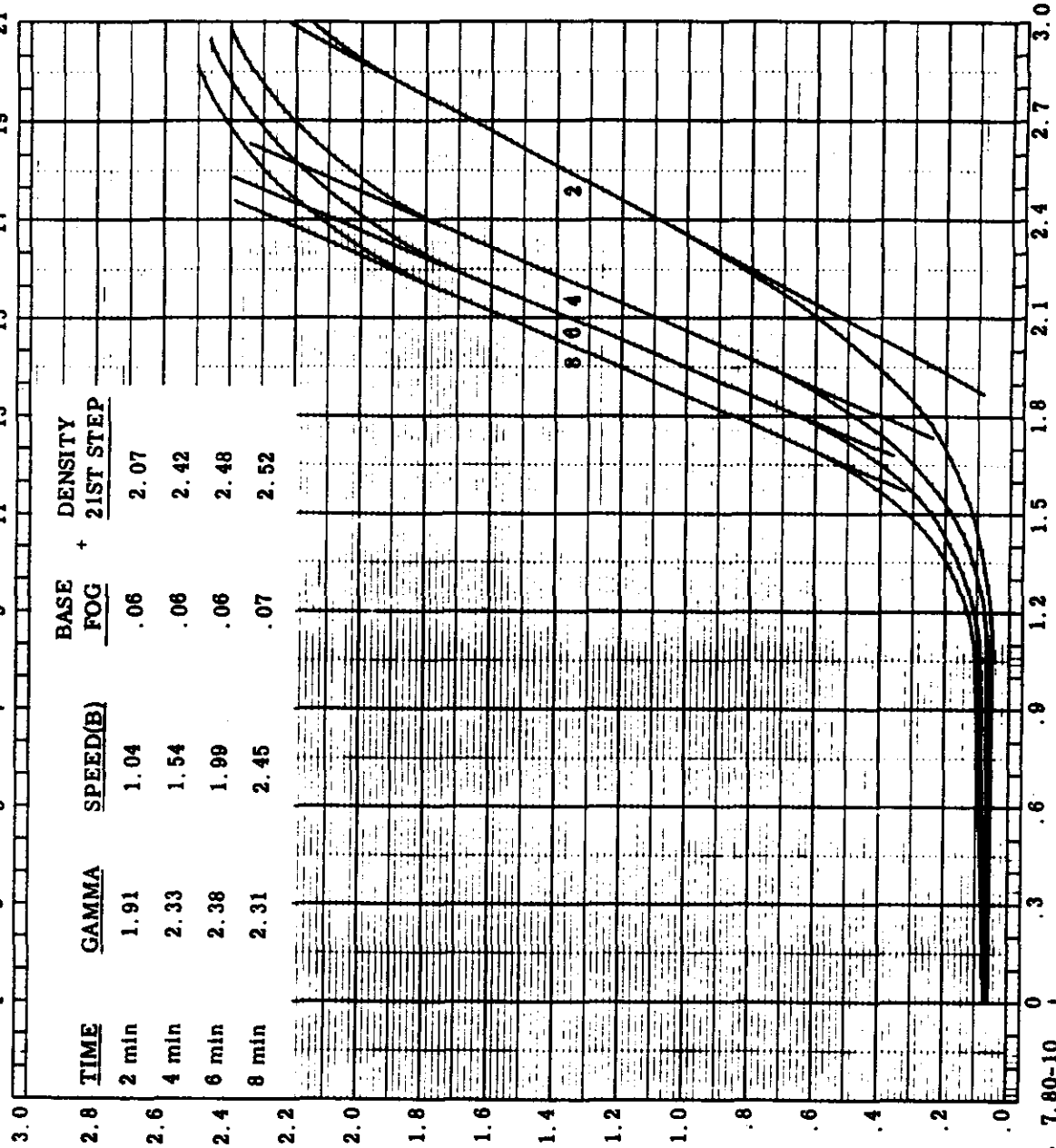


ILLUSTRATION 4

[redacted]

SPPL TECHNICAL REPORT NO. [redacted]

SENSITOMETRIC CURVES



RELATIVE LOG EXPOSURE

	TIME	GAMMA	SPEED(B)	BASE + FOG	DENSITY 21ST STEP
8	2 min	1.91	1.04	.06	2.07
4	4 min	2.33	1.54	.08	2.42
2	6 min	2.38	1.99	.06	2.48
	8 min	2.31	2.45	.07	2.52

Date 6 April 1965
Prep. by AFSPPL
Type 4404 Forward Camera
Mfgr. Eastman Kodak
Exp. date 29 March 1965
Emul. No. - - - - - -
Lamp 500 W 6100° K
Exp. time 1/25 second
Wedge No. 5 724-150
Dev. D-19
Time 2, 4, 6, 8 minutes
Temp 68 °F
Total Densities
f ___ 8 ___ 16 ___
1 ___ 9 ___ 17 ___
2 ___ 10 ___ 18 ___
3 ___ 11 ___ 19 ___
4 ___ 12 ___ 20 ___
5 ___ 13 ___ 21 ___
6 ___ 14 ___ Bse. Den.
7 ___ 15 ___ ___
Sensitometric Prop.
Speed ( ) ___
Gamma ___
Filter .10 + 5900 Corning
Filter factor ___ abs. log. E 7.80-10

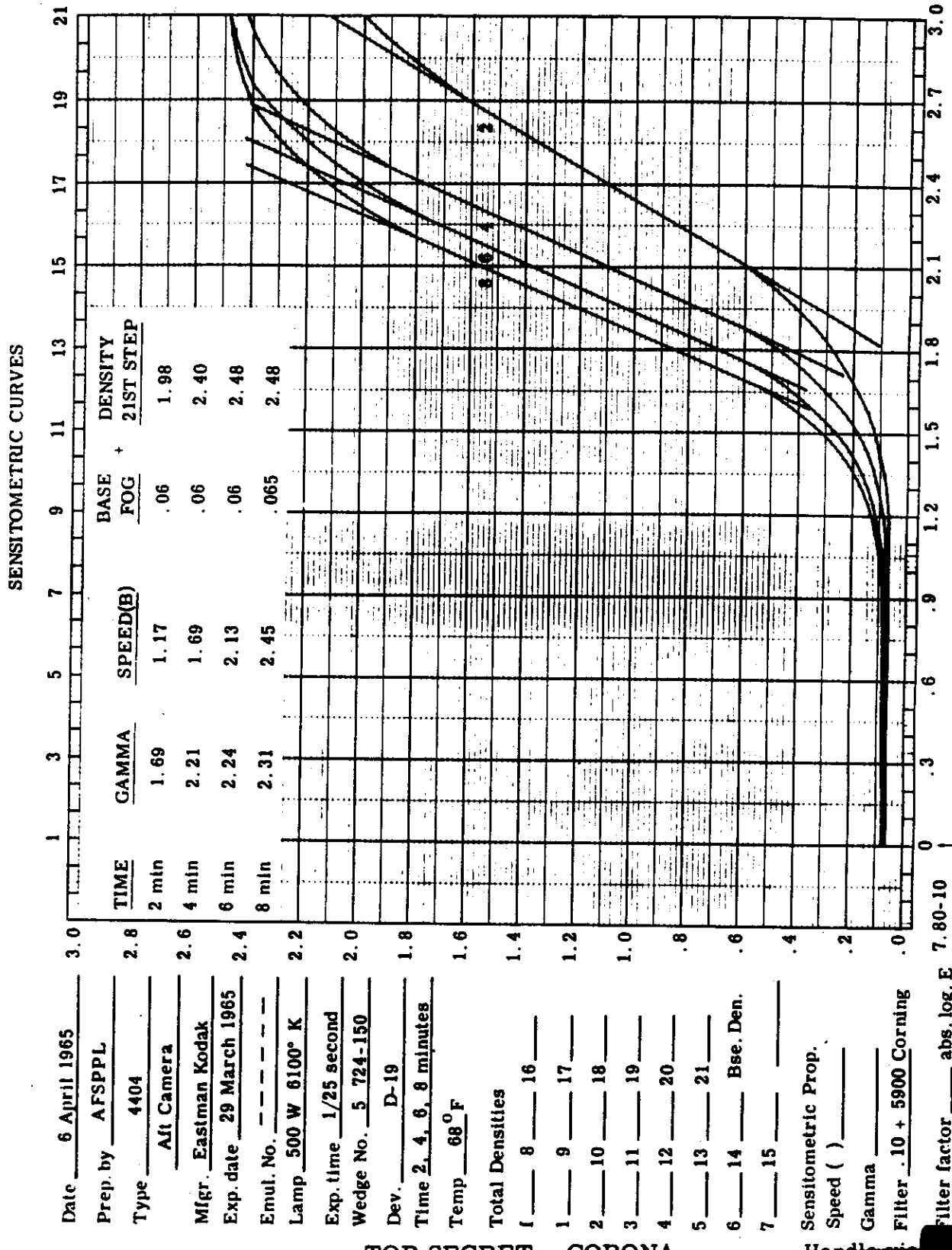
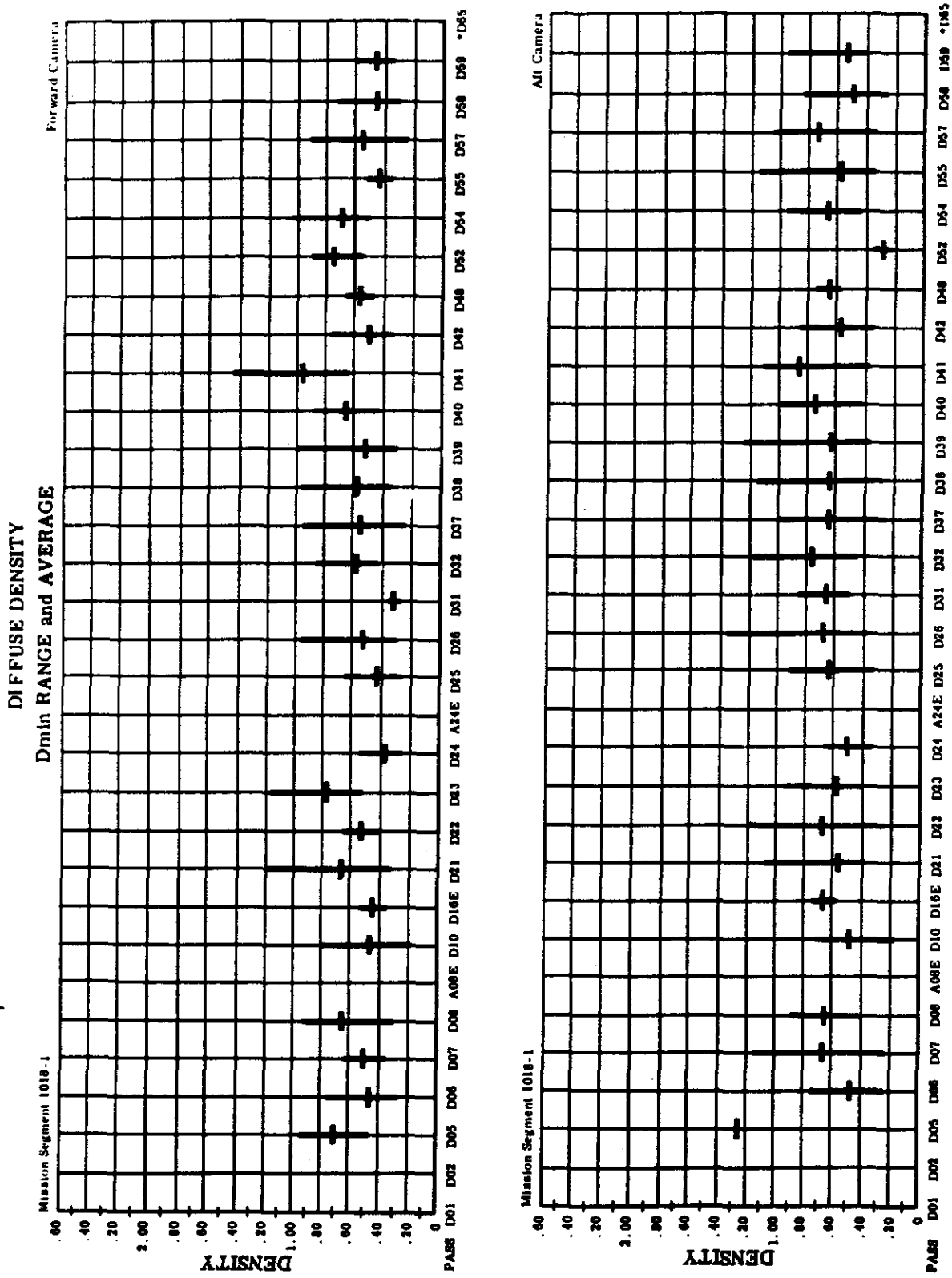
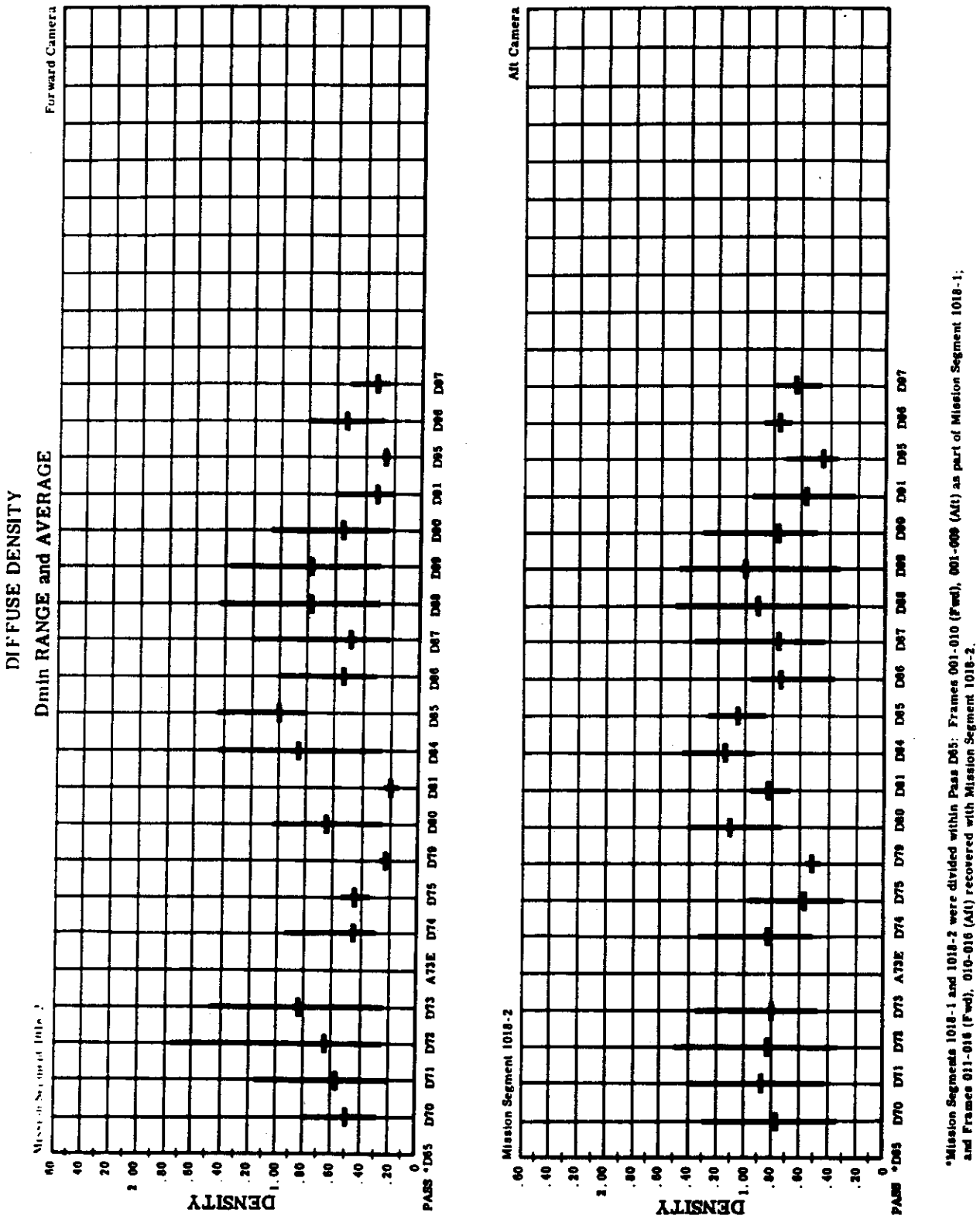


ILLUSTRATION 5

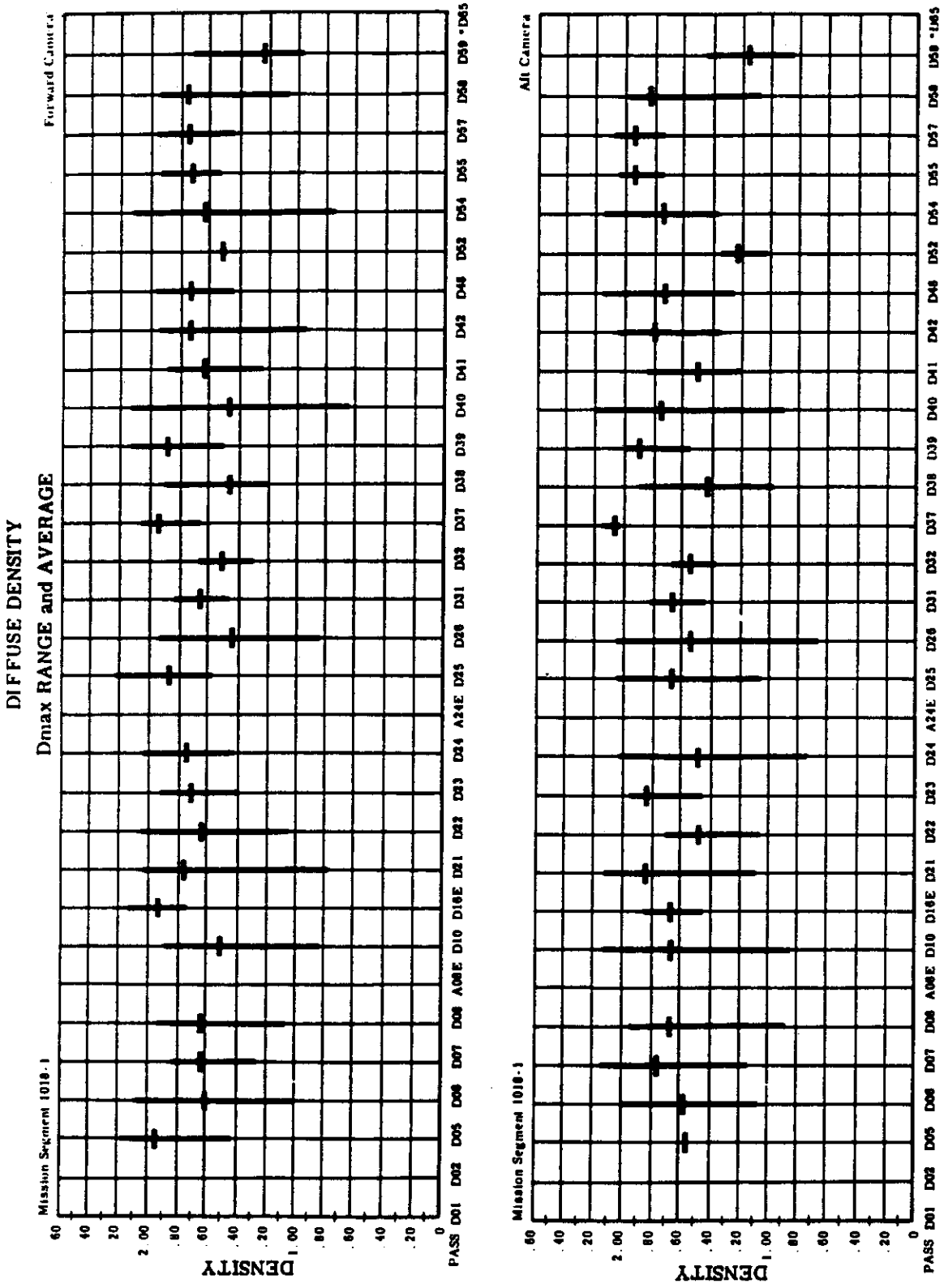


*Mission Segments 1018-1 and 1018-2 were divided within Pass D65: Frames 001-010 (Fwd), 001-009 (Aft) as part of Mission Segment 1018-1, and Frames 011-016 (Fwd), 010-016 (Aft) recovered with Mission Segment 1018-2.



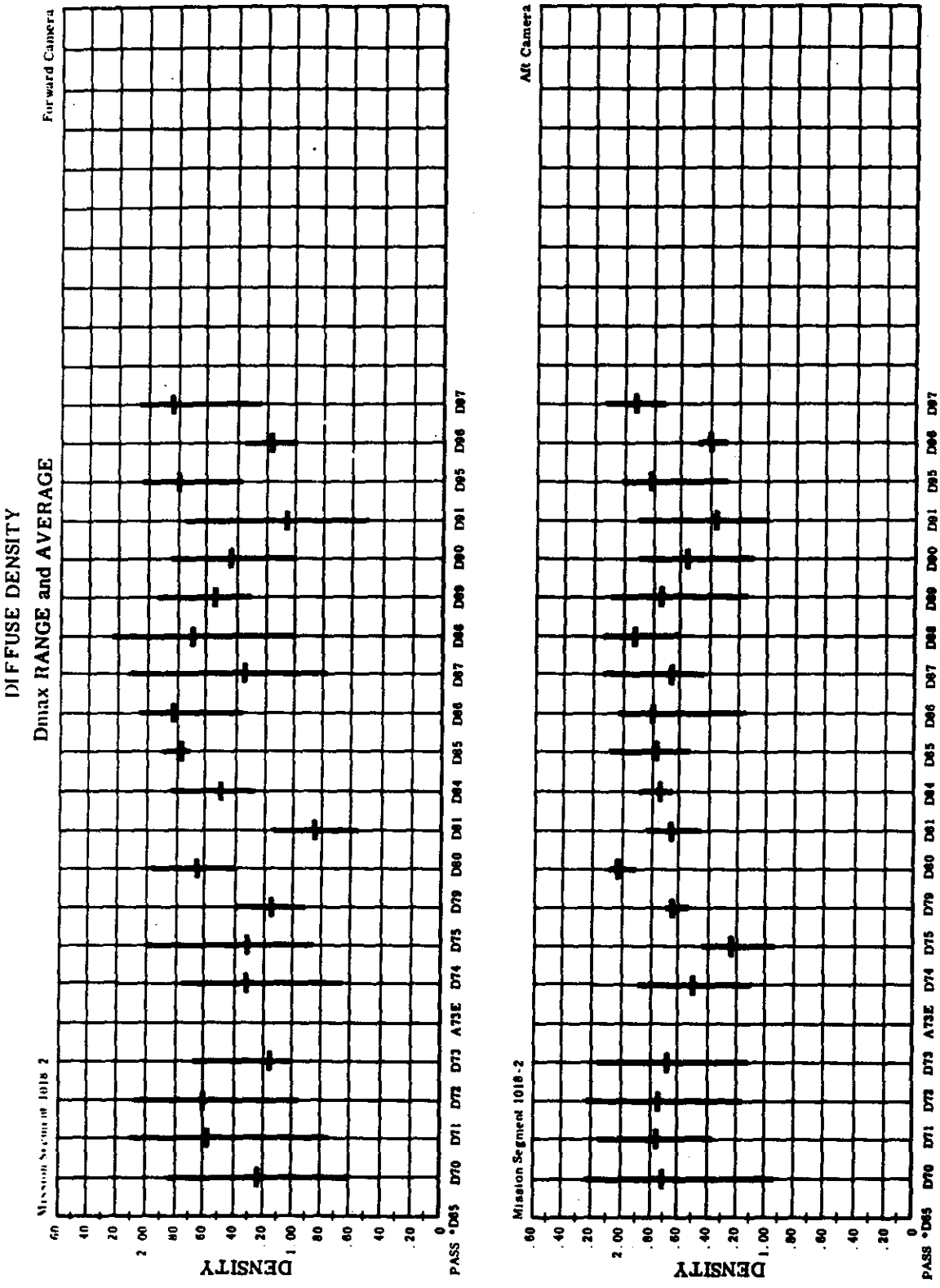
*Mission Segments 1018-1 and 1018-2 were divided within Pass D65: Frames 001-010 (Fwd), 001-009 (Aft) as part of Mission Segment 1018-1; and Frames 011-016 (Fwd), 010-016 (Aft) recovered with Mission Segment 1018-2.

ILLUSTRATION 6



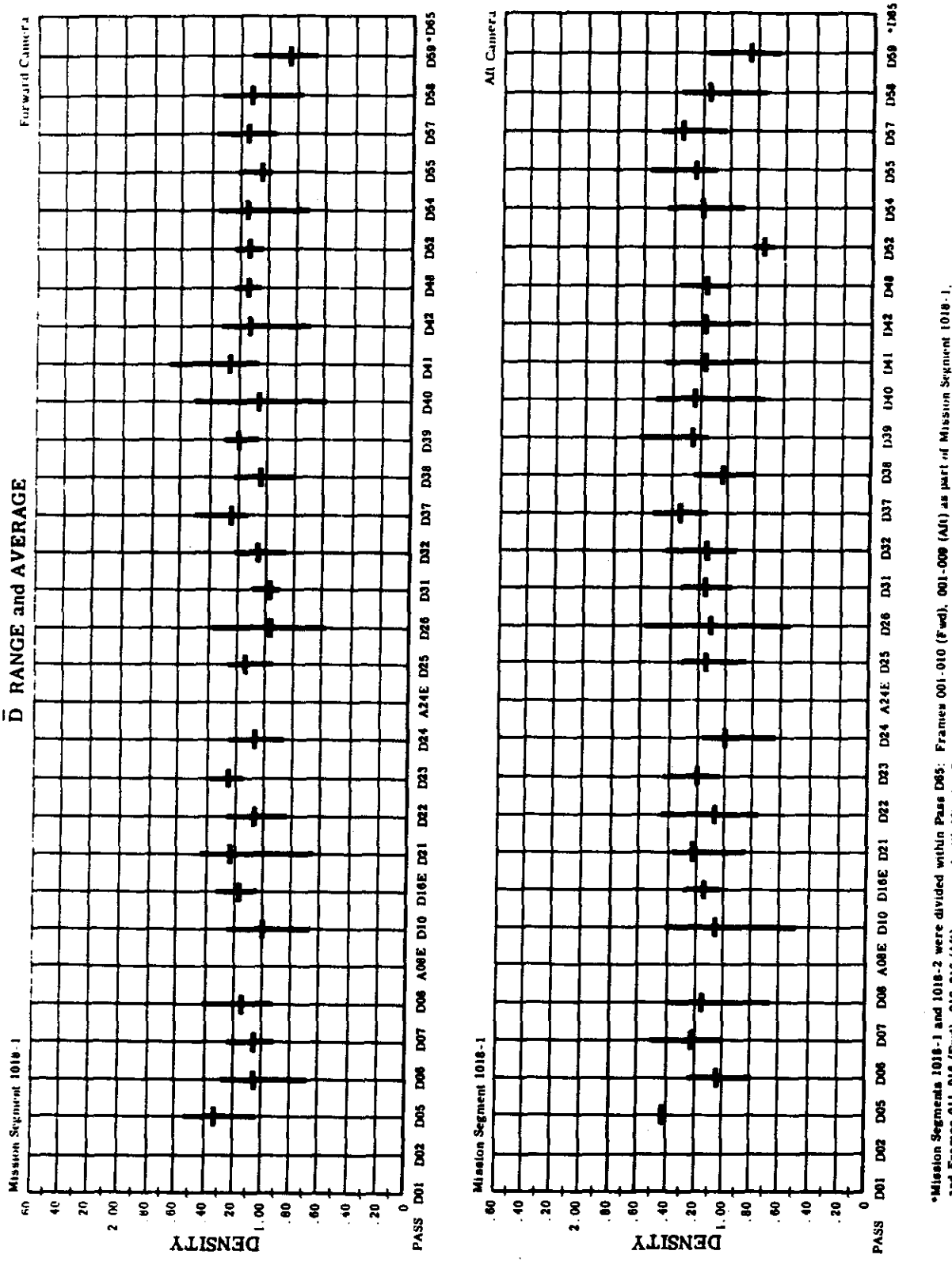
*Mission Segments 1018-1 and 1018-2 were divided within Pass D65: Frames 001-010 (Fwd), 001-008 (Aft) as part of Mission Segment 1018-1, and Frames 011-016 (Fwd), 010-016 (Aft) recovered with Mission Segment 1018-2.

ILLUSTRATION 7



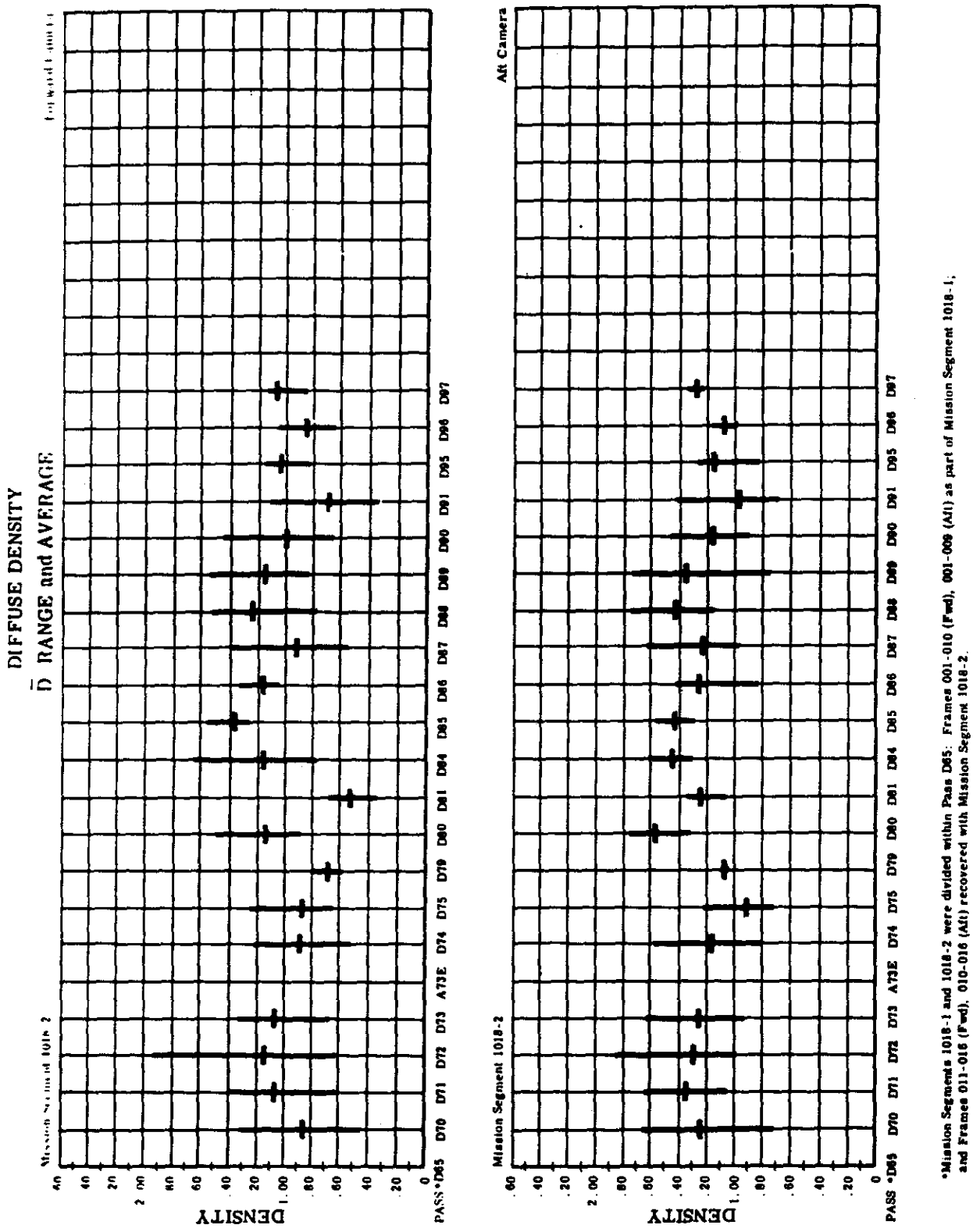
*Mission Segments 1018-1 and 1018-2 were divided within Pass D65. Frames 001-010 (Fwd), 001-009 (Aft) as part of Mission Segment 1018-1; and Frames 011-016 (Fwd), 010-016 (Aft) recovered with Mission Segment 1018-2.

ILLUSTRATION 7



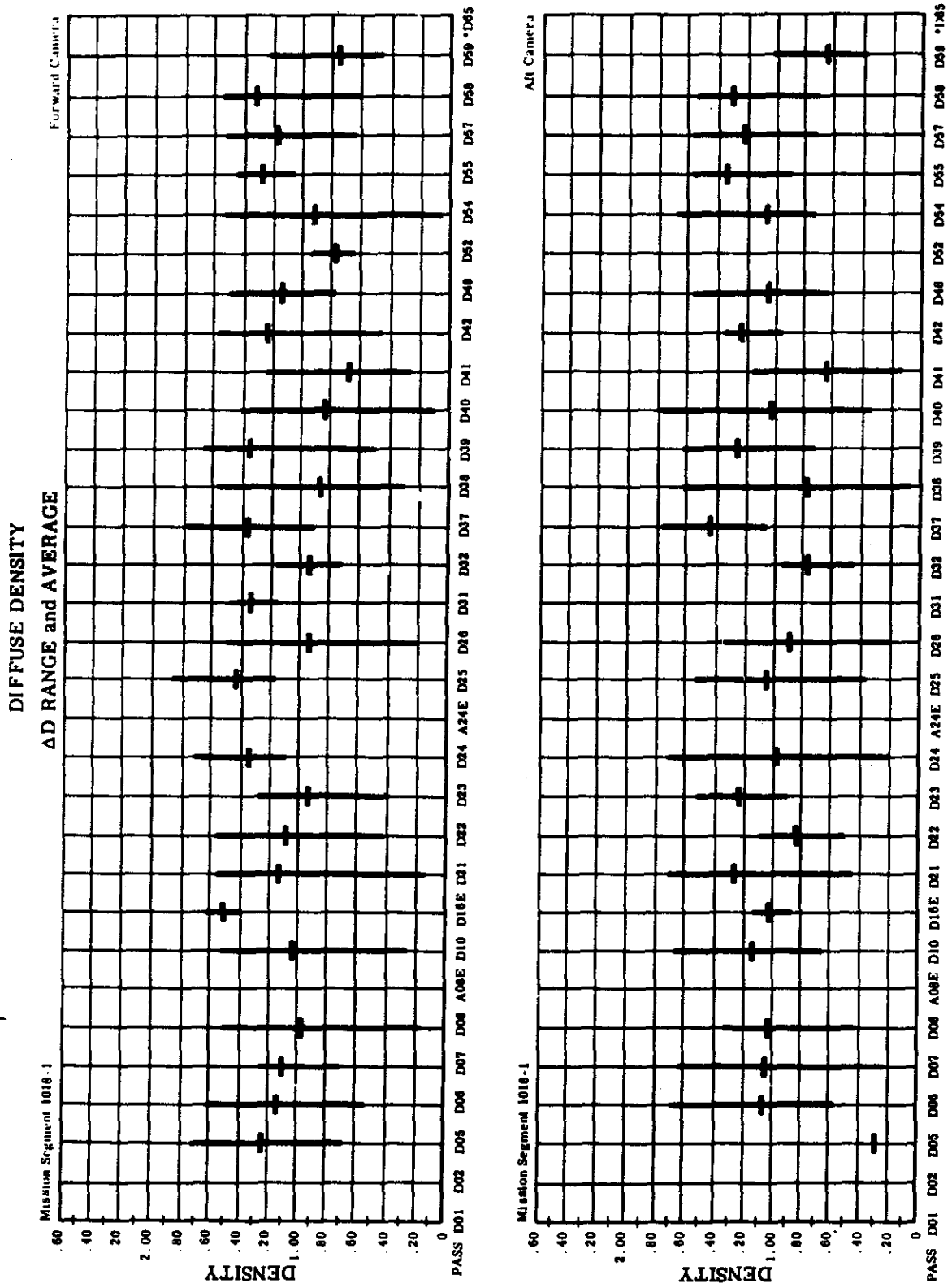
*Mission Segments 1018-1 and 1018-2 were divided within Pass D65: Frames 001-010 (Fwd), 001-009 (Aft) as part of Mission Segment 1018-1, and Frames 011-016 (Fwd), 010-016 (Aft) recovered with Mission Segment 1018-2.

ILLUSTRATION 8



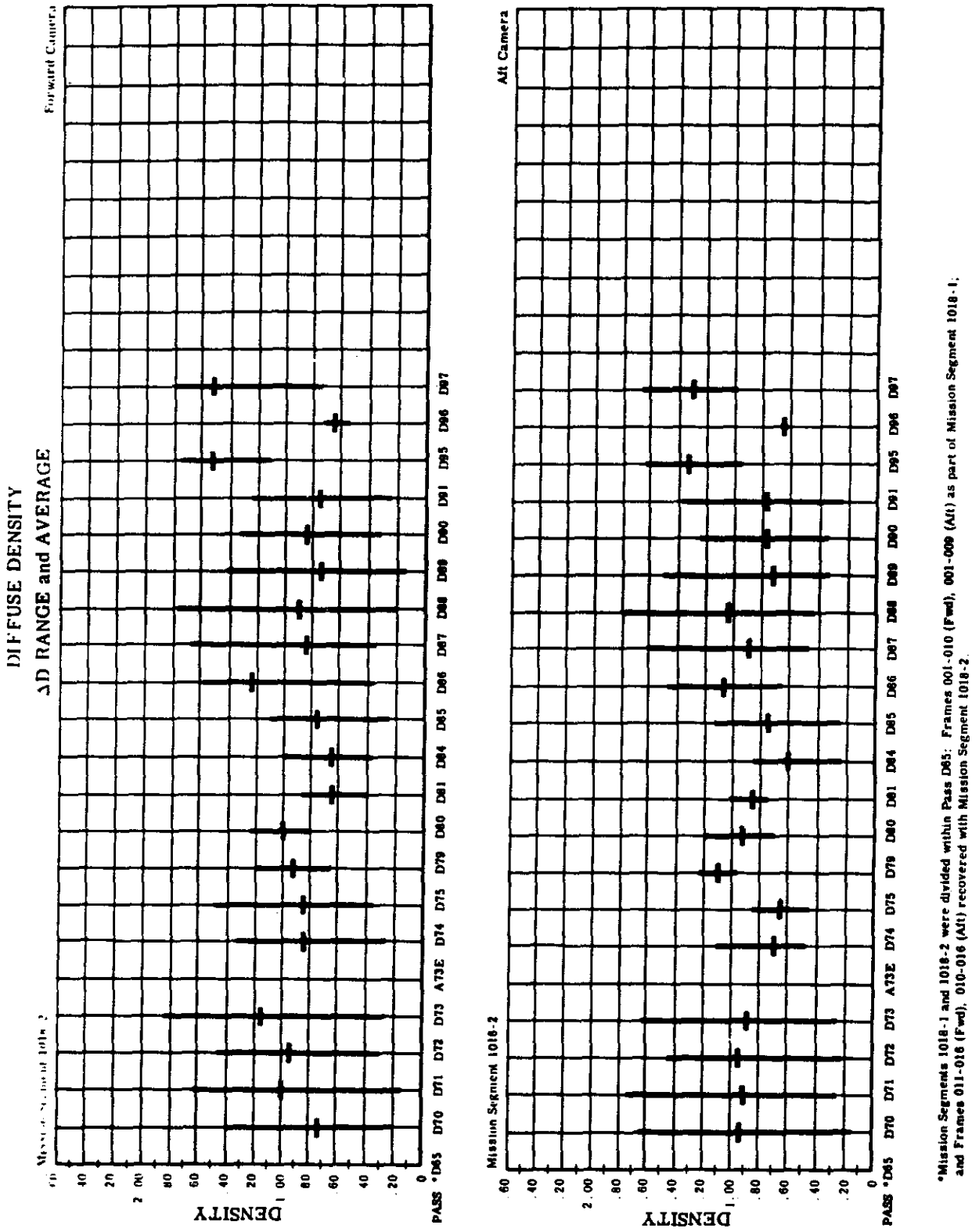
*Mission Segments 1018-1 and 1018-2 were divided within Pass D65: Frames 001-010 (Fwd), 001-009 (Aft) as part of Mission Segment 1018-1, and Frames 011-018 (Fwd), 010-018 (Aft) recovered with Mission Segment 1018-2.

ILLUSTRATION 8



*Mission Segments 1018-1 and 1018-2 were divided within Pass D65: Frames 001-010 (Fwd), 001-008 (Aft) as part of Mission Segment 1018-1, and Frames 011-016 (Fwd), 010-016 (Aft) recovered with Mission Segment 1018-2.

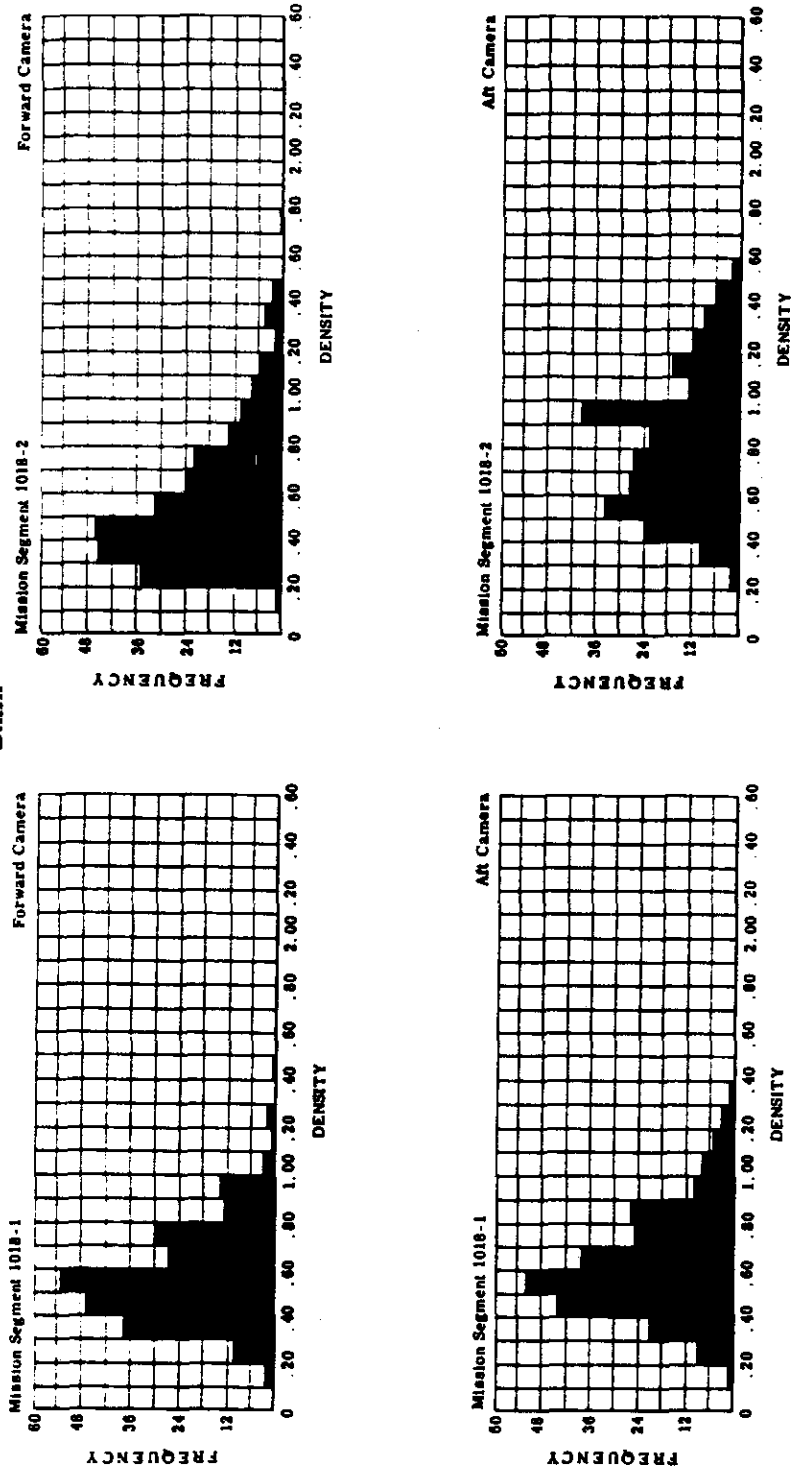
ILLUSTRATION 9



*Mission Segments 1018-1 and 1018-2 were divided within Pass D65: Frames 001-010 (Fwd), 001-009 (Aft) as part of Mission Segment 1018-1, and Frames 011-016 (Fwd), 010-016 (Aft) recovered with Mission Segment 1018-2.

ILLUSTRATION 9

FREQUENCY DISTRIBUTION
Dmin



FREQUENCY DISTRIBUTION

Dmax

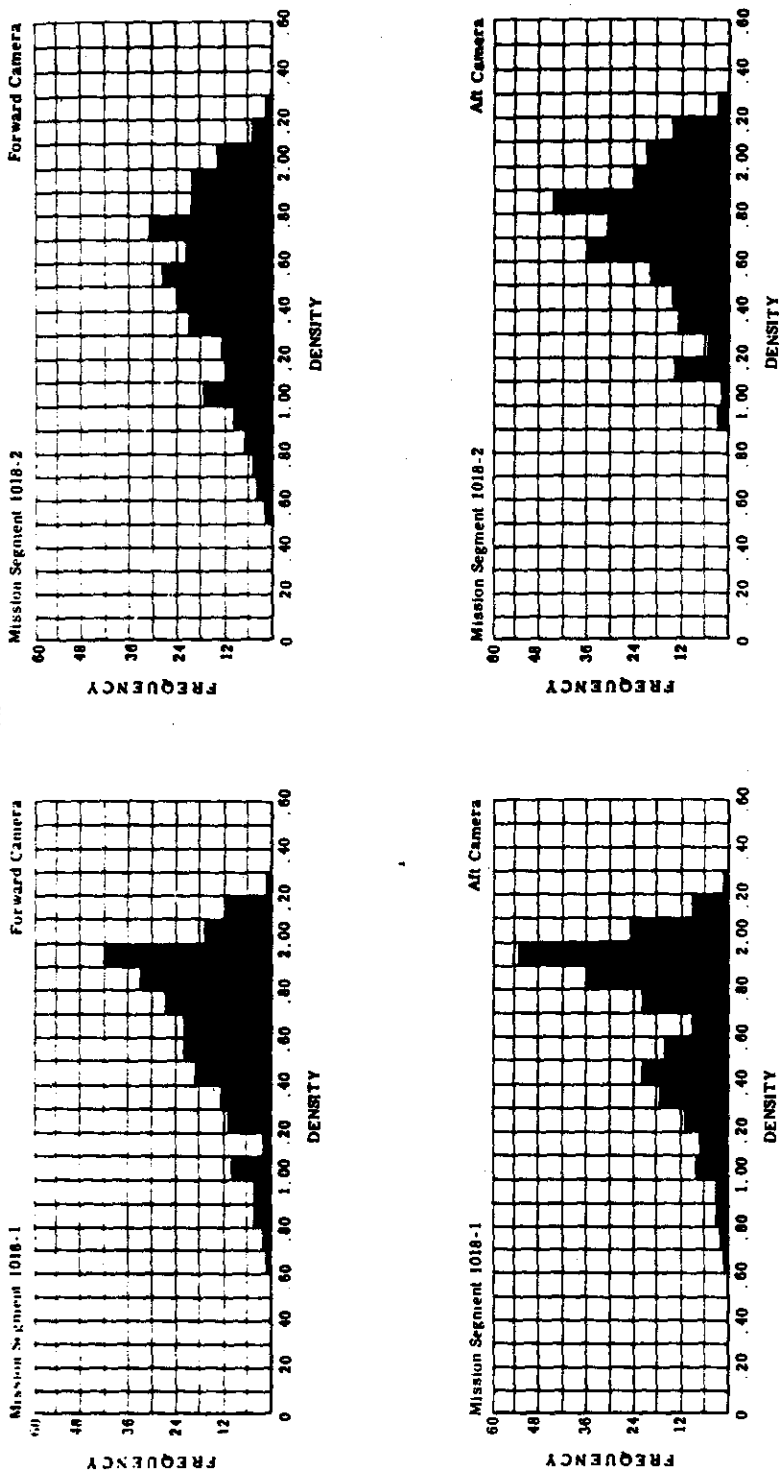


ILLUSTRATION 11

FREQUENCY DISTRIBUTION D

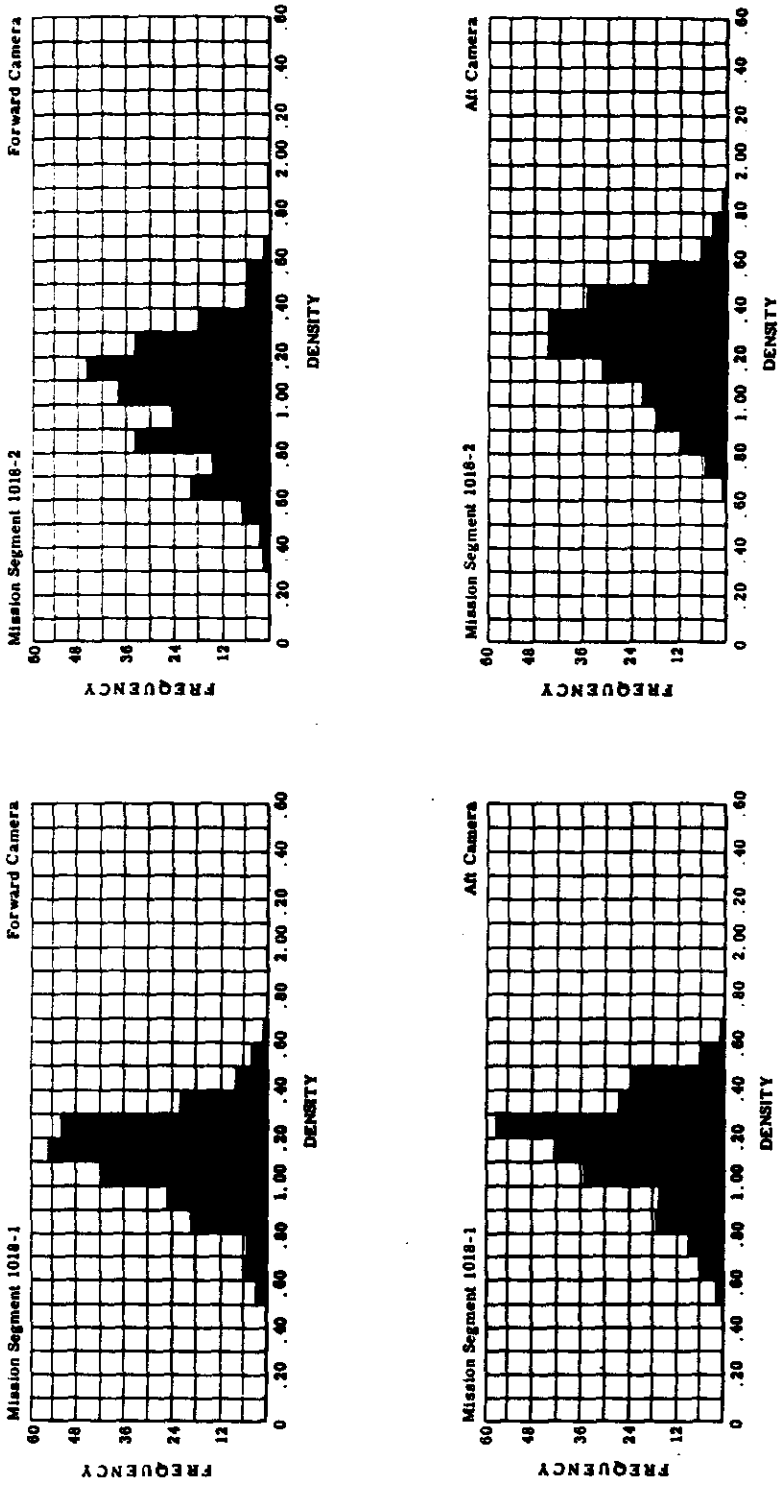


ILLUSTRATION 12

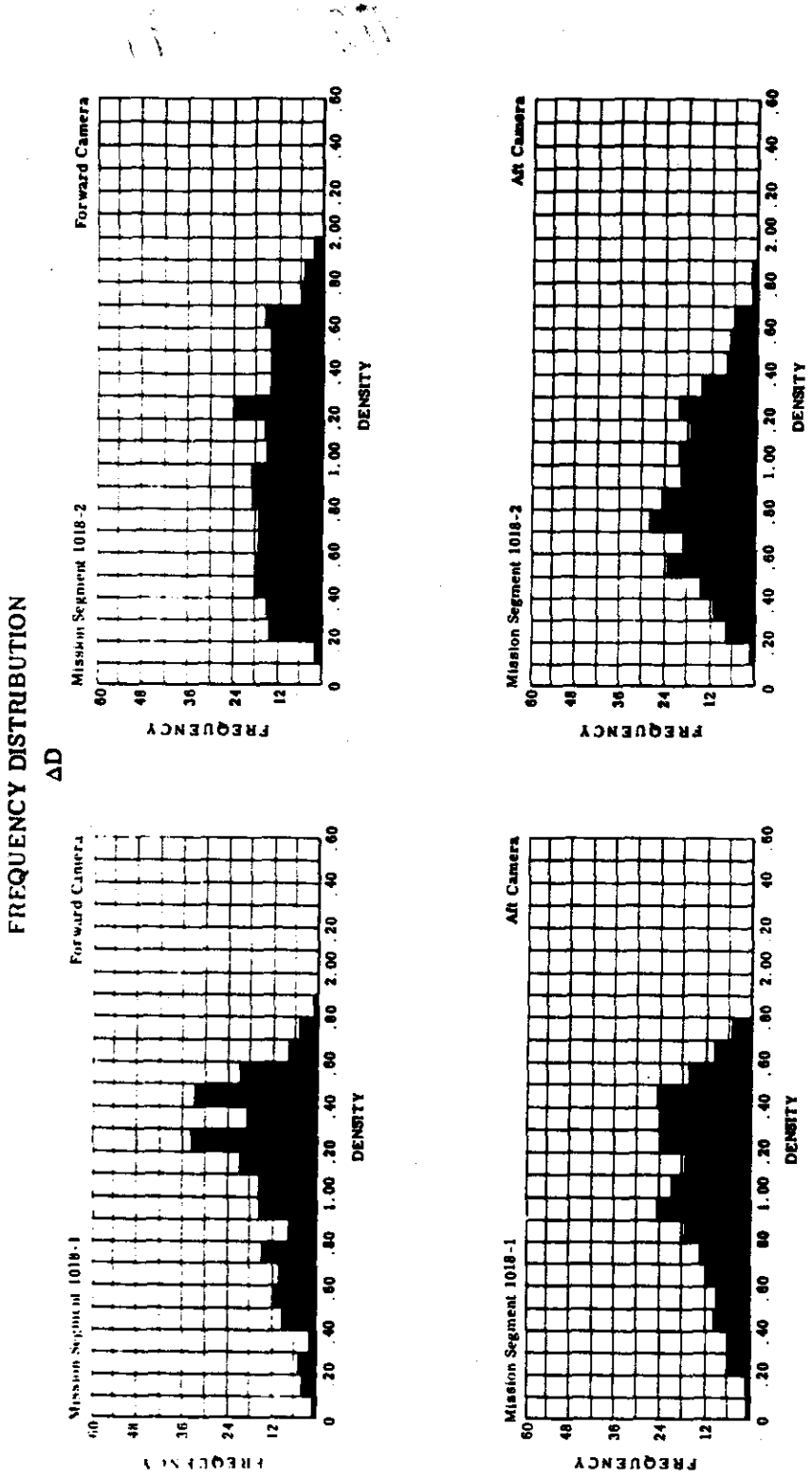
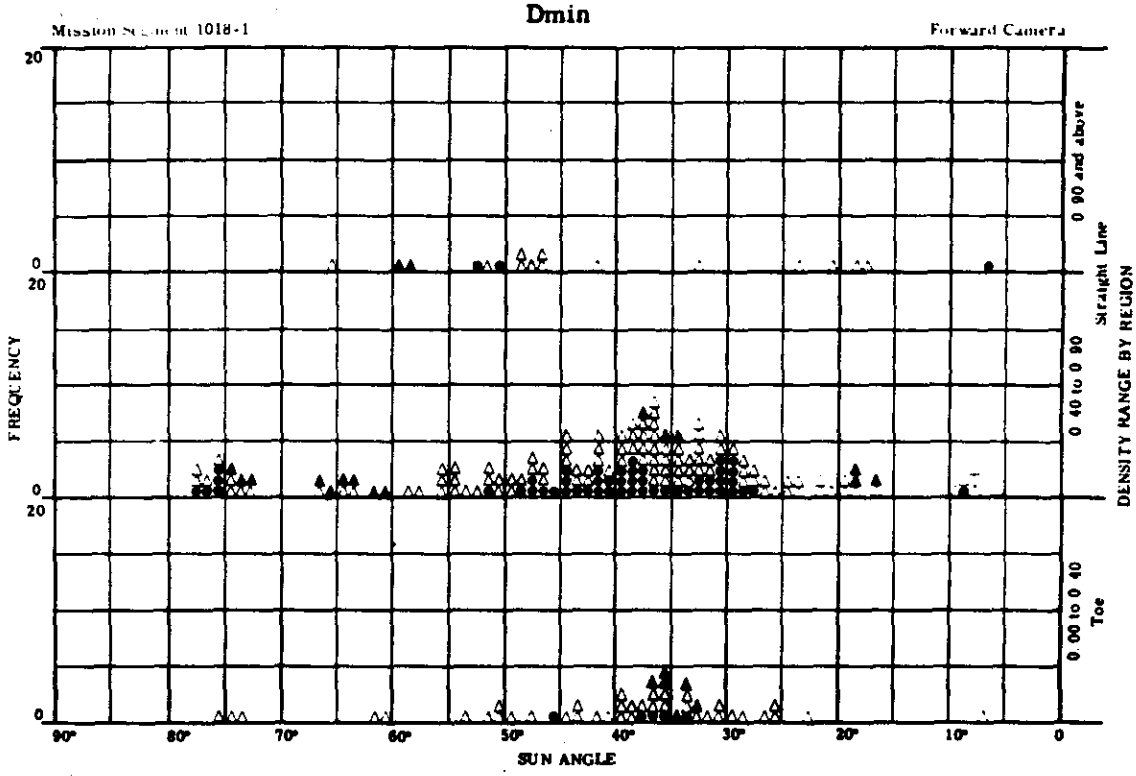
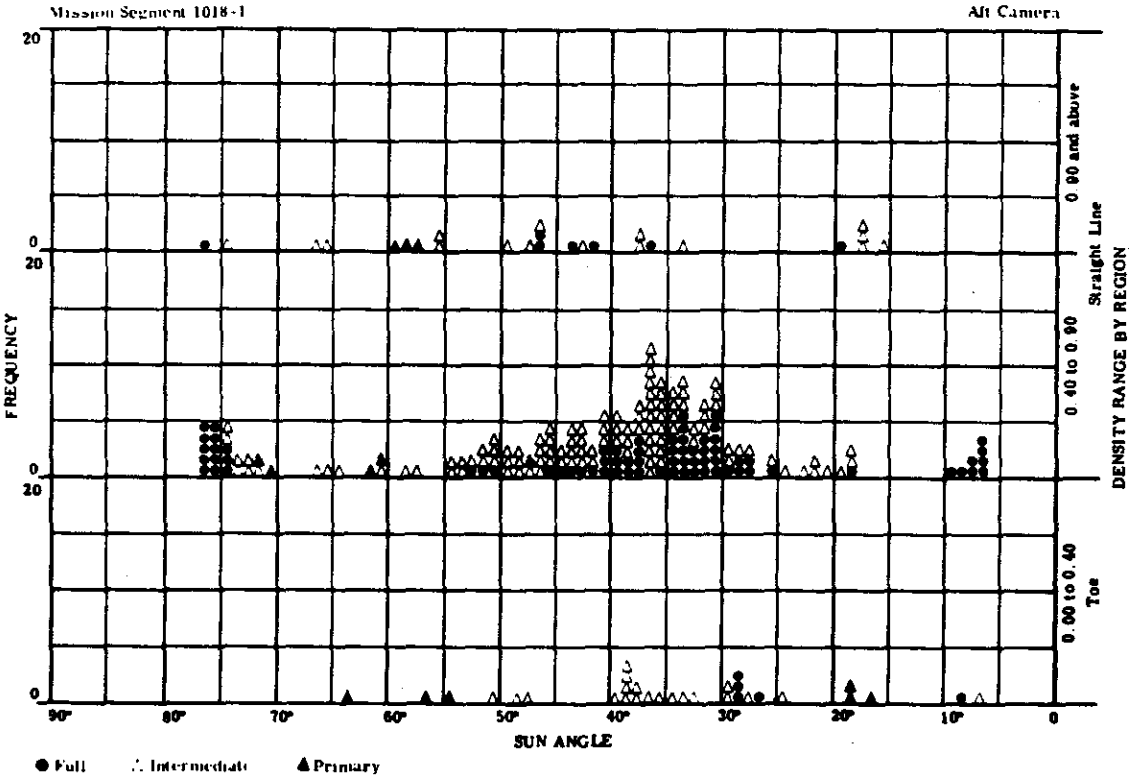


ILLUSTRATION 13

FREQUENCY DISTRIBUTION VALUES BY SUN ANGLE AND PROCESSING LEVEL

Dmin





FREQUENCY DISTRIBUTION VALUES BY SUN ANGLE AND PROCESSING LEVEL

Dmin

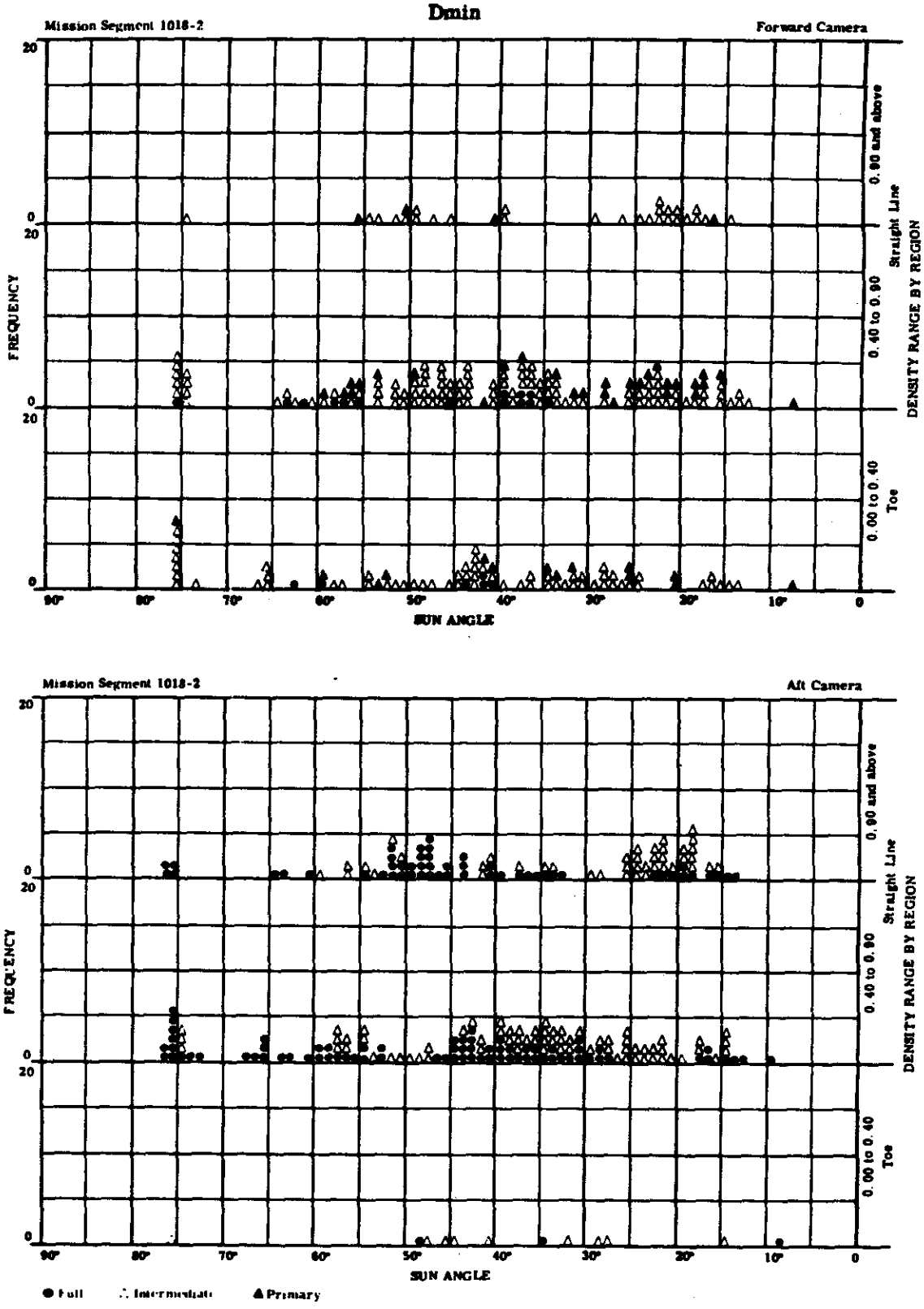
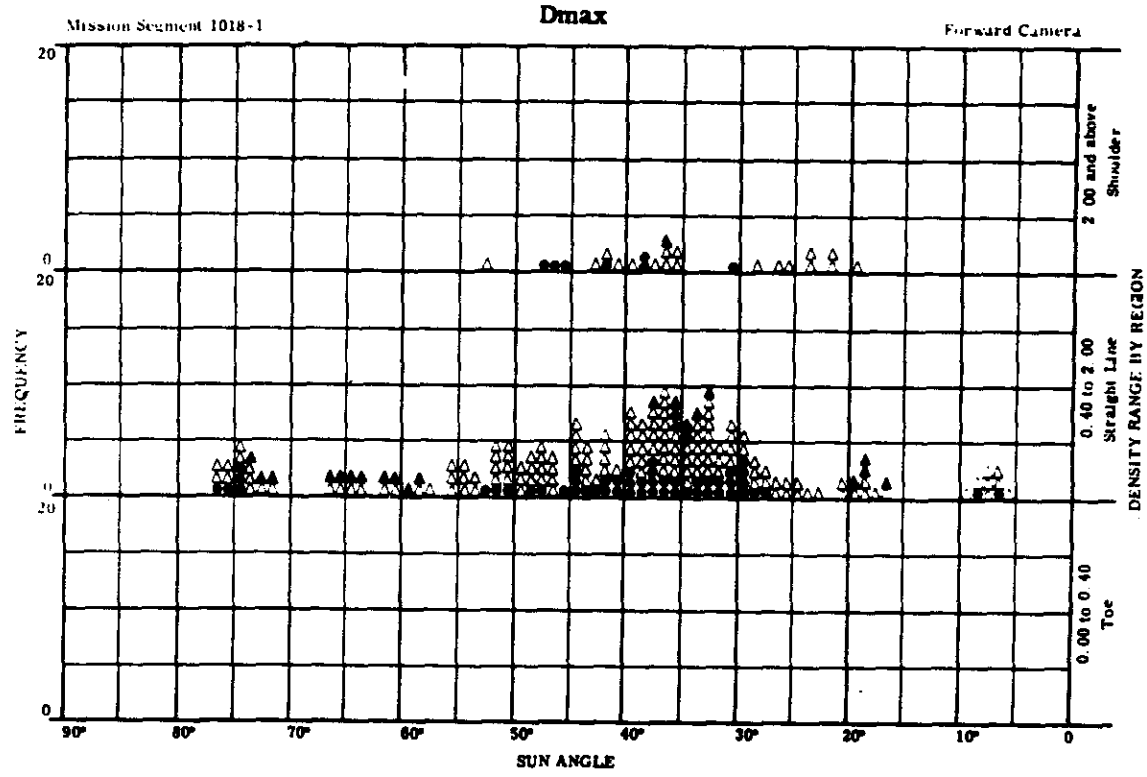
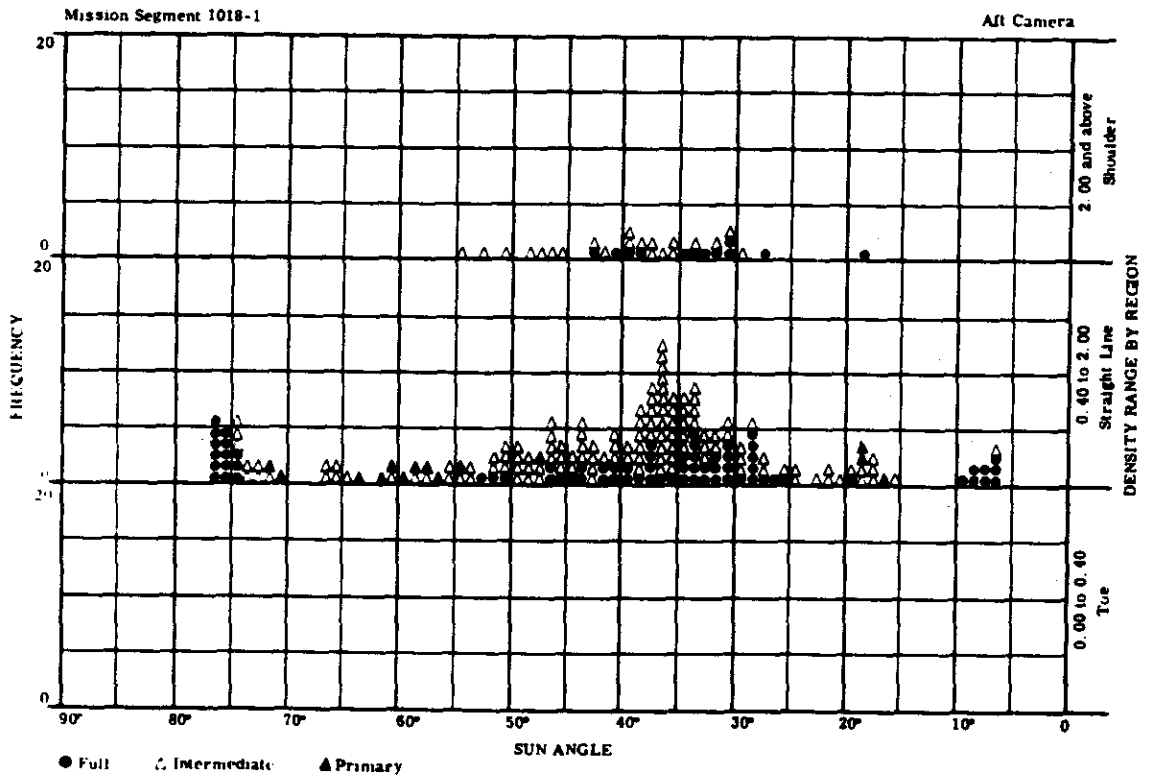


ILLUSTRATION 14

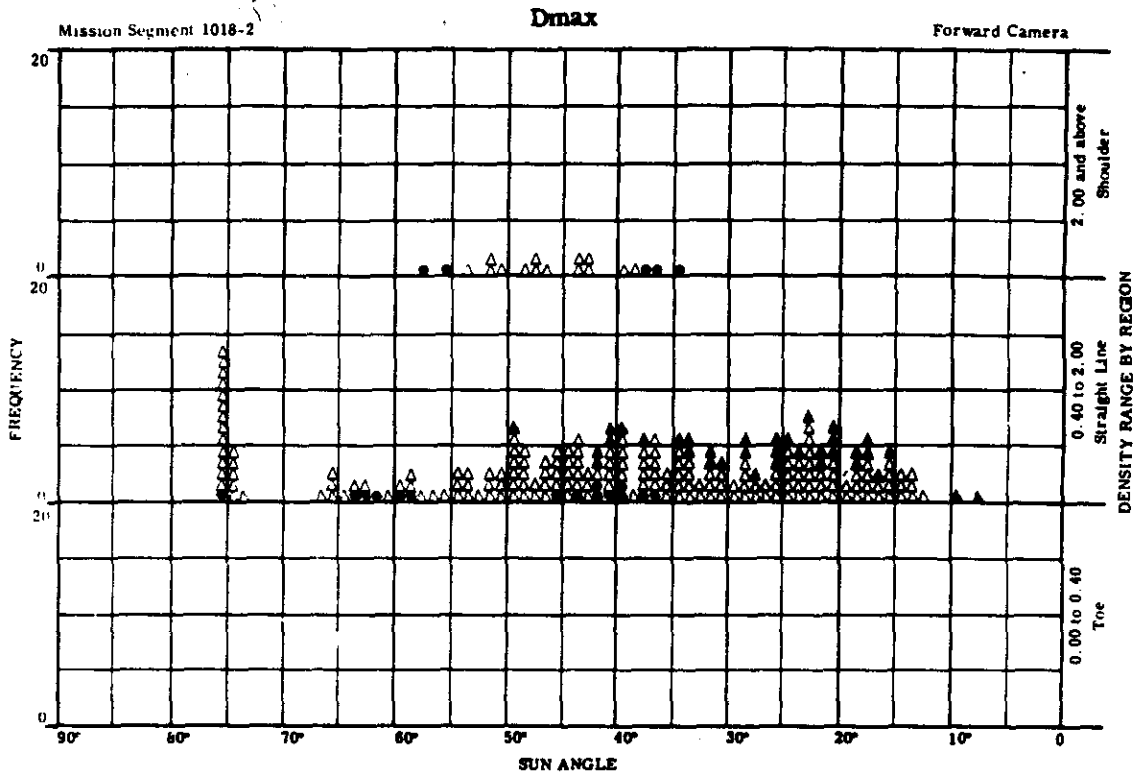
FREQUENCY DISTRIBUTION VALUES BY SUN ANGLE AND PROCESSING LEVEL





FREQUENCY DISTRIBUTION VALUES BY SUN ANGLE AND PROCESSING LEVEL

Dmax



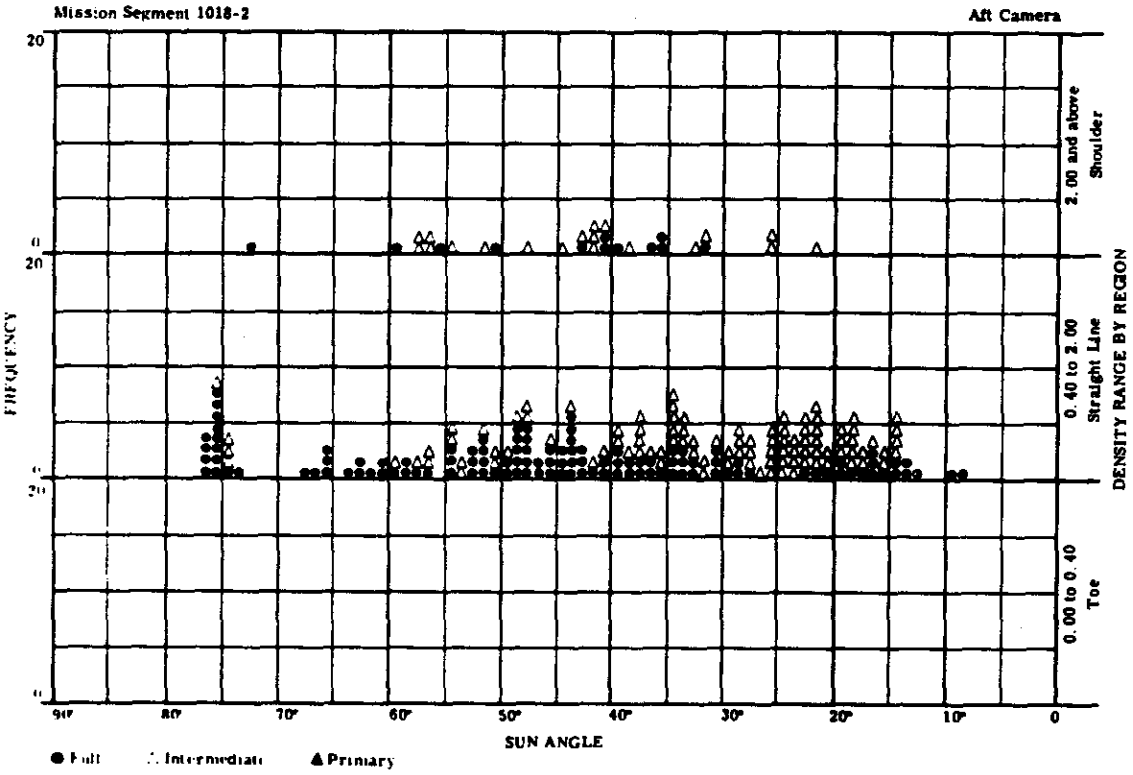
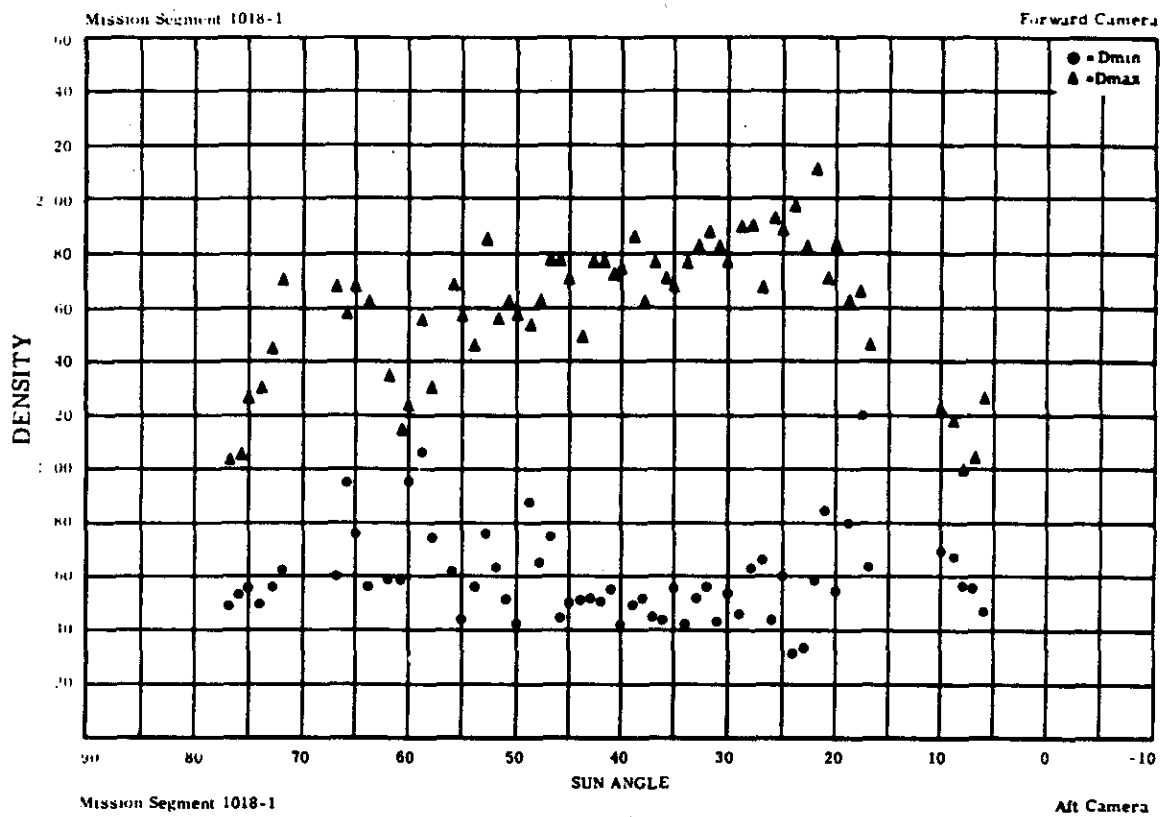
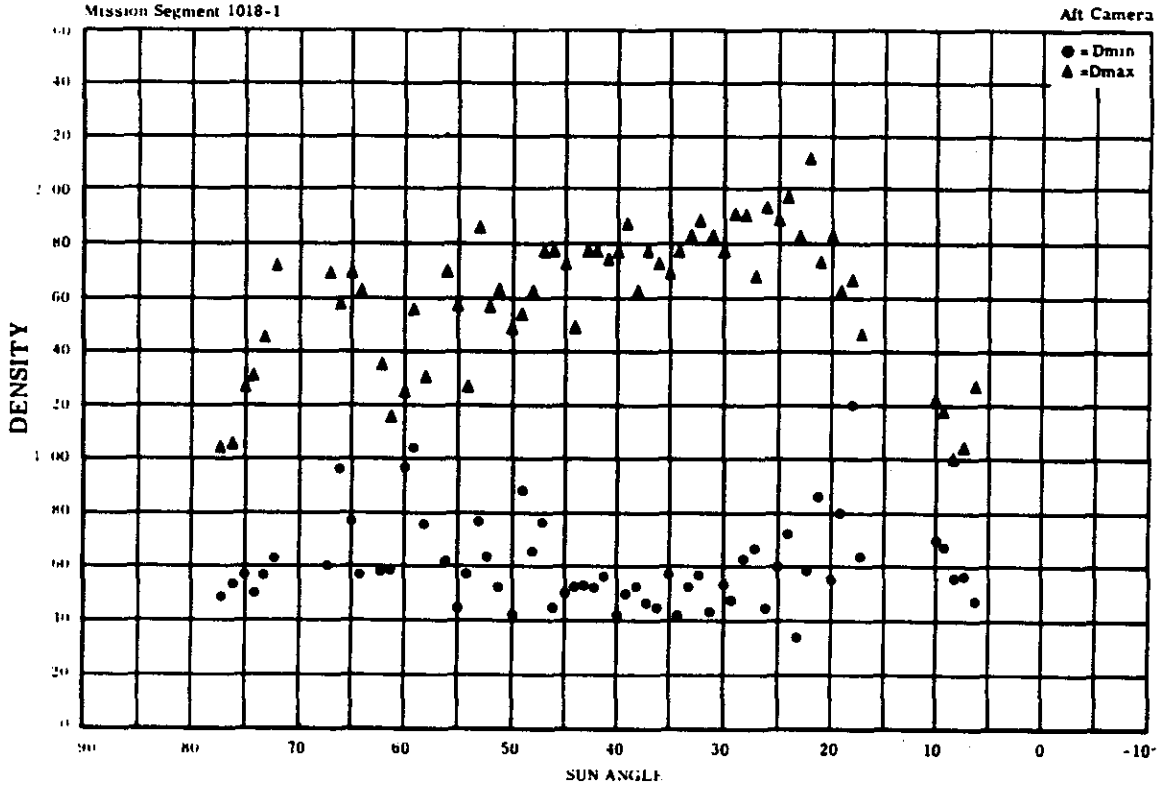


ILLUSTRATION 15

Dmin & Dmax AVERAGES VERSUS SUN ANGLE





Dmin & Dmax AVERAGES VERSUS SUN ANGLE

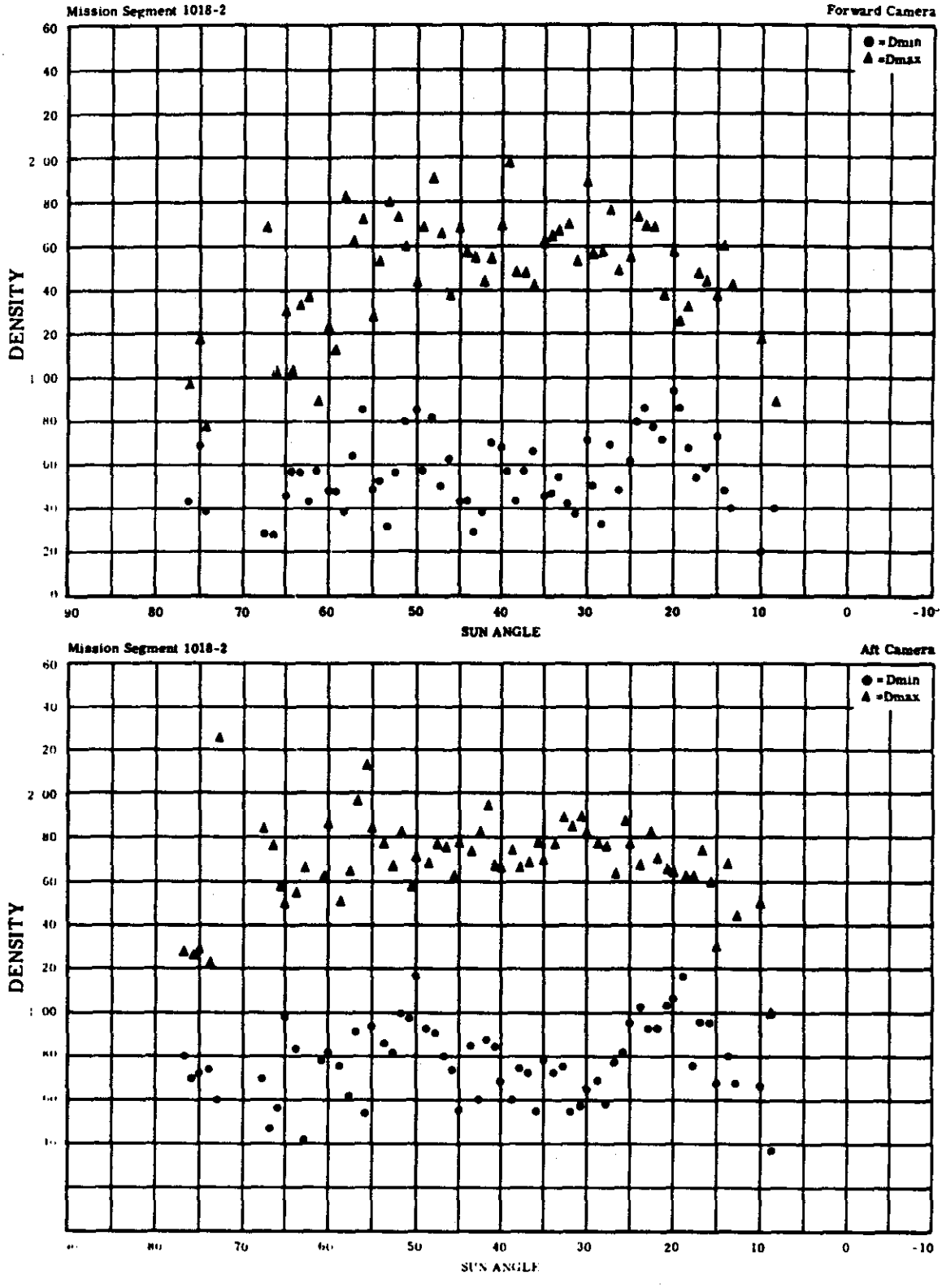
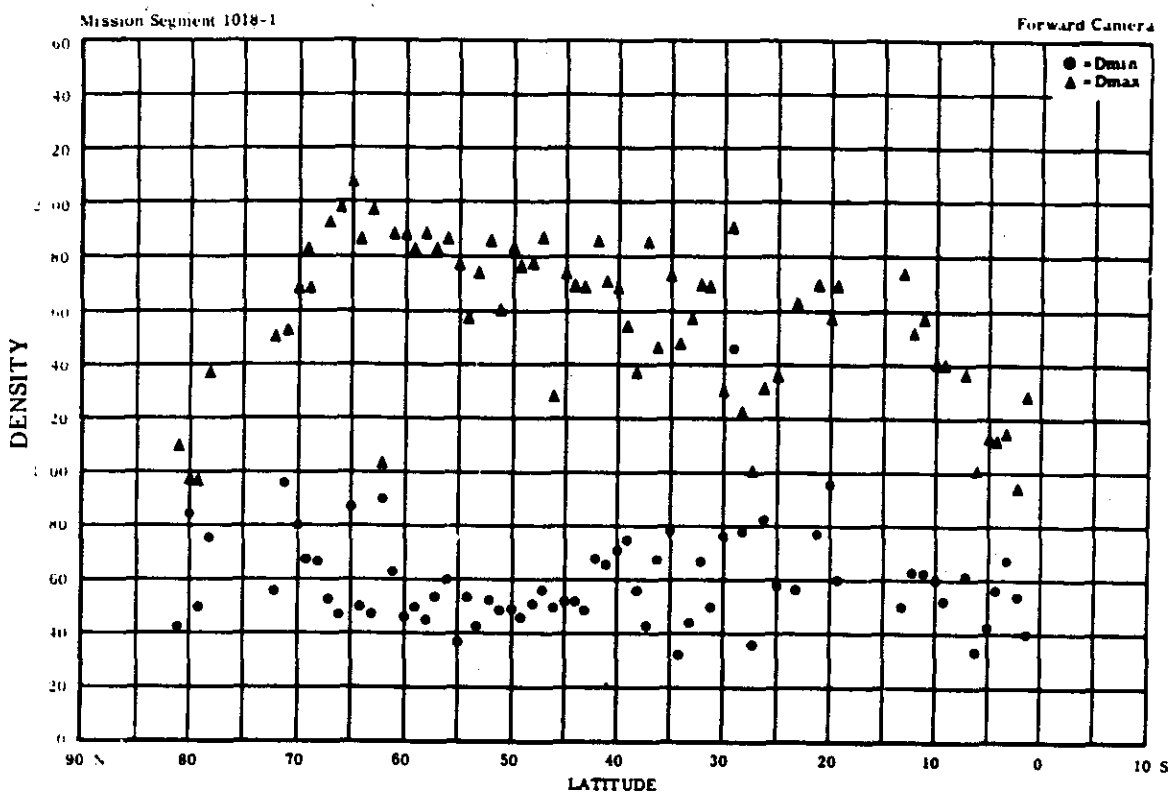
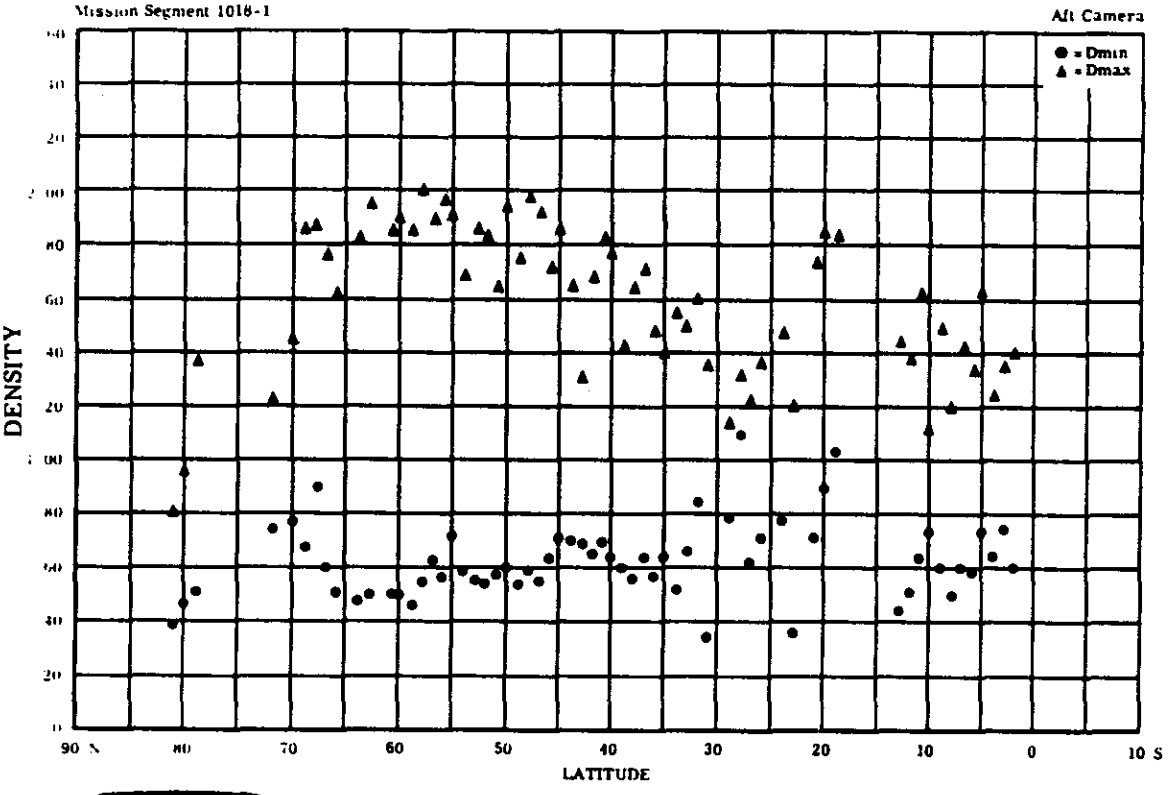


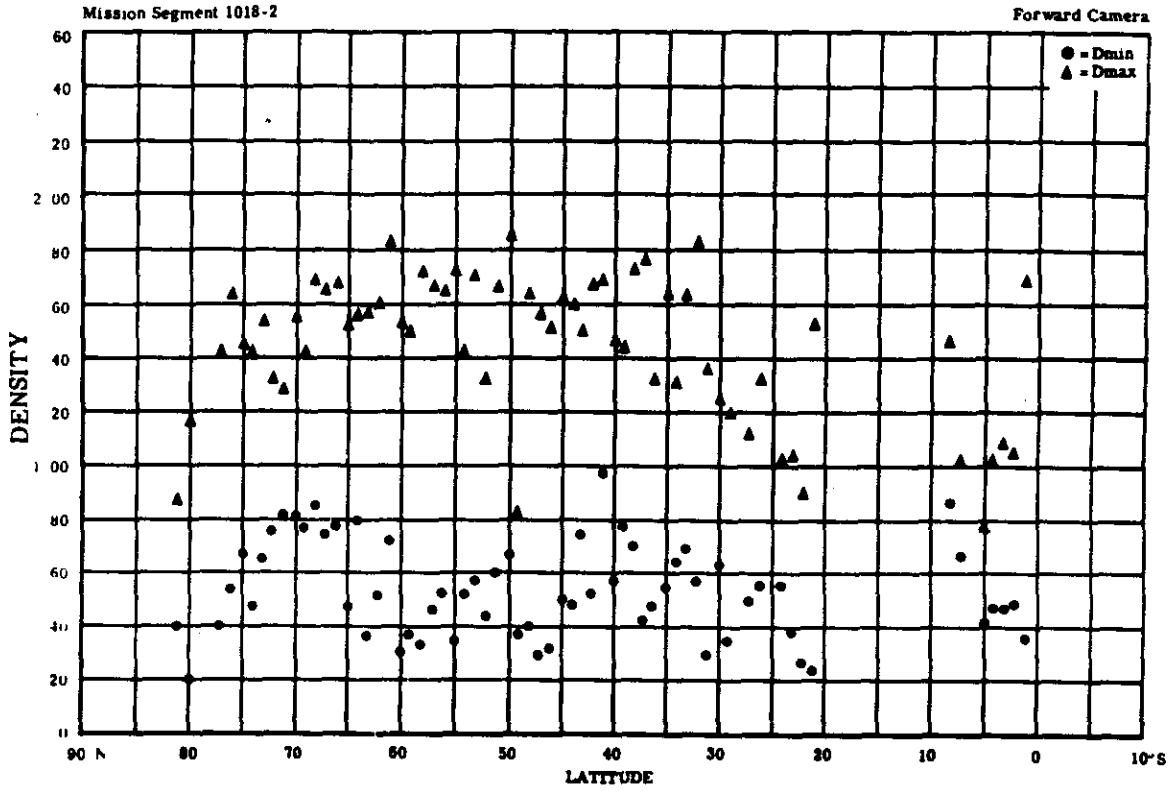
ILLUSTRATION 16

Dmin & Dmax AVERAGES VERSUS LATITUDE





Dmin & Dmax AVERAGES VERSUS LATITUDE



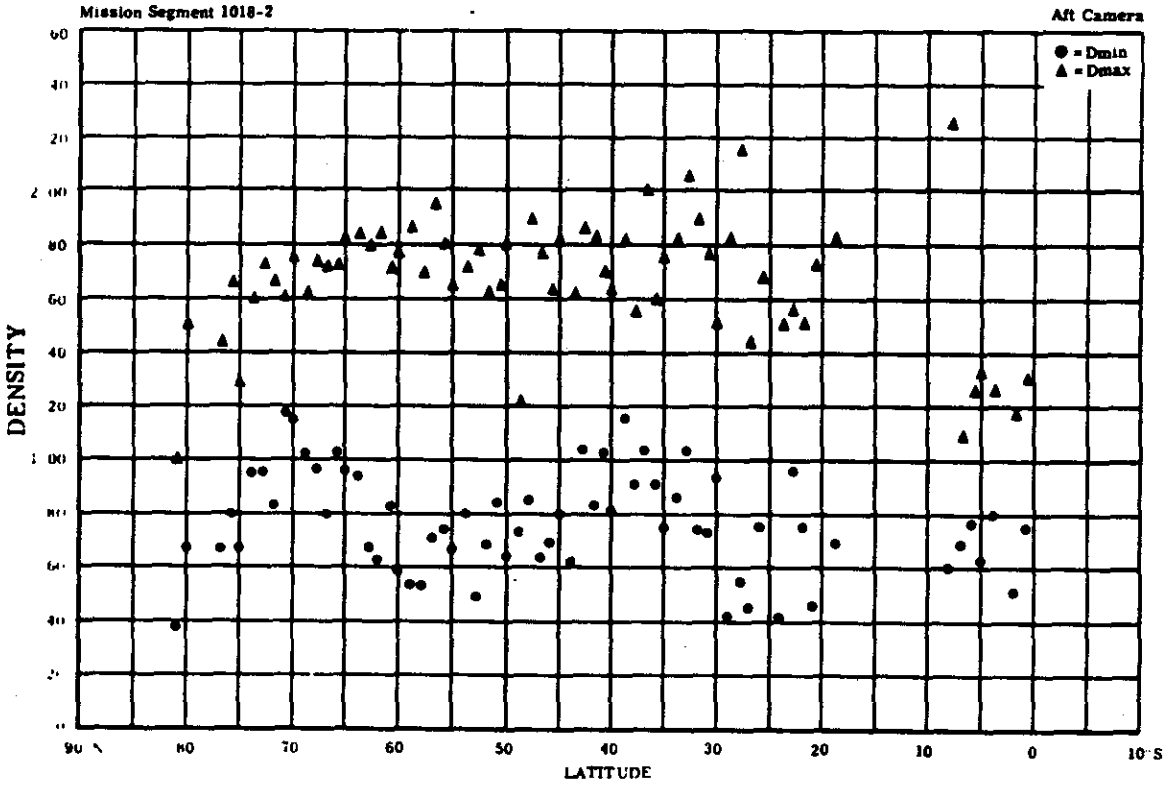
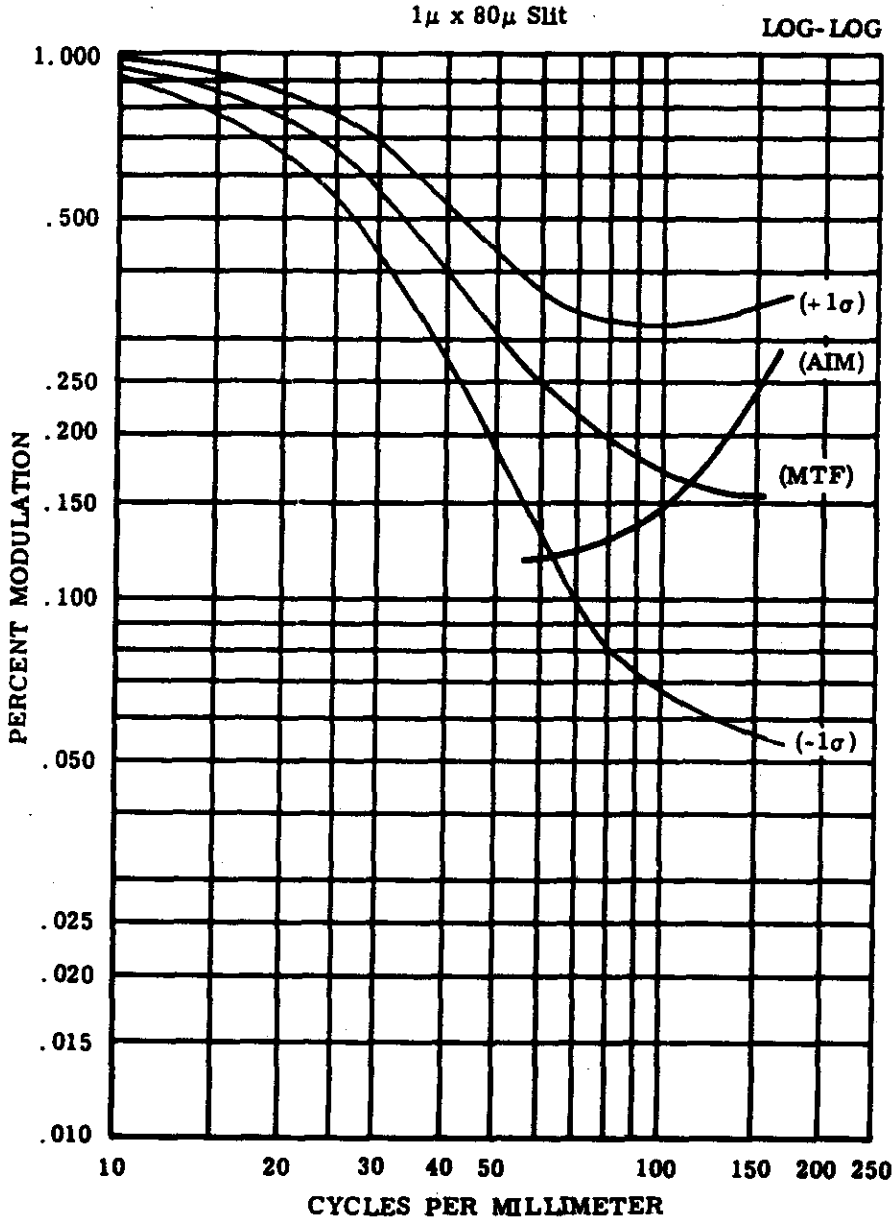


ILLUSTRATION 17

AVERAGE MTF CURVE



FREQUENCY DISTRIBUTION

IMAGE ANALYSIS TECHNIQUES - MISSION 1018

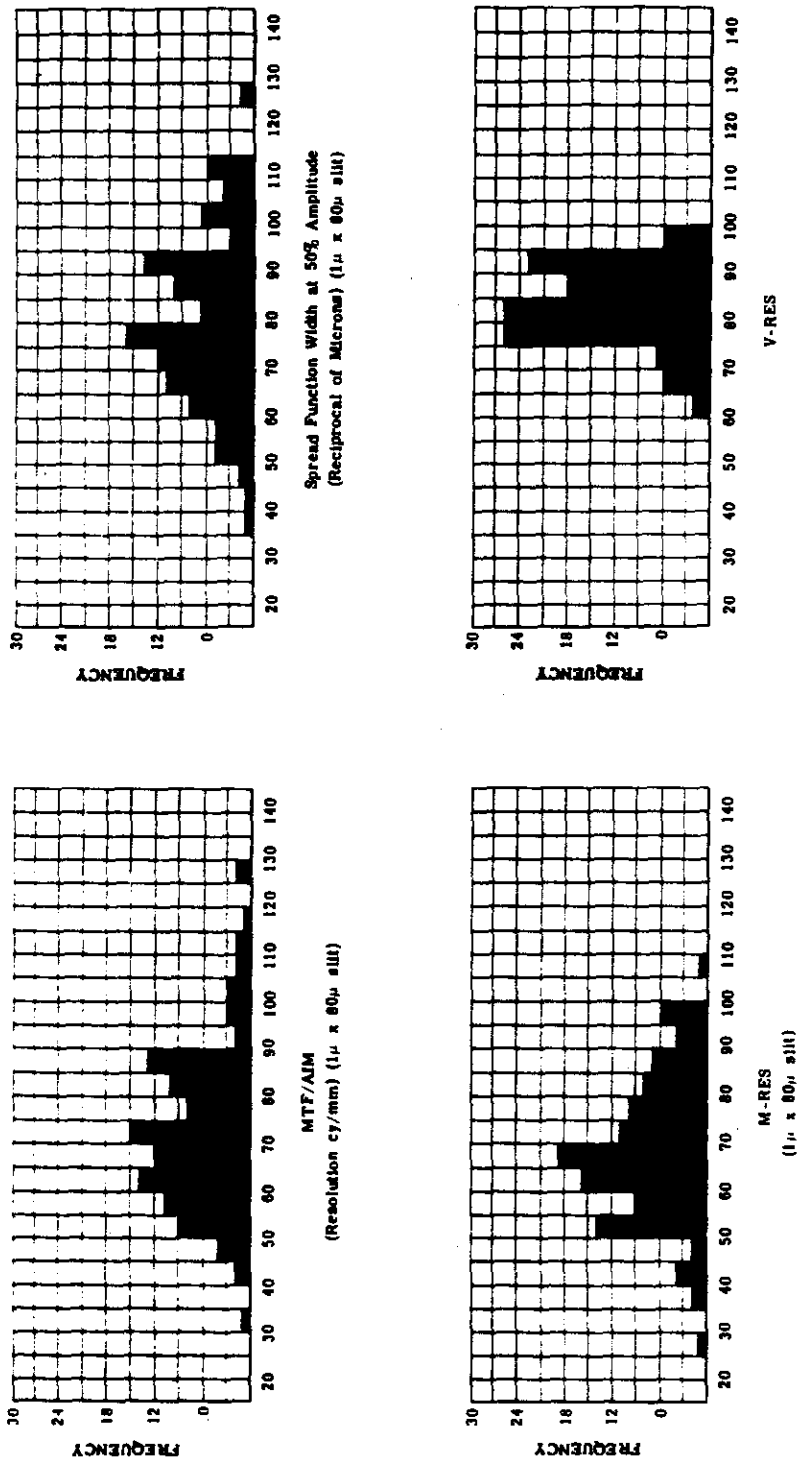
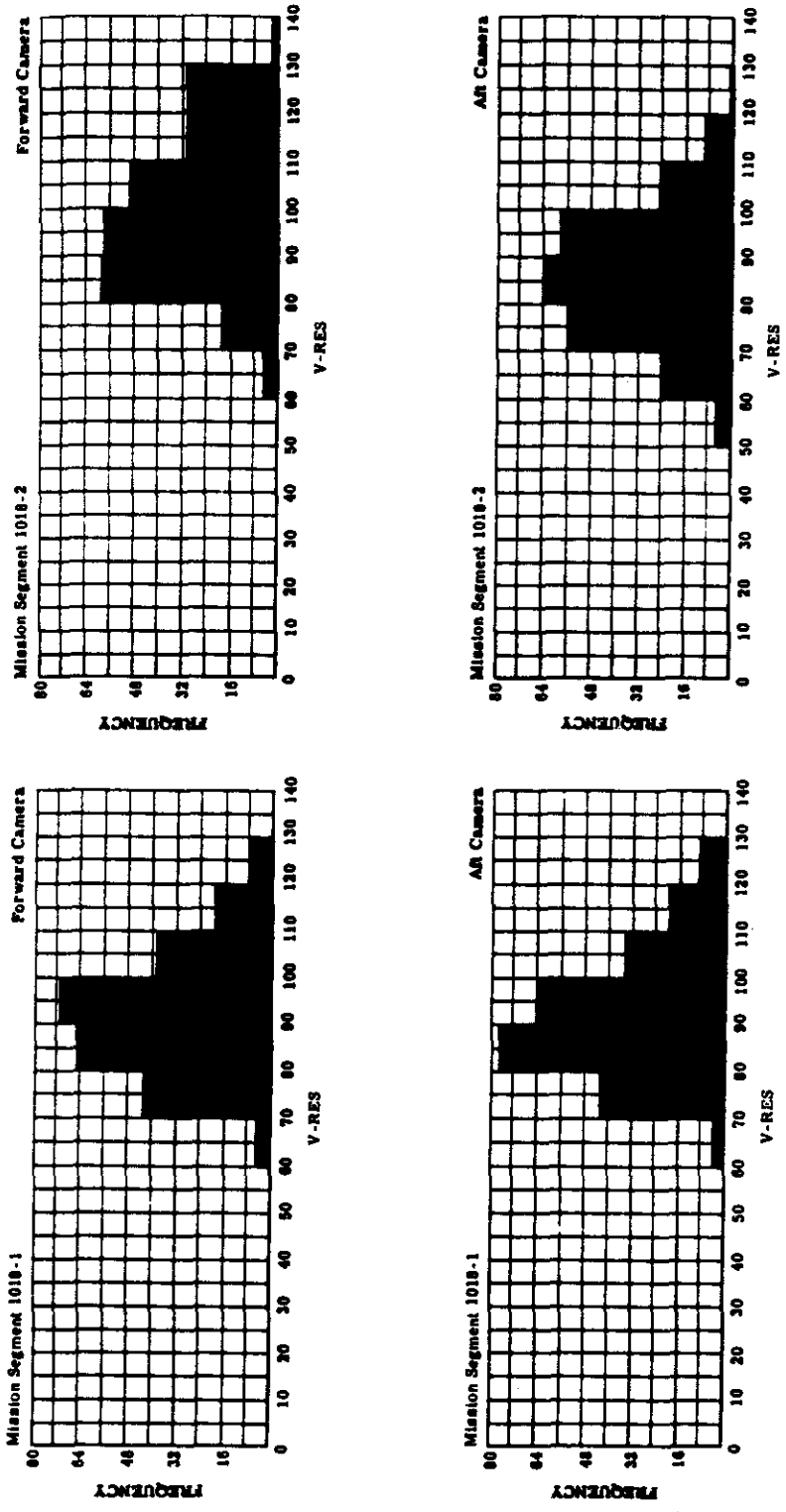
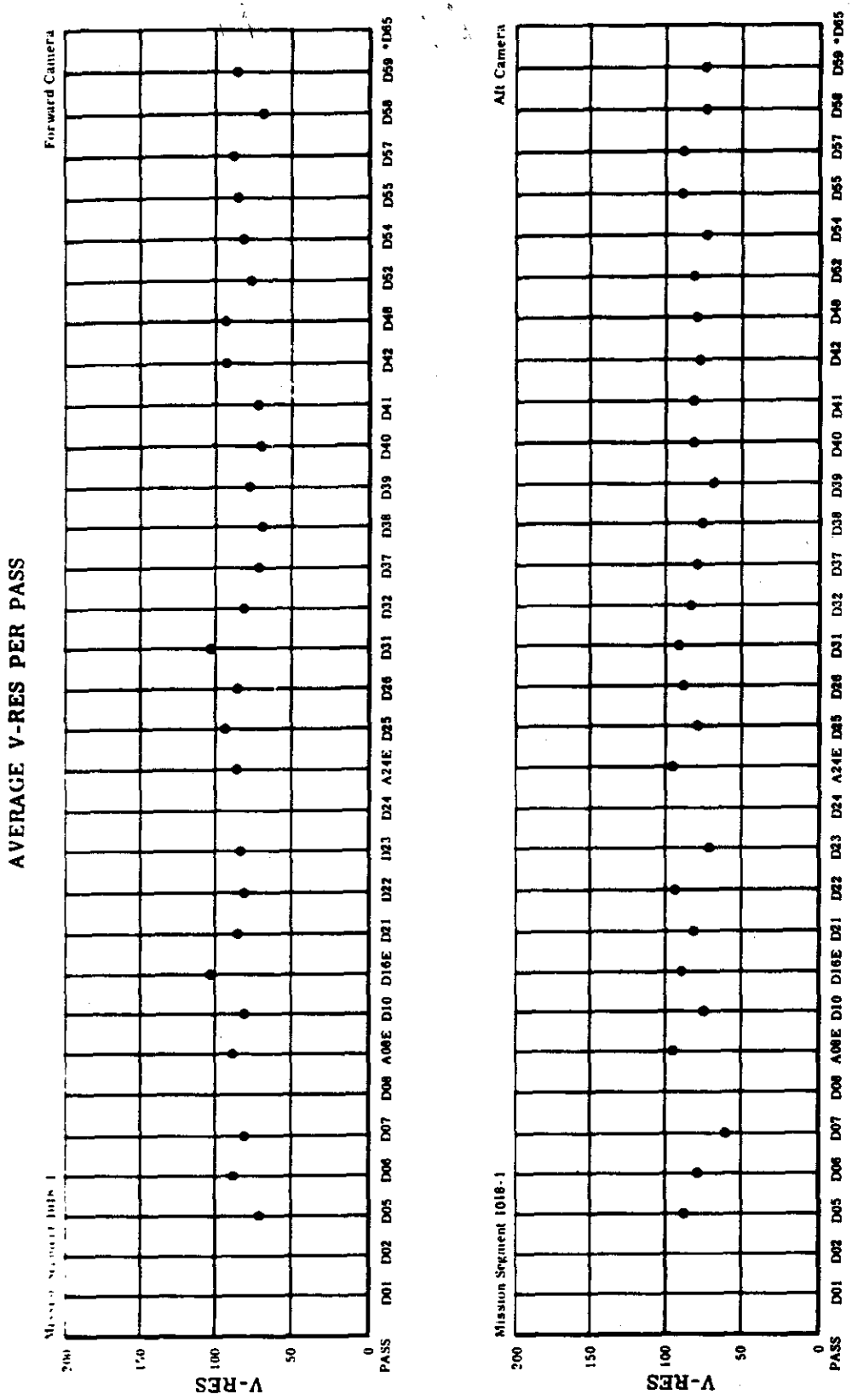


ILLUSTRATION 19

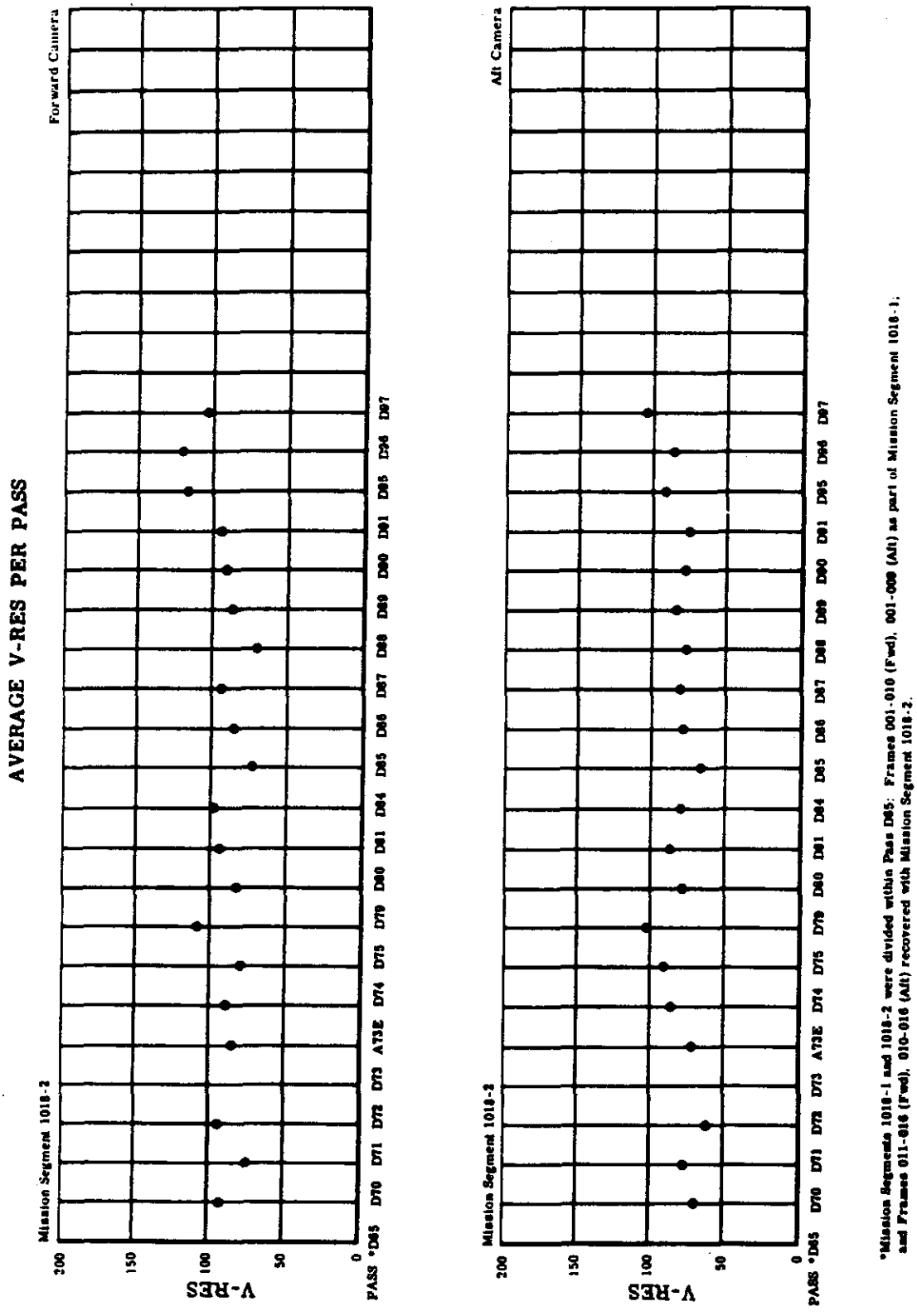
FREQUENCY DISTRIBUTION
VISUAL-RECIPROCAL EDGE SPREAD (V-RES)





*Mission Segments 1018-1 and 1018-2 were divided within Pass D65: Frames 001-010 (Fwd), 001-009 (Aft) as part of Mission Segment 1018-1; and Frames 011-016 (Fwd), 010-016 (Aft) recovered with Mission Segment 1018-2.

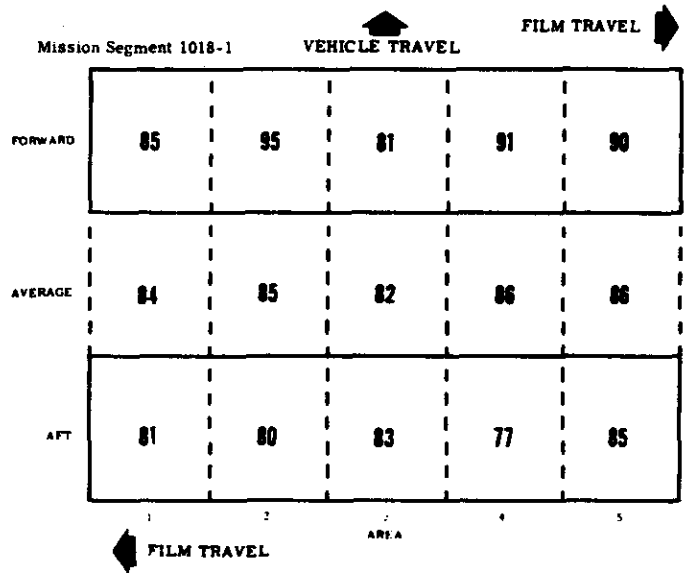
ILLUSTRATION 21



*Mission Segments 1018-1 and 1018-2 were divided within Pass D85: Frames 001-010 (Fwd), 001-009 (Aft) as part of Mission Segment 1018-1; and Frames 011-016 (Fwd), 010-016 (Aft) recovered with Mission Segment 1018-2.

ILLUSTRATION 21

AVERAGE V-RES ACROSS FRAME



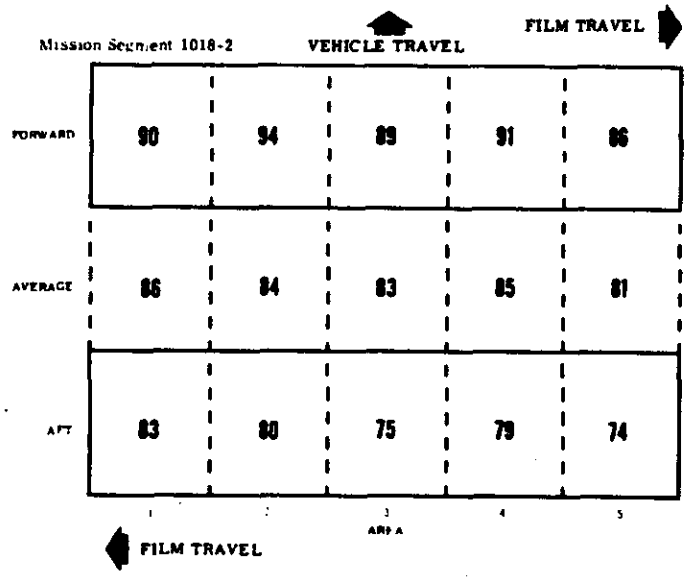
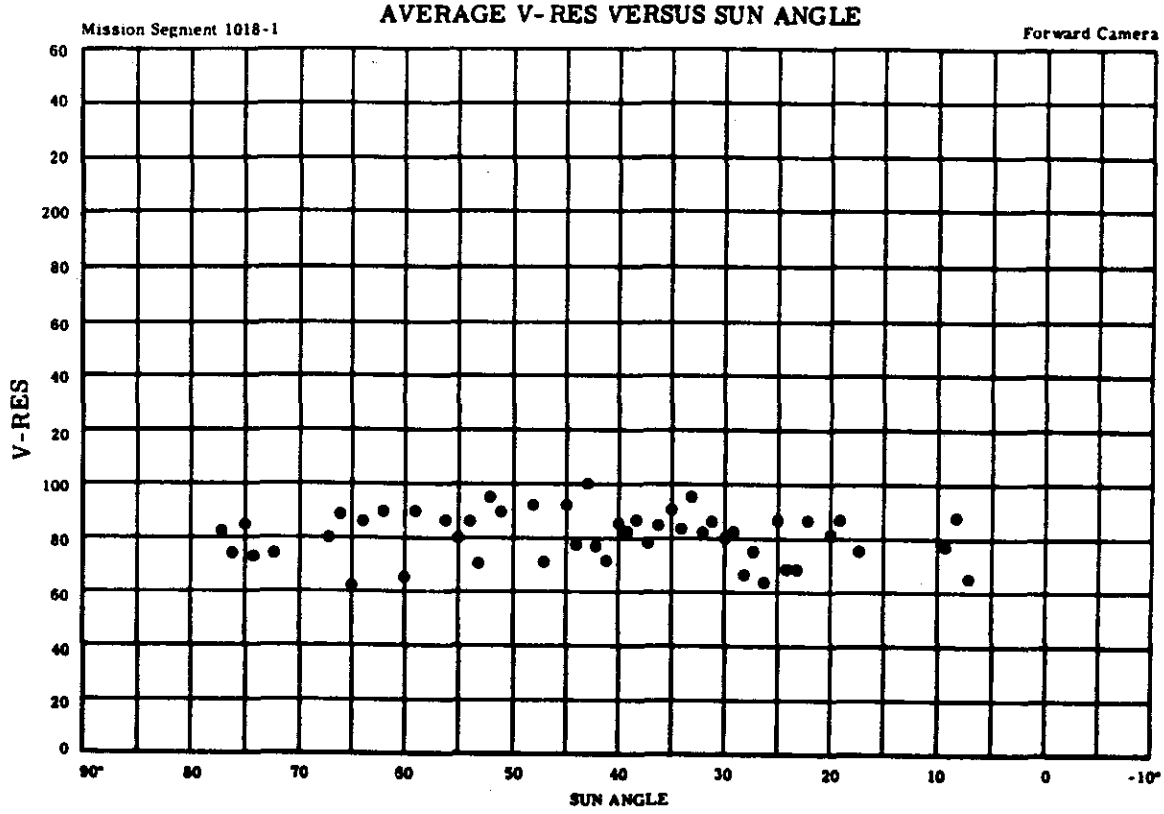
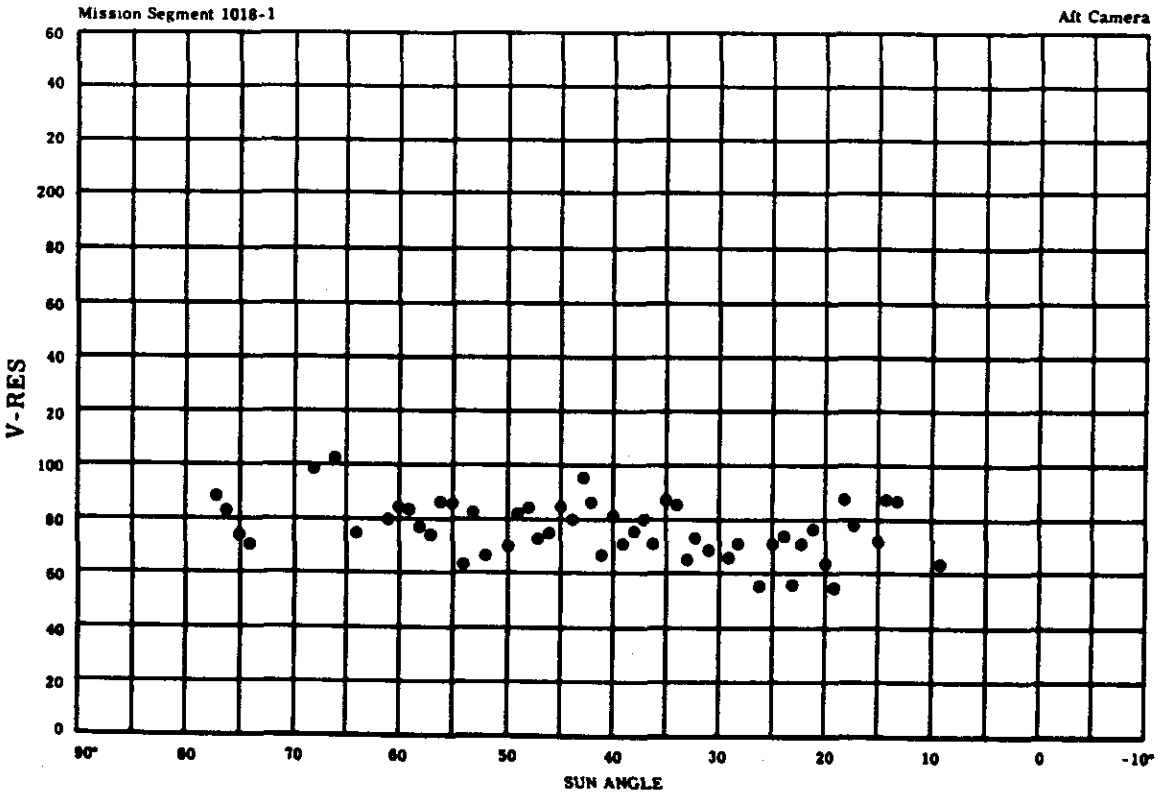


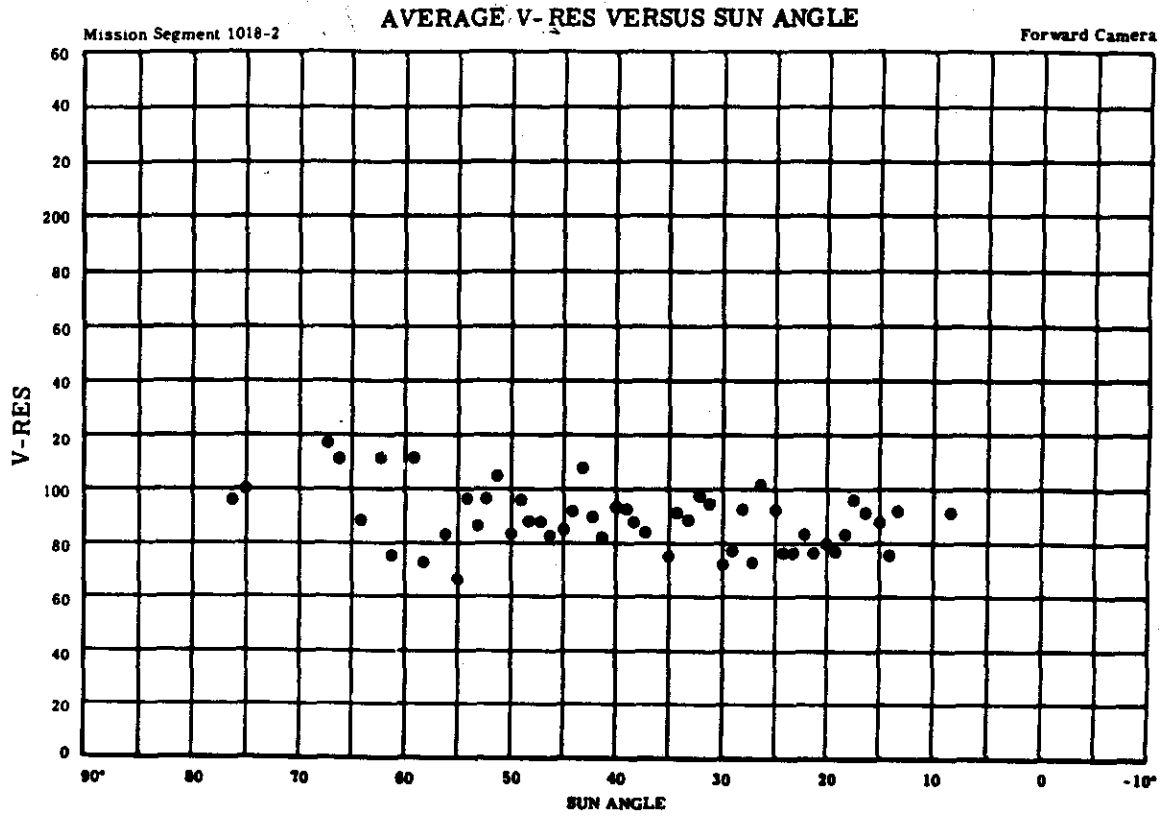
ILLUSTRATION 22

AVERAGE V-RES VERSUS SUN ANGLE





AVERAGE V-RES VERSUS SUN ANGLE



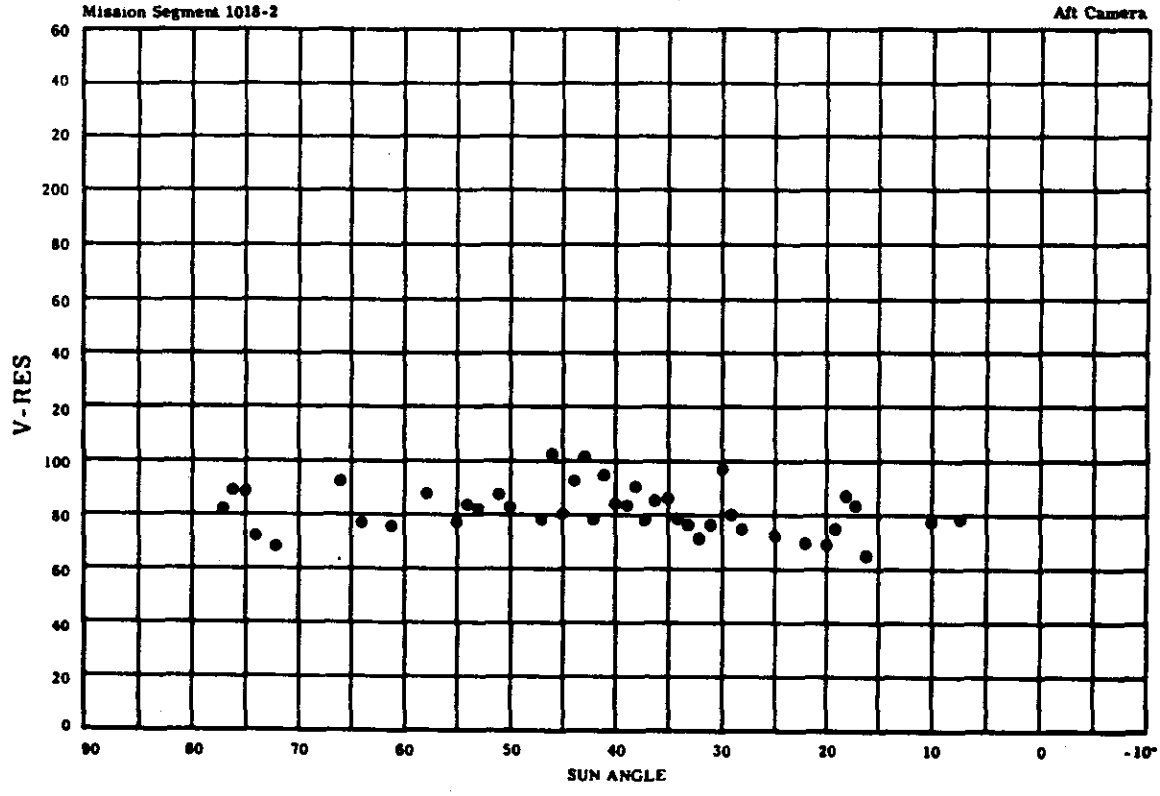
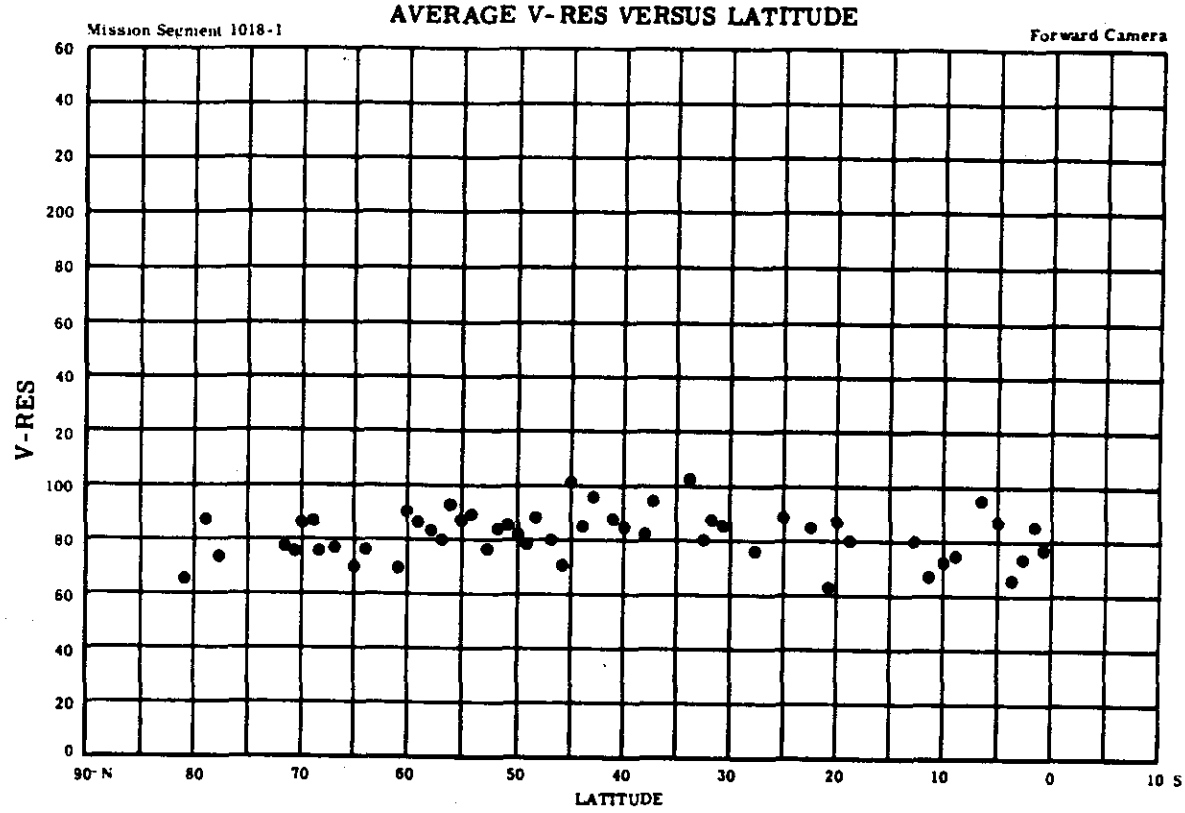
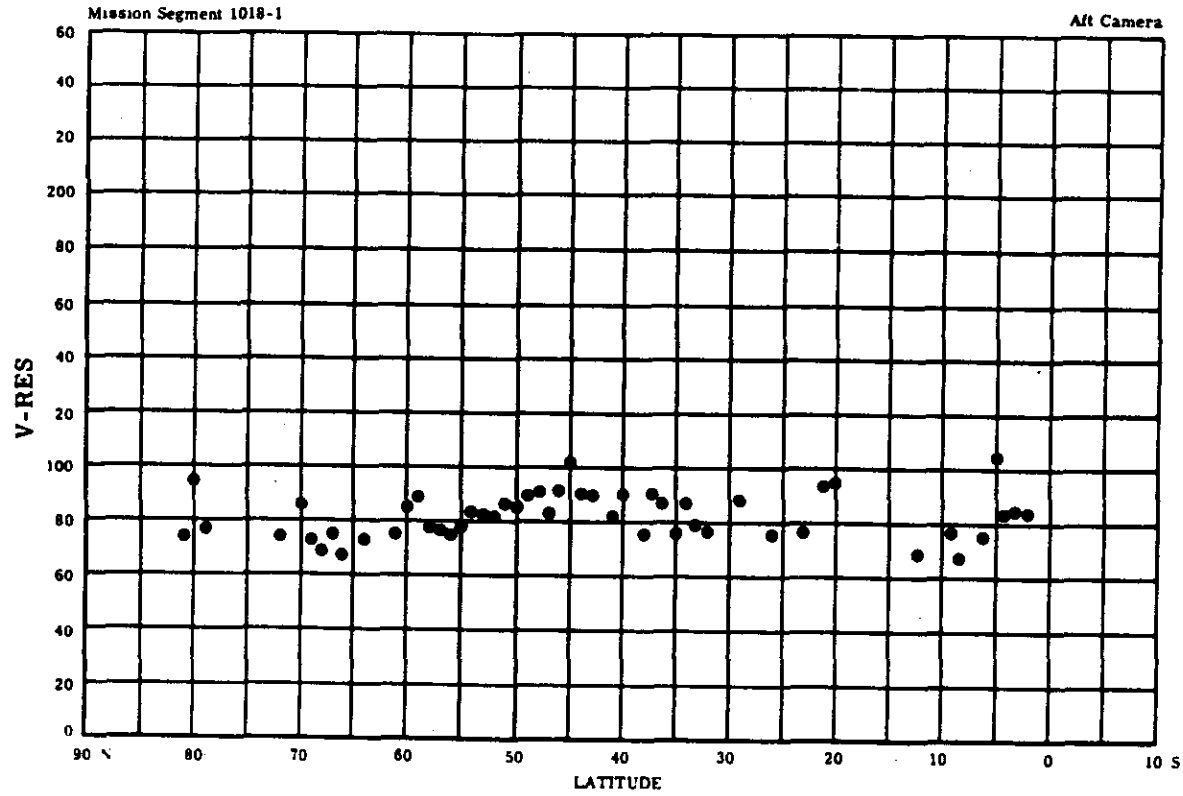


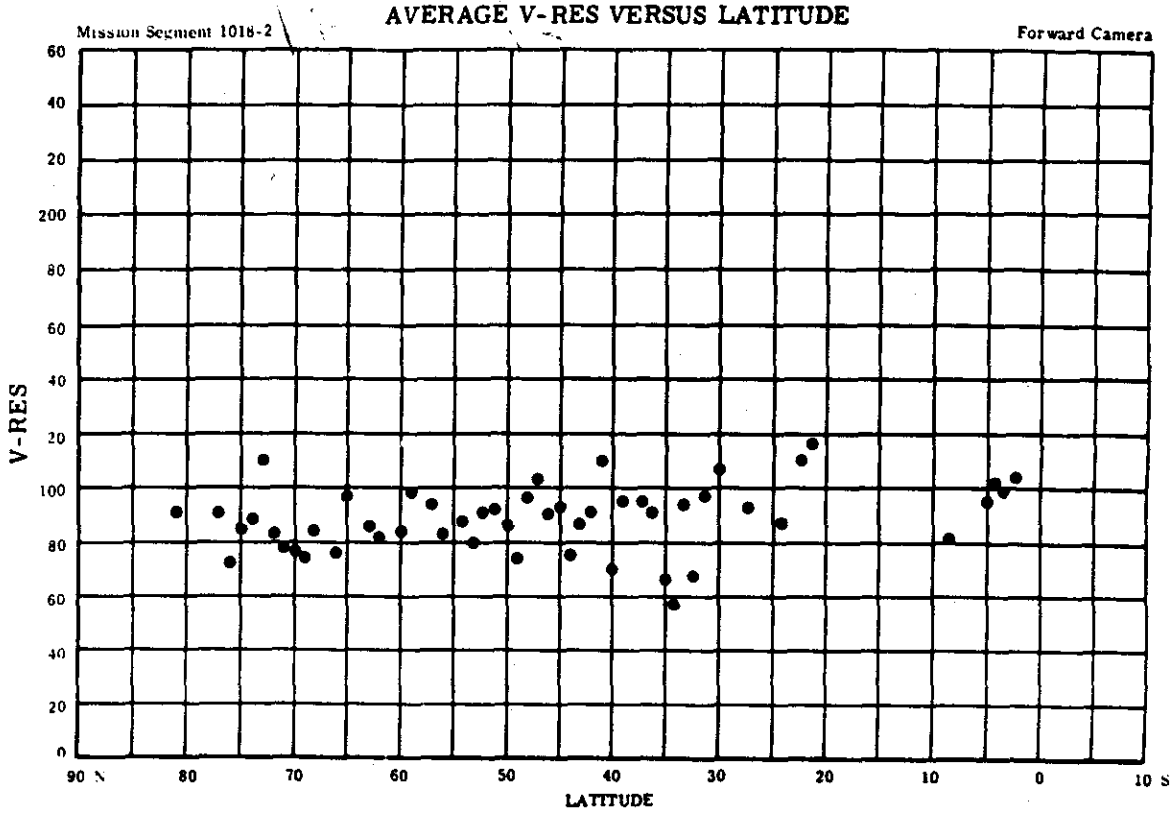
ILLUSTRATION 23

AVERAGE V-RES VERSUS LATITUDE





AVERAGE V-RES VERSUS LATITUDE



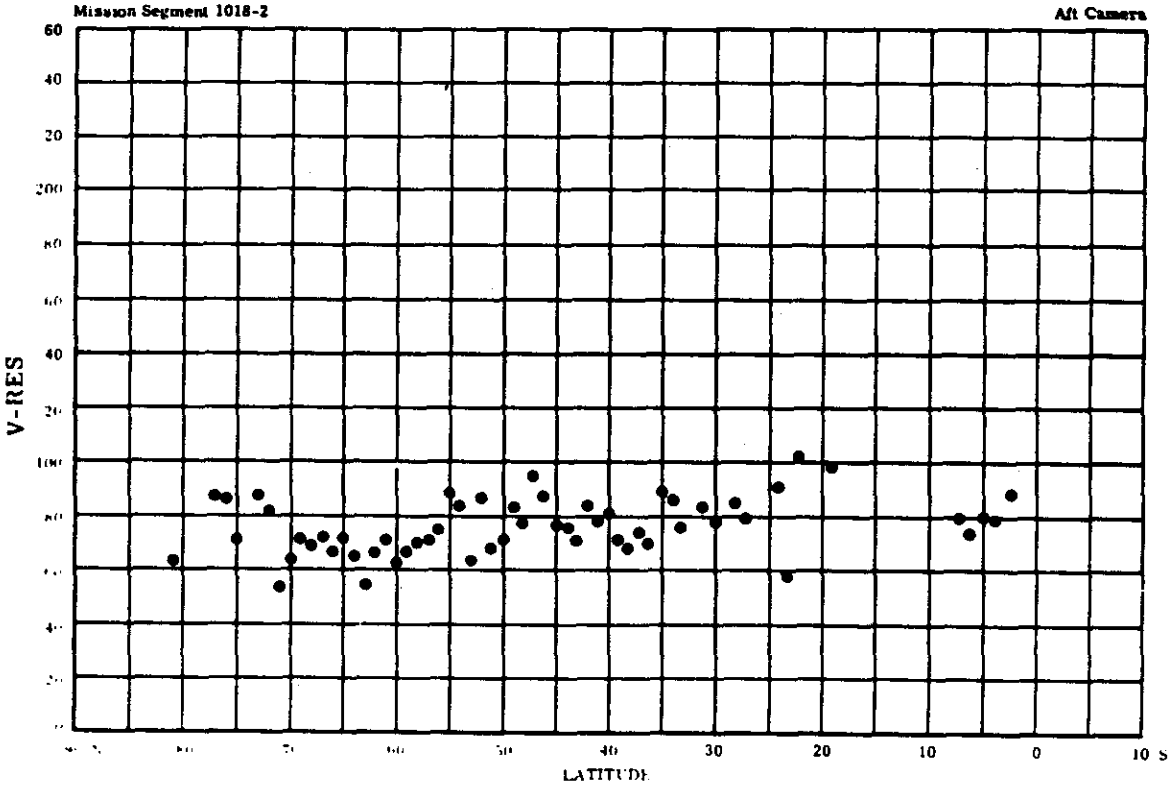
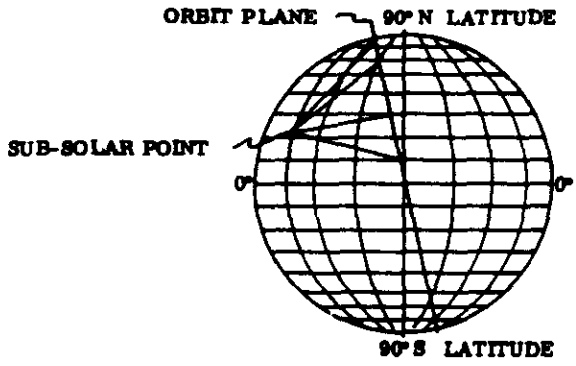


ILLUSTRATION 24

RELATIONSHIP OF SUB-SOLAR POINT TO VEHICLE TRAVEL

TYPICAL SUMMER ILLUMINATION
2400Z (1700 PDT) LAUNCH



TYPICAL WINTER ILLUMINATION
2100Z (1300 PST) LAUNCH

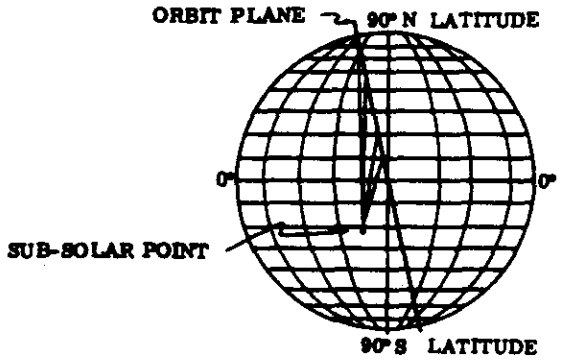


ILLUSTRATION 25

SECTION III

METHODS AND EQUIPMENT USED IN THE ANALYSIS

This section presents a description of the test procedures, methods, and equipment used in conducting the mission photographic analysis which produced the data recorded in Section II, paragraph B.

A series of photographic missions obtaining products from the same camera system and under generally similar conditions are evaluated with identical equipment and techniques, where possible, in order that valid comparisons of individual missions can be accomplished. The report of the first mission evaluated in the series contains a complete detailed description of the evaluation techniques and equipment used. However, as refinements occur in photographic evaluation techniques, mensuration equipment, and methods of handling data, corresponding revisions are recorded in the appropriate paragraphs of this section. There were no revisions or changes in test procedures and equipment during the evaluation of Mission 1018. Refer to Section III of SPPL Technical Report No. [redacted] (Mission 1017) for a complete description of methods and equipment utilized in the analysis.

SECTION IV

OBSERVATIONS AND SUMMARY

The observations and summaries presented in this section are based on a study of the data reported in Section II and a comparison with previous missions in this series. This evaluation consisted of inspecting, measuring, and computing data on density, processing, analysis by edge scan techniques, Visual-Reciprocal Edge Spread (V-RES), Controlled Range Network (CORN) Operations, and film degradations. Reconnaissance Satellite Mission 1018 produced 30,606 feet of imagery from its two Panoramic Cameras while orbiting from 25 March to 1 April 1965. From the original negatives approximately 5,570 measurements were obtained for this photographic evaluation.

Mission 1018 is the sixth CORONA mission experimenting in the use of a Wratten 25 Filter to compensate for "facing-illumination." A special summation of data extracted and computed from these six missions is presented in paragraph F. of this section. Also included in this section are the results of a comparison of Dmin and Dmax frequency distribution by Mission processing level and sun angle.

A. Density Analysis

1. A summary of measured and computed densitometric values for both segments of Mission 1018 is presented below:

		Range		Average	
		1018-1	1018-2	1018-1	1018-2
Dmin	Fwd	0.19 - 1.46	0.16 - 1.78	0.56	0.57
	Aft	0.18 - 1.36	0.22 - 1.50	0.62	0.81
Dmax	Fwd	0.64 - 2.22	0.50 - 2.25	1.66	1.50
	Aft	0.68 - 2.20	0.94 - 2.26	1.68	1.70
$\bar{D}$	Fwd	0.58 - 1.68	0.35 - 1.93	1.11	1.03
	Aft	0.50 - 1.61	0.69 - 1.85	1.15	1.25
ΔD	Fwd	0.07 - 1.89	0.13 - 1.85	1.10	0.93
	Aft	0.07 - 1.79	0.15 - 1.80	1.06	0.89
Gross Fog	Fwd	0.07 - 0.20	0.08 - 0.20	0.11	0.13
	Aft	0.10 - 0.19	0.08 - 0.20	0.14	0.14
Dmax Clouds	Fwd	0.90 - 2.26	1.00 - 2.32	1.85	1.96
	Aft	1.09 - 2.35	1.03 - 2.28	1.98	1.95

2. The average Dmin, Dmax, and $\bar{D}$ values for the Forward Camera are lower than the Aft Camera. The average ΔD value of the Forward Camera is higher than the Aft Camera.

3. The average Dmin values (Forward) are similar for both Segments, 1018-1 and 1018-2. Mission Segment 1018-1 average Dmax, $\bar{D}$, and ΔD values (Forward) are higher than those of 1018-2. The average Dmin and $\bar{D}$ values (Aft) on Mission Segment 1018-1 are lower than those of 1018-2. The average Dmax values (Aft) are similar for both Mission Segments. The average ΔD value (Aft) for Mission Segment 1018-1 is higher than that of 1018-2.

4. A comparison of average densitometric values from the Forward and Aft Cameras for Missions 1014 through 1018 is presented as follows:

a. Forward Panoramic Camera (Wratten 25 Filter)

(1) The average Dmin value for Mission 1018 is generally similar to Missions 1015 through 1017 and is significantly higher than Mission 1014.

(2) The average Dmax, $\bar{D}$, and ΔD values for Mission 1018 are significantly lower than Mission 1017, similar to 1016, and higher than Missions 1014 and 1015 with the exception of the ΔD value for Mission 1014 which is similar.

b. Aft Panoramic Camera (Wratten 21 Filter)

(1) The average Dmin value for Mission 1018 is significantly higher than Missions 1014 through 1017.

(2) The average Dmax and $\bar{D}$ values for Mission 1018 are similar to Mission 1017 and are significantly higher than Missions 1014 through 1016.

(3) The average ΔD value for Mission 1018 is lower than Mission 1017, similar to 1016, and significantly higher than Missions 1014 and 1015.

5. The overall range, average, and standard deviation (σ) for Mission 1018 are listed below:

	Range	Average	Standard Deviation
Dmin	0.16 - 1.78	0.64	0.27
Dmax	0.50 - 2.26	1.63	0.34
$\bar{D}$	0.35 - 1.93	1.14	0.24
ΔD	0.07 - 1.89	0.99	0.40
Gross Fog	0.07 - 0.20	0.13	0.03
Dmax Clouds	0.90 - 2.35	1.93	0.26

6. A comparison of the overall densitometric average values for Missions 1014 through 1018 is described below:

a. The average Dmin value for Mission 1018 is significantly higher than Missions 1014 through 1016 and similar to Mission 1017.

b. The average Dmax value for Mission 1018 is significantly lower than Mission 1017, significantly higher than 1014 and 1015, and similar to Mission 1016.

c. The average $\bar{D}$ value for Mission 1018 is similar to Missions 1016 and 1017 and significantly higher than 1014 and 1015.

d. The average ΔD value for Mission 1018 is similar to Missions 1014 and 1016, significantly higher than 1015, and significantly lower than Mission 1017.

B. Film Processing

1. Multiple film processing levels were used on both Mission Segments to control density. An attempt is made to maintain all Dmin values between a range of 0.40 and 0.90 and all Dmax values between 0.40 and 2.00. The table below shows the percentage of the original negatives processed at the three levels of development:

Mission Segment	Development Level	Forward Camera	Aft Camera
1018-1	Primary	9%	9%
	Intermediate	53%	63%
	Full	38%	28%
1018-2	Primary	18%	1%
	Intermediate	74%	50%
	Full	8%	49%

2. This is the first mission to portray Dmin and Dmax frequency distribution values by processing level and sun angle (elevation). A comparison of these density values with the Mission processing profile shows that 18% of the Dmin values are below 0.40, 19% of the Dmin values are above 0.90, and 13% of the Dmax values are above 2.00. The majority of the Dmin values below 0.40 occurred on the Forward Camera of both 1018-1 and 1018-2, while the majority of the Dmax values above 2.00 were noted on the Aft Camera of Mission Segment 1018-2. This study shows no obvious correlation between sun angles and those values which exceed the range limits. They are apparently due to the problem of under and/or overexposure and/or processing. Processing of Mission 1018 is considered good. All succeeding mission evaluations will contain this new method of comparison.

C. Analysis by Edge Scan Techniques

The analysis of microdensitometric traces from the scene edges of this Mission was accomplished by two teams: the SPPL Technical Evaluation Team and a group of scientists and consultants from Industry. The average values of the Modulation Transfer Function/Aerial Image Modulation (MTF/AIM) and the reciprocal of the Spread Function Width at 50% Amplitude (50% Spread) for the five most recent 1000 series missions are tabulated on the following page. All values were obtained from subjects traced with a 1μ x 80μ slit.

Mission	Camera Position	MTF/AIM		50% Spread (Reciprocal)	
		SPPL Team	S/C Team	SPPL Team	S/C Team
1014	Forward	76	73	80	93
	Aft	83	87	90	115
1015	Forward	73	80	80	114
	Aft	73	93	85	122
1016	Forward	56	87	69	107
	Aft	58	93	72	112
1017	Forward	60	79	69	93
	Aft	70	90	80	111
1018	Forward	73	79	78	93
	Aft	72	93	83	118

1. SPPL Team

a. The SPPL Team used three methods of analysis: MTF/AIM, 50% Spread, and Machine-Reciprocal Edge Spread (M-RES). The edge traces were accomplished utilizing a Mann-Data Micro-Analyzer. The average MTF/AIM, 50% Spread, and M-RES values are 73, 78, and 68 for the Forward Camera and 72, 83, and 68 for the Aft Camera, respectively.

b. The average values of MTF/AIM, 50% Spread, and M-RES show both the Forward and Aft Cameras to be generally similar in image quality.

c. The average MTF/AIM, 50% Spread, and M-RES values for Mission 1018 are higher than Missions 1016 and 1017, lower than 1014, and similar to Mission 1015 with the exception of the 50% Spread value for Mission 1015 which is higher.

d. Using a mean Photo Scale Reciprocal (PSR) of 320,000, the approximate ground resolution of the following average values for Mission 1018 are: 14.5' for MTF/AIM, 13.1' for 50% Spread, and 15.4' for M-RES.

2. Scientist and Consultant Team

a. This group used two methods of analysis: MTF/AIM and 50% Spread. Scene edges were traced with the Eastman Kodak Model 5 Microdensitometer. The average MTF/AIM and 50% Spread values are 79 and 97 for the Forward Camera and 93 and 118 for the Aft Camera, respectively.

b. The average MTF/AIM and 50% Spread values show the image quality for the Aft Camera to be higher than that of the Forward Camera.

c. The average MTF/AIM value for Mission 1018 is higher than Missions 1014 and 1017, lower than 1016, and similar to Mission 1015.

d. The average 50% Spread value for Mission 1018 is higher than Missions 1014 and 1017, but lower than Missions 1015 and 1016.

e. Conversion of the average MTF/AIM and 50% Spread values to approximate ground resolution using a mean PSR of 320,000 produced the following results: 13.2' for MTF/AIM and 10.8' for 50% Spread on the Forward Camera, and 11.2' for MTF/AIM and 8.8' for 50% Spread on the Aft Camera.

D. Visual-Reciprocal Edge Spread (V-RES)

1. V-RES data consists of 1,006 measurements. Values range from 45 to 125 with an average of 83. The range and average of V-RES values by Mission Segment and camera position are listed below:

Mission Segment	Camera Position	Range	Average
1018-1	Forward	55 - 111	83
	Aft	55 - 118	82
1018-2	Forward	54 - 125	89
	Aft	45 - 111	77

2. The average V-RES value for Mission 1018 is higher than the past five missions in this series.

3. Ground resolution computed with a PSR of 320,000 for V-RES values range from 8.3' to 23.3' with an overall average of 12.6 feet.

E. Controlled Range Network (CORN) Operations

1. Mission Segment 1018-1 covered:

a. A mobile, Medium Contrast "T" Bar Target at Pahrump on Pass D16E. Frames 009 (Fwd) and 015 (Aft).

b. The fixed, High Contrast Bar Target at Pahrump on Pass D16E, Frames 008 (Fwd) and 014 (Aft).

c. The fixed, High Contrast Bar Target at Indian Springs on Pass D16E, Frames 005 (Fwd) and 011 (Aft).

d. A mobile 200' Controlled Scene Brightness Target at Palomas Plain on Pass D32, Frames 010 (Fwd) and 016 (Aft).

2. Mission Segment 1018-2:

a. A Lompoc Airport mobile display was completely covered by clouds.

b. The scheduled Miramar NAS display was cancelled due to bad weather.

3. The 200' Controlled Scene Brightness Target was traced on a Mann-Data Micro-Analyzer utilizing the 1μ x 80μ slit. The traces were then evaluated by edge scan techniques. The following table is a summary of the three methods of analysis accomplished on this display.

Pass	Camera Position	Frame	Trace Number	MTF/AIM	50% Spread	M-RES
D32	Forward	010	CE-1	58	90	88
			CE-2	51	71	53
	Aft	016	CE-1	61	64	68
			CE-2	81	111	95

Conversion of these values to approximate ground resolution using the average PSR of 302,000 resulted in a range from 11.0' to 19.4' for Frame 010 (Fwd), and 8.9' to 16.7' for Frame 016 (Aft).

4. The resolution readings made from the Bar Target displays (mobile and fixed) are listed below:

Display	Type	Pass	Frame	Average Ground Resolution
Indian Springs	Fixed Bar Target	D16E	005(Fwd)	Could not be resolved (the largest bar is 5' 5.125")
			011 (Aft)	
Pahrump	Fixed Bar Target	D16E	008(Fwd)	12' 2"
			014 (Aft)	12' 2"
Pahrump	Mobile Medium Contrast "T" Bar	D16E	009(Fwd)	14'
			015 (Aft)	14'

F. Wratten 25 Filter Experiment on CORONA Missions

In an attempt to improve the quality of imagery, which has been degraded by "facing-illumination," a series of experiments was initiated in which a Wratten 25 (red) Filter was used on the Forward Camera. A Wratten 21 (orange) Filter was retained on the Aft Camera. A summary of pertinent data resulting from the analysis of these missions is presented in Table 14, page 70.

G "Stereo-Suppress" Visual Evaluation

A "Stereo-Suppress" feature was introduced on Passes D05, D06, D07, and D21 of Mission Segment 1018-1. This feature consisted of the starting up or shutting down of one of the Panoramic Cameras while the other remains in operation. A visual evaluation performed on these Passes showed little to no effect on the pitch and roll of the vehicle.

H. Physical Degradations

1. Imaged

a. A fogged area, varying from 2" to 3" wide, was noted extending across the entire width of the image format in the center of Frame 001 on most passes of both Panoramic Cameras on 1018-1 and on the Aft Camera of 1018-2.

b. Unidentified fogging, varying in pattern and density, was observed near the head of the next to last frame on most passes of the Forward Camera on both Mission Segments 1018-1 and 1018-2.

c. A 6" wide, fogged area, extending across the entire width of the image format, was noted near the center of the sixth from last frame on most passes of Mission Segment 1018-1, Forward Camera.

2. Superficial

a. A small, emulsion scratch appears adjacent to each format edge. These two scratches are aligned directly under the camera number on all frames and passes.

b. Numerous, fine-lined, short, parallel, emulsion scratches were noted within 1" of the non-titled edge near the head of all frames and passes.

c. Foreign matter and several minor pinholes, scratches, and abrasions were noted throughout Mission 1018.

I. Summary

1. Mission Segment 1018-1 shows the average density values from the Forward Camera to be slightly lower than those of the Aft, while on 1018-2 the Aft Camera is significantly higher than those values extracted from the Forward Camera photography. These higher values noted on 1018-2 (Aft) are due to the higher percentage of Full processing used on this segment of the Mission.

2. The overall processing for Mission 1018 is considered good.

3. Edge scan analysis data from the SPPL Team indicates very little difference in image quality between the Forward and Aft Camera products; similar data from the Scientist/Consultant Team shows that the Aft Camera photography is higher than that of the Forward Camera.

4. The overall evaluation, using data from all methods of image analysis accomplished by both Teams, shows Mission 1018 to have a higher resolution than Mission 1017.

TABLE 14 - SPECIAL MISSION DATA SUMMARY

Mission & Date	Camera Position	Filter	Exposure Slit Width	Exposure Time (avg)	Sun Angles	Latitudes	Density			*Processing			** Image Quality			
							Dmin Average	Dmax Average	D Average	ΔD Average	P	I	F	MTF: AIM	50% Spread	M-RES	V-RES
1007-1 & -2 19 - 28 Jun 1964	Fwd	Wratten 25	0.250"	1/225 (sec)	33° - 56°	18° N - 78° N	0.51	1.44	0.98	0.93	2	24	74	66	66	57	80
	Aft	Wratten 21	0.200"	1/270 (sec)	33° - 56°	18° N - 78° N	0.59	1.51	1.05	0.92	14	42	44	70	71	61	84
1014-1 & -2 14 - 27 Nov 1964	Fwd	Wratten 25	0.250"	1/245 (sec)	0° - 77°	8° S - 65° N	0.38	1.35	0.86	0.96	1	32	67	76	80	66	76
	Aft	Wratten 21	0.175"	1/350 (sec)	0° - 77°	8° S - 65° N	0.47	1.37	0.92	0.95	0	9	91	83	90	76	76
1015-1 & -2 19 - 30 Dec 1964	Fwd	Wratten 25	0.250"	1/238 (sec)	1° - 79°	13° S - 61° N	0.51	1.38	0.94	0.84	1	6	93	73	80	71	77
	Aft	Wratten 21	0.175"	1/339 (sec)	1° - 79°	13° S - 61° N	0.59	1.42	1.00	0.83	0	7	93	73	85	69	76
1016-1 & -2 15 - 25 Jan 1965	Fwd	Wratten 25	0.250"	1/238 (sec)	1° - 83°	13° S - 63° N	0.50	1.54	1.02	1.05	.5	36	63.5	56	69	56	75
	Aft	Wratten 21	0.175"	1/339 (sec)	1° - 82°	12° S - 63° N	0.60	1.61	1.11	1.01	.5	36.5	73	59	73	60	76
1017-1 & -2 25 Feb through 8 Mar 1965	Fwd	Wratten 25	0.250"	1/250 (sec)	1° - 76°	8° S - 74° N	0.62	1.72	1.17	1.10	9	63	28	60	69	61	78
	Aft	Wratten 21	0.175"	1/357 (sec)	0° - 76°	9° S - 74° N	0.64	1.69	1.16	1.05	21	60	19	70	80	70	80
1018-1 & -2 25 March through 1 April 1965	Fwd	Wratten 25	0.250"	1/260 (sec)	6° - 77°	1° N - 81° N	0.57	1.58	1.07	1.01	14	63	23	73	78	68	82
	Aft	Wratten 21	0.175"	1/390 (sec)	7° - 77°	1° N - 81° N	0.71	1.69	1.20	0.98	5	56	39	72	83	68	83

*Percentage of Primary, Intermediate, and Full Processing.
**Mission 1007 traced with a 1μ x 350μ slit. Missions 1014 - 1018 traced with a 1μ x 80μ slit.

SECTION V

REFERENCES

1. Messages: 25 and 29 March, and 1 April 1965.

2. Messages: 30 March and 1 April 1965.

3. Manual of Physical Properties of Kodak Aerial and Special Sensitized Materials, Eastman Kodak Company, Rochester, New York.

4. Message: 25 March 1965.

SECTION VI

APPENDIX

TABLE 1 - MISSION DATA*

Mission Segment 1018-1 — Forward Camera

Pass	Roll	Frames	Pass	Roll	Frames
D01	1 of 1	001-014	D31	1 of 2	001-030
				2 of 2	031-053
D02	1 of 1	001-018			
			D32	1 of 1	001-024
D05	1 of 1	001-029			
			D37	1 of 2	001-075
D06	1 of 2	001-039		2 of 2	076-083
	2 of 2	040-106			
			D38	1 of 3	001-076
D07	1 of 3	001-009		2 of 3	077-106
	2 of 3	010-001		3 of 3	107-159
A08E	1 of 1	001-014	D39	1 of 2	001-075
				2 of 2	076-119
D08	1 of 3	001-075			
	2 of 2	076-150	D40	1 of 2	001-075
				2 of 3	076-140
D10	1 of 2	001-075			
	2 of 3	076-153	D41	1 of 1	001-077
D16E	1 of 1	001-020	D42	1 of 2	001-059
				2 of 2	060-084
D21	1 of 4	001-076			
	2 of 4	077-150	D48	1 of 1	001-016
	3 of 4	151-225			
	4 of 4	226-261	D52	1 of 1	001-033
D22	1 of 2	001-041	D54	1 of 2	001-075
	2 of 2	042-091		2 of 2	076-150
D23	1 of 1	001-065	D55	1 of 1	001-077
A24E	1 of 1	001-014	D57	1 of 2	001-075
				2 of 2	076-150
D24	1 of 2	001-075			
	2 of 2	076-110	D58	1 of 3	001-075
				2 of 3	076-150
D25	1 of 2	001-040		3 of 3	151-171
	2 of 2	041-100			
			D59	1 of 2	001-075
D26	1 of 3	001-033		2 of 2	076-106
	2 of 3	034-096			
	3 of 3	097-149	D65	1 of 2	001-010
				** 2 of 2	011-014
Forward Totals:	30 Passes	-	57 Rolls	-	2,813 Frames

Mission Segment 1018-1 — Aft Camera

Pass	Roll	Frames	Pass	Roll	Frames
D01	1 of 1	001-014	D31	1 of 1	001-053
D02	1 of 1	001-019	D32	1 of 1	001-024
D05	1 of 1	001-018	D37	1 of 2	001-065
				2 of 2	066-084
D06	1 of 2	001-074			
	2 of 2	075-136	D38	1 of 3	001-075
				2 of 3	076-150
D07	1 of 2	001-042		3 of 3	151-160
	2 of 2	043-117			
			D39	1 of 2	001-075
A08E	1 of 1	001-014		2 of 2	076-119
D08	1 of 3	001-021	D40	1 of 3	001-030
	2 of 3	022-075		2 of 3	031-105
	3 of 3	076-150		3 of 3	106-140
D10	1 of 2	001-077	D41	1 of 1	001-077
	2 of 2	078-154			
			D42	1 of 2	001-040
D16E	1 of 1	001-021		2 of 2	041-084
D21	1 of 3	001-075	D48	1 of 1	001-016
	2 of 3	076-150			
	3 of 3	151-195	D52	1 of 1	001-023
D22	1 of 2	001-075	D54	1 of 2	001-075
	2 of 2	076-091		2 of 2	076-150
D23	1 of 1	001-056	D55	1 of 1	001-077
A24E	1 of 1	001-015	D57	1 of 2	001-075
				2 of 2	076-151
D24	1 of 2	001-040			
	2 of 2	041-110	D58	1 of 3	001-075
				2 of 3	076-121
D25	1 of 2	001-044		3 of 3	122-171
	2 of 2	045-101			
			D59	1 of 2	001-075
D26	1 of 3	001-023		2 of 2	076-106
	2 of 3	024-098			
	3 of 3	099-149	D65	1 of 2	001-008
				** 2 of 2	010-016
Aft Totals:	30 Passes	-	57 Rolls	-	2,812 Frames
Mission Segment 1018-1 Totals:	30 Passes	-	114 Rolls	-	5,625 Frames

* Under Camera Position, "Fwd" denotes the forward-pointing camera and "Aft" denotes the aft-pointing camera. Under Pass, the letter "A" denotes ascending (south to north) vehicle travel, and the letter "D" denotes descending (north to south) vehicle travel. Numbered passes may include both ascending and descending coverage. The letter "E" denotes an engineering pass.

** Recovered with Mission Segment 1018-2 Film Load.

TABLE 1 - MISSION DATA (Cont'd)

Mission Segment 1018-2

Forward Camera

Pass	Roll	Frames	Pass	Roll	Frames
D66	1 of 1	001-004	D81	1 of 1	001-023
D70	1 of 6	001-075	D84	1 of 1	001-051
	2 of 6	076-150			
	3 of 6	151-225	D85	1 of 2	001-014
	4 of 6	226-300		2 of 2	015-079
	5 of 6	301-375			
	6 of 6	376-403	D86	1 of 2	001-075
				2 of 2	076-150
D71	1 of 5	001-075			
	2 of 5	076-150	D87	1 of 3	001-075
	3 of 5	151-211		2 of 3	076-150
	4 of 5	212-250		3 of 3	151-179
	5 of 5	251-325			
			D88	1 of 3	001-076
D72	1 of 5	001-075		2 of 3	077-140
	2 of 5	076-150		3 of 3	141-168
	3 of 5	151-156			
	4 of 5	157-234	D89	1 of 3	001-075
	5 of 5	235-312		2 of 3	076-150
				3 of 3	151-182
A73F	1 of 1	001-016			
			D90	1 of 3	001-075
D73	1 of 4	001-075		2 of 3	076-130
	2 of 4	076-150		3 of 3	131-205
	3 of 4	151-200			
	4 of 4	201-265	D91	1 of 3	001-058
				2 of 3	059-133
D74	1 of 2	001-071		3 of 3	134-161
	2 of 2	072-147			
			D95	1 of 2	001-044
D75	1 of 1	001-057		2 of 2	045-087
D79	1 of 1	001-024	D96	1 of 1	001-053
D80	1 of 1	001-023	D97	1 of 1	001-046
Forward Totals:	21 Passes	-	52 Rolls	-	2,940 Frames

Aft Camera

Pass	Roll	Frames	Pass	Roll	Frames
D66	1 of 1	001-005	D81	1 of 1	001-024
D70	1 of 7	001-070	D84	1 of 1	001-052
	2 of 7	071-145			
	3 of 7	146-220	D85	1 of 2	001-075
	4 of 7	221-282		2 of 2	076-080
	5 of 7	283-358			
	6 of 7	359-380	D86	1 of 2	001-075
	7 of 7	381-403		2 of 2	076-151
D71	1 of 5	001-023	D87	1 of 3	001-057
	2 of 5	024-097		2 of 3	058-133
	3 of 5	098-173		3 of 3	134-179
	4 of 5	174-249			
	5 of 5	250-325	D88	1 of 3	001-077
				2 of 3	078-098
D72	1 of 5	001-012		3 of 3	099-166
	2 of 5	013-085			
	3 of 5	086-161	D89	1 of 4	001-066
	4 of 5	162-236		2 of 4	067-103
	5 of 5	237-312		3 of 4	104-178
				4 of 4	179-183
A73E	1 of 1	001-016			
			D90	1 of 3	001-075
D73	1 of 4	001-075		2 of 3	076-150
	2 of 4	076-150		3 of 3	151-205
	3 of 4	151-200			
	4 of 4	201-266	D91	1 of 3	001-059
				2 of 3	060-135
D74	1 of 2	001-075		3 of 3	136-163
	2 of 2	076-148			
			D95	1 of 2	001-044
D75	1 of 1	001-057		2 of 2	045-087
D79	1 of 2	001-005	D96	1 of 1	001-054
	2 of 2	006-034			
			D97	1 of 1	001-044
D80	1 of 1	001-024			
Aft Totals:	21 Passes	-	55 Rolls	-	2,949 Frames
Mission Segment 1018-2 Totals:	21 Passes	-	107 Rolls	-	5,889 Frames
Mission Totals:	51 Passes	-	221 Rolls	-	11,817 Frames

TABLE 2 - CAMERA DATA *

Mission 1018

Camera	Type	Lens	Operational Focal Length	Scan Angle	Shutter Type	Shutter Speed
Forward	Panoramic	Petzval f/3.5	(24" aprx) 609.628mm	70°	Focal plane-Interchangeable Slit widths	1/260 sec (Avg)
Aft	Panoramic	Petzval f/3.5	(24" aprx) 609.295mm	70°	Focal plane-Interchangeable Slit widths	1/390 sec (Avg)
Forward Take-up Horizon	Frame	f/8.0	55.02mm	n/a	Between the Lens	1/100 sec
Forward Supply Horizon	Frame	f/6.8	54.69mm	n/a	Between the Lens	1/100 sec
Aft Take-up Horizon	Frame	f/6.8	55.02mm	n/a	Between the Lens	1/100 sec
Aft Supply Horizon	Frame	f/8.0	54.48mm	n/a	Between the Lens	1/100 sec
Index - 1	Frame	f/4.5	38.21mm	n/a	Between the Lens	1/500 sec
Index - 2	Frame	f/4.5	38.23mm	n/a		1/500 sec
Stellar - 1	Frame	f/1.8	84.03mm	n/a	Between the Lens	2 sec
Stellar - 2	Frame	f/1.8	84.03mm	n/a		2 sec

* Message: 25 March 1965.

TABLE 2 - CAMERA DATA (Cont'd)

Mission 1018

Camera	Exposure		Data Block	Titling
	Aperture	Slit Width		
Forward Panoramic	f 3.5	0.250"	Timing marks at 200 cps intervals. Binary time block. Fiducial marks. Pass completion mark. Camera number.	Put on after processing. Includes: Operation, pass number, frame number, camera designator, mission number, launch date, and classification.
Aft Panoramic	f 3.5	0.175"	Timing marks at 200 cps intervals. Binary time block. Fiducial marks. Pass completion mark. Camera number.	Put on after processing. Includes: Operation, pass number, frame number, camera designator, mission number, launch date, and classification.
Forward Take-up Horizon	f 8.0	n.a	n/a	n/a
Forward Supply Horizon	f 8.8	n.a	n/a	n/a
Aft Take-up Horizon	f 8.8	n.a	n/a	n/a
Aft Supply Horizon	f 8.0	n/a	n/a	n/a
Index - 1	f 4.5	n/a	None	Put on after processing. Includes: Frame number, mission number, date, and classification.
Index - 2	f 4.5	n/a	None	
Stellar - 1	f 1.8	n/a	None	Put on after processing. Includes: Frame number, mission number, date, and classification.
Stellar - 2	f 1.8	n.a	None	

Mission 1018

Camera	Filter Type	Film Load	IMC	Format Size	Grid
Forward Panoramic	Wratten 25	70mm x 1500 ft	Proportional to V/h ratio	2.187" wide 29.741" long	Fiducials
Aft Panoramic	Wratten 21	70mm x 1600 ft.	Proportional to V/h ratio	2.187" wide 29.741" long	Fiducials
Forward Take-up Horizon	Wratten 25	Recorded on Main Film	None	1 1/2" x 2 1/8"	Fiducials
Forward Supply Horizon	Wratten 25	Recorded on Main Film	None	1 1/2" x 2 1/8"	Fiducials
Aft Take-up Horizon	Wratten 25	Recorded on Main Film	None	1 1/2" x 2 1/8"	Fiducials
Aft Supply Horizon	Wratten 25	Recorded on Main Film	None	1 1/2" x 2 1/8"	Fiducials
Index - 1	Wratten 21	70mm x 135'	None	2 1/4" x 2 1/4"	Reseau
Index - 2	Wratten 21	70mm x 135'	None	2 1/4" x 2 1/4"	Reseau
Stellar - 1	None	35mm x 75'	None	1" Diameter	Reseau & Fiducials
Stellar - 2	None	35mm x 75'	None	1" Diameter	

TABLE 3 - FILM DATA

Mission 1018

Camera	Film Type	Type of Base	Nominal Base Thickness	Aprx. Exp. Index Daylight	Typical Gel Layer Thickness		Resolution
					Emulsion	Gel Backing	
Panoramic & Horizon	(4404) Estar Thin Base	Estar Polyestar	2.5 mils	1.6	0.24 mils	0.27 mils (Dyed)	200 l/mm at T.O.C. 1.6:1 (D-19) 475 l/mm at T.O.C. 1000:1 (D-19)
Stellar	(4401) Estar Thin Base	Estar Polyestar	2.5 mils	64	0.31 mils	0.24 mils (Dyed)	40 l/mm at T.O.C. 1.6:1 (D-19) 105 l/mm at T.O.C. 1000:1 (D-19)
Index	(4400) Estar Thin Base	Estar Polyestar	2.5 mils	20	0.21 mils	0.18 mils (Dyed)	65 l/mm at T.O.C. 1.6:1 (D-19) 175 l/mm at T.O.C. 1000:1 (D-19)

TABLE 5 - FRAME PROCESSING PROFILE

Mission Segment 1018-1 Forward Camera

Pass	Part	Aprx Frame to Aprx Frame	Processing Level
D01	1	Head to tail	Full
D02	1	Head to 016	Full
		017 to tail	Primary
D05	1	Head to 024	Primary
		025 to tail	Intmed
D06	1, 2	Head to tail	Intmed
D07	1	Head to tail	Intmed
	2	Head to 035	Full
		036 to 071	Intmed
		072 to tail	Primary
A08E	1	Head to tail	Full
D08	1	Head to 019	Full
		020 to 042	Intmed
		043 to 066	Primary
		067 to tail	Intmed
	2	Head to 121	Intmed
		122 to tail	Primary
D10	1	Head to 024	Intmed
		025 to 039	Primary
		040 to 052	Intmed
		053 to tail	Primary
	2	Head to 119	Intmed
		120 to tail	Full
D16E	1	Head to tail	Intmed
D21	1	Head to tail	Intmed
	2	Head to 119	Intmed
		120 to 134	Primary
		135 to tail	Intmed
	3	Head to tail	Intmed
	4	Head to tail	Intmed
D22	1	Head to 004	Intmed
		005 to tail	Full
	2	Head to 080	Intmed
		081 to tail	Full
D23	1	Head to 013	Full
		014 to tail	Intmed
A24E	1	Head to tail	Intmed
D24	1	Head to tail	Intmed
	2	Head to tail	Intmed
D25	1	Head to 005	Intmed
		006 to tail	Primary
	2	Head to tail	Full
D26	1	Head to tail	Intmed
	2	Head to tail	Intmed
	3	Head to tail	Intmed
D31	1	Head to tail	Intmed
	2	Head to tail	Primary
D32	1	Head to tail	Intmed
D37	1	Head to tail	Intmed
	2	Head to tail	Intmed
D38	1	Head to tail	Intmed
	2	Head to 086	Intmed
		087 to tail	Primary
	3	Head to 118	Primary
		119 to 153	Intmed
		154 to tail	Full
D39	1	Head to 029	Intmed
		030 to 067	Full
		068 to tail	Intmed
	2	Head to tail	Intmed
D40	1	Head to 032	Intmed
		033 to tail	Full
	2	Head to 091	Full
		092 to 120	Intmed
		121 to tail	Full
D41	1	Head to 050	Primary
		051 to tail	Intmed
D42	1	Head to 005	Intmed
		006 to 029	Full
		030 to 052	Intmed
		053 to tail	Full

TABLE 5 - FRAME PROCESSING PROFILE (Cont'd)

Mission Segment 1018-1 — Forward Camera

Pass	Part	Aprx Frame to Aprx Frame	Processing Level
D42	2	Head to tail	Full
D48	1	Head to tail	Intmed
D52	1	Head to tail	Intmed
D54	1	Head to 042	Intmed
		043 to tail	Full
	2	Head to 095	Intmed
		096 to tail	Full
D55	1	Head to 009	Intmed
		010 to 043	Full
		044 to tail	Intmed
D57	1	Head to 051	Intmed
		052 to tail	Full
	2	Head to 093	Full
		094 to tail	Intmed
D58	1	Head to 036	Intmed
		037 to 065	Full
		066 to tail	Intmed
	2	Head to tail	Intmed
	3	Head to tail	Intmed
D59	1	Head to 037	Full
		038 to tail	Intmed
	2	Head to tail	Intmed
D65	1	Head to tail	Primary
	2	Head to tail	Intmed

TABLE 5 - FRAME PROCESSING PROFILE (Cont'd)

Mission Segment 1018-1 Aft Camera

Pass	Part	Aprx Frame to Aprx Frame	Processing Level
D01	1	Head to tail	Full
D02	1	Head to 017	Full
		018 to tail	Intmed
D05	1	Head to tail	Intmed
D06	1	Head to 018	Primary
		019 to tail	Intmed
	2	Head to 082	Intmed
		083 to 115	Primary
		116 to tail	Intmed
D07	1	Head to tail	Intmed
	2	Head to 098	Full
		099 to tail	Primary
A08E	1	Head to 009	Primary
		010 to tail	Full
D08	1	Head to 017	Full
		018 to tail	Intmed
	2	Head to tail	Intmed
	3	Head to tail	Intmed
D10	1	Head to 018	Intmed
		019 to 034	Full
		035 to tail	Intmed
	2	Head to 120	Intmed
		121 to tail	Full
D16E	1	Head to tail	Intmed
D21	1	Head to tail	Intmed
	2	Head to 129	Intmed
		130 to 146	Full
		147 to tail	Intmed
	3	Head to tail	Intmed
D22	1	Head to 006	Intmed
		007 to 031	Full
		032 to 050	Intmed
		051 to tail	Full
	2	Head to tail	Full
D23	1	Head to 021	Full
		022 to tail	Intmed
A24E	1	Head to tail	Intmed
D24	1	Head to tail	Intmed
	2	Head to tail	Intmed
D25	1	Head to tail	Intmed
	2	Head to 090	Full
		091 to tail	Intmed
D26	1	Head to tail	Full
	2	Head to tail	Full
	3	Head to 108	Full
		109 to 140	Intmed
		141 to tail	Full
D31	1	Head to 026	Full
		027 to 041	Intmed
		042 to tail	Primary
D32	1	Head to tail	Intmed
D37	1	Head to 055	Intmed
		056 to tail	Full
	2	Head to tail	Full
D38	1	Head to tail	Intmed
	2	Head to 088	Intmed
		089 to 103	Primary
		104 to tail	Full
	3	Head to tail	Full
D39	1	Head to 032	Intmed
		033 to tail	Full
	2	Head to tail	Intmed
D40	1	Head to tail	Full
	2	Head to tail	Full
	3	Head to tail	Intmed
D41	1	Head to 051	Primary
		052 to tail	Intmed
D42	1	Head to 015	Intmed
		016 to tail	Full
	2	Head to 082	Intmed
		083 to tail	Full

TABLE 5 - FRAME PROCESSING PROFILE (Cont'd)

Mission Segment 1018-1

Aft Camera

Pass	Part	Aprx Frame to Aprx Frame	Processing Level	Pass	Part	Aprx Frame to Aprx Frame	Processing Level
D48	1	Head to tail	Intmed	D58	1	Head to 032	Intmed
D52	1	Head to tail	Primary			033 to 058	Full
D54	1	Head to 051	Intmed			059 to tail	Intmed
		052 to tail	Full		2	Head to tail	Intmed
	2	Head to 084	Full		3	Head to tail	Primary
		085 to tail	Intmed	D59	1	Head to 039	Full
D55	1	Head to 015	Intmed			040 to 063	Primary
		016 to 051	Full			064 to tail	Intmed
		052 to tail	Intmed		2	Head to tail	Intmed
D57	1	Head to 012	Intmed	D65	1	Head to 005	Intmed
		013 to 042	Full			006 to tail	Primary
		043 to 061	Intmed		2	Head to tail	Primary
		062 to tail	Full				
	2	Head to tail	Intmed				

TABLE 5 - FRAME PROCESSING PROFILE (Cont'd)

Mission Segment 1018-2 Forward Camera

Pass	Part	Aprx Frame to Aprx Frame	Processing Level
D66	1	Head to tail	Intmed
D70	1	Head to 011	Intmed
		012 to 048	Primary
		049 to 067	Intmed
		068 to tail	Primary
	2	Head to 146	Primary
		147 to tail	Intmed
	3	Head to 157	Intmed
		158 to 186	Primary
		187 to tail	Intmed
	4	Head to tail	Intmed
	5	Head to tail	Intmed
	6	Head to tail	Intmed
D71	1	Head to 061	Intmed
		062 to tail	Primary
	2	Head to 127	Intmed
		128 to tail	Full
	3	Head to 164	Full
		165 to tail	Intmed
	4	Head to 220	Intmed
		221 to 235	Primary
		236 to tail	Intmed
	5	Head to 313	Intmed
		314 to tail	Full
D72	1	Head to 005	Full
		006 to 016	Intmed
		017 to 063	Primary
		064 to tail	Intmed
	2	Head to tail	Intmed
	3, 4	Head to tail	Intmed
D72	5	Head to 257	Intmed
		258 to 302	Primary
		303 to tail	Intmed
D73	1	Head to 012	Intmed
		013 to tail	Primary
	2	Head to 082	Primary
D73	2	083 to 138	Intmed
		139 to tail	Primary
	3	Head to 154	Primary
		155 to tail	Intmed
	4	Head to tail	Intmed
A73E	1	Head to tail	Intmed
D74	1	Head to 059	Intmed
		060 to tail	Primary
	2	Head to 110	Intmed
		111 to tail	Intmed
D75	1	Head to tail	Full
D79	1	Head to tail	Intmed
D80	1	Head to 007	Intmed
		008 to tail	Primary
D81	1	Head to 006	Primary
		007 to tail	Intmed
D84	1	Head to 009	Intmed
		010 to tail	Primary
D85	1	Head to 002	Primary
		003 to tail	Intmed
	2	Head to tail	Intmed
D86	1, 2	Head to tail	Intmed
D87	1	Head to 068	Intmed
		069 to tail	Full
	2	Head to 131	Full
		132 to tail	Intmed
	3	Head to tail	Intmed
D88	1	Head to tail	Intmed
	2	Head to 134	Intmed
		135 to tail	Primary
	3	Head to tail	Primary
D89	1	Head to 064	Intmed
		065 to tail	Primary
	2	Head to 089	Primary
		090 to tail	Intmed

TABLE 5 - FRAME PROCESSING PROFILE (Cont'd)

Mission Segment 1018-2 — Forward Camera

Pass	Part	Aprx Frame to Aprx Frame	Processing Level	Pass	Part	Aprx Frame to Aprx Frame	Processing Level
D89	3	Head to tail	Intmed	D91	3	Head to tail	Full
D90	1, 2, 3	Head to tail	Intmed	D95	1	Head to 001	Full
D91	1	Head to 030	Intmed			002 to tail	Intmed
		031 to 038	Primary		2	Head to tail	Intmed
		039 to tail	Intmed	D96	1	Head to tail	Intmed
	2	Head to tail	Intmed	D97	1	Head to tail	Intmed

TABLE 5 - FRAME PROCESSING PROFILE (Cont'd)

Mission Segment 1018-2 Aft Camera

Pass	Part	Aprx Frame to Aprx Frame	Processing Level
D66	1	Head to tail	Primary
D70	1	Head to 004	Primary
		005 to 057	Intmed
		058 to tail	Full
	2	Head to tail	Intmed
	3	Head to 181	Intmed
		182 to tail	Full
	4	Head to tail	Full
	5	Head to 328	Full
		329 to tail	Intmed
	6	Head to 362	Intmed
		363 to tail	Full
	7	Head to tail	Full
D71	1	Head to tail	Full
	2	Head to 039	Full
		040 to 093	Intmed
		094 to tail	Full
	3	Head to tail	Full
	4	Head to 217	Full
		218 to tail	Intmed
	5	Head to 252	Intmed
		253 to tail	Full
D72	1	Head to tail	Full
	2	Head to 019	Full
		020 to tail	Intmed
	3	Head to tail	Intmed
	4	Head to 184	Full
		185 to tail	Intmed
	5	Head to tail	Intmed
A73E	1	Head to tail	Intmed
D73	1	Head to tail	Intmed
	2	Head to 086	Intmed
		087 to 147	Full
		148 to tail	Intmed
D73	3	Head to 159	Intmed
		160 to tail	Full
	4	Head to 226	Full
		227 to tail	Intmed
D74	1	Head to 053	Full
		054 to tail	Intmed
	2	Head to 112	Intmed
		113 to tail	Full
D75	1	Head to tail	Full
D79	1	Head to tail	Full
	2	Head to tail	Full
D80	1	Head to tail	Intmed
D81	1	Head to tail	Full
D84	1	Head to tail	Intmed
D85	1, 2	Head to tail	Intmed
D86	1	Head to tail	Intmed
	2	Head to 108	Intmed
		109 to tail	Full
D87	1, 2, 3	Head to tail	Full
D88	1	Head to 028	Full
		029 to tail	Intmed
	2, 3	Head to tail	Intmed
D89	1	Head to tail	Intmed
	2	Head to 097	Intmed
		098 to tail	Full
	3, 4	Head to tail	Full
D90	1	Head to 059	Full
		060 to tail	Intmed
	2	Head to tail	Intmed
	3	Head to 170	Intmed
		171 to tail	Full
D91	1	Head to tail	Full

TABLE 5 - FRAME-PROCESSING PROFILE (Cont'd)

Mission Segment 1018-2 — Aft Camera

Pass	Part	Aprx Frame to Aprx Frame	Processing Level	Pass	Part	Aprx Frame to Aprx Frame	Processing Level
D91	2	Head to 064	Full	D95	2	Head to tail	Full
		065 to 080	Intmed	D96	1	Head to 016	Full
		081 to tail	Full			017 to 043	Primary
	3	Head to tail	Full			044 to tail	Intmed
D95	1	Head to 036	Intmed	D97	1	Head to 009	Intmed
		037 to tail	Full			010 to 023	Full
						024 to tail	Intmed

TABLE 6 - DIFFUSE DENSITY READINGS

MISSION SEGMENT 1018- 1

PASS	FRAME	D/MIN	D/MAX	$\bar{D}$	ΔD	BASE FOG	D/MAX CLOUDS	LATITUDE (DEG)	SUN ANGLE	PROCESSING LEVEL
D 1	5					.18	2.10	53N	36	F
D 1	10					.18	2.08	52N	36	F
D 2	5					.18	2.24	17N	68	F
D 2	14					.15	2.26	16N	70	F
D 5	5	.73	1.42	1.07	.69	.08		71N	17	P
D 5	15	.58	1.48	1.03	.90	.10		70N	19	P
D 5	25	.74	2.06	1.40	1.32	.12		68N	20	I
D 5	35	.47	2.18	1.32	1.71	.12		66N	22	I
D 5	45	.94	2.12	1.53	1.18	.12		65N	24	I
D 5	55	.74	2.14	1.44	1.40	.12		63N	26	I
D 5	65	.72	2.08	1.40	1.36	.11		61N	27	I
D 5	75	.70	2.17	1.43	1.47	.11		60N	29	I
D 6	5					.11	1.88	72N	17	I
D 6	20	.62	1.94	1.28	1.32	.11		52N	37	I
D 6	30	.38	1.88	1.13	1.50	.11		51N	39	I
D 6	40	.29	1.89	1.09	1.60	.11		49N	40	I
D 6	50	.48	2.10	1.29	1.62	.11	2.12	33N	55	I
D 6	60	.48	1.82	1.15	1.34	.12	2.18	32N	56	I
D 6	70	.76	1.30	1.03	.54	.12	2.18	30N	58	I
D 6	80	.62	1.20	.91	.58	.12	2.16	28N	59	I
D 6	90	.36	1.00	.68	.64	.11	2.16	27N	61	I
D 6	100	.28	1.32	.80	1.04	.11	2.20	25N	62	I
D 7	5					.17	1.90	72N	17	F
D 7	15	.48	1.64	1.06	1.16	.20		59N	30	F
D 7	25	.52	1.68	1.10	1.16	.20		58N	31	F
D 7	35	.62	1.84	1.23	1.22	.20		56N	33	F
D 7	45	.56	1.27	.91	.71	.13	1.64	54N	35	I
D 7	55	.36	1.64	1.00	1.28	.13	2.00	53N	36	I
D 7	65					.12	1.92	41N	47	I
D 7	75					.12	2.06	39N	49	I
D 8	5	.92	1.08	1.00	.16	.20	1.00	80N	7	F
D 8	15	.82	1.56	1.19	.74	.20	1.30	78N	9	F
D 8	26	.66	1.92	1.29	1.26	.14	2.06	57N	32	I
D 8	36	.92	1.90	1.41	.98	.14	2.06	56N	33	I
D 8	46	.88	1.90	1.39	1.02	.14	1.90	54N	35	P
D 8	56	.76	1.94	1.35	1.18	.13	1.84	52N	36	P
D 8	66	.40	1.68	1.04	1.28	.11	1.80	50N	38	P
D 8	76	.30	1.82	1.06	1.52	.11		49N	40	I
D 8	86	.42	1.42	.92	1.00	.12		47N	42	I
D 8	96	.44	1.54	.99	1.10	.12		45N	43	I
D 8	106	.52	1.54	1.03	1.02	.12		43N	45	I
D 8	119	.50	1.50	1.00	1.00	.12	2.14	23N	64	I
D 8	129	.76	1.70	1.23	.94	.12	2.12	21N	65	P
D 8	139	.64	1.40	1.02	.76	.10	1.42	20N	66	P
D 8	146	.58	1.48	1.03	.90	.10	1.78	19N	67	P
A 8E	5					.10		40N	47	I
A 8E	10					.12		40N	46	I
D 10	5	.25	1.40	.82	1.15	.12		81N	7	I

FORWARD CAMERA

PASS	FRAME	D/MIN	D/MAX	$\bar{D}$	ΔD	BASE FOG	D/MAX CLOUDS	LATITUDE (DEG)	SUN ANGLE	PROCESSING LEVEL
D 10	15	.55	.82	.68	.27	.11		79N	9	I
D 10	26	.80	1.70	1.25	.90	.10		70N	19	P
D 10	36	.24	1.76	1.00	1.52	.08		68N	20	P
D 10	48	.36	1.90	1.13	1.54	.11	2.02	59N	30	I
D 10	58	.19	1.48	.83	1.29	.10	1.55	57N	31	I
D 10	68	.19	1.67	.93	1.48	.08	1.60	55N	33	P
D 10	78	.31	1.77	1.04	1.46	.11	2.04	53N	35	P
D 10	90	.75	1.70	1.22	.95	.10		12N	72	P
D 10	100	.62	1.58	1.10	.96	.11	1.94	11N	73	P
D 10	110	.52	1.69	1.10	1.17	.12	1.70	9N	74	P
D 10	120	.62	1.64	1.13	1.02	.20	2.30	7N	75	F
D 10	130	.51	1.42	.96	.91	.18	2.32	5N	75	F
D 10	140	.70	1.22	.96	.52	.18	2.28	3N	76	F
D 10	149	.56	1.08	.82	.52	.14	2.25	2N	77	F
D 16E	5	.34	1.74	1.04	1.40	.10	2.14	37N	51	I
D 16E	15	.52	2.14	1.33	1.62	.12		35N	53	I
D 21	5	1.20	1.66	1.43	.46	.13		71N	18	I
D 21	15	.94	1.72	1.33	.78	.12		70N	19	I
D 21	25	.73	1.64	1.18	.91	.12		68N	21	I
D 21	35	.72	2.04	1.38	1.32	.12		67N	22	I
D 21	45	.78	2.04	1.41	1.26	.12		65N	24	I
D 21	55	.76	1.96	1.36	1.20	.12		64N	25	I
D 21	65	.90	1.04	.97	.14	.12		62N	27	I
D 21	75	.74	1.90	1.32	1.16	.12		61N	28	I
D 21	85	.74	1.72	1.23	.98	.11		59N	30	I
D 21	95	.66	1.90	1.28	1.24	.11		57N	31	I
D 21	105	.80	1.92	1.36	1.12	.12		56N	33	I
D 21	115	.32	1.54	.93	1.22	.10		54N	34	I
D 21	125	.36	1.94	1.15	1.58	.11		53N	36	P
D 21	135	.40	1.98	1.19	1.58	.12	2.00	51N	37	I
D 21	145	.56	1.90	1.23	1.34	.12	1.99	50N	39	I
D 21	155	.48	1.94	1.21	1.46	.12		48N	40	I
D 21	165	.40	1.98	1.19	1.58	.12	1.94	47N	42	I
D 21	175	.62	2.02	1.32	1.40	.13	2.06	45N	43	I
D 21	185	.56	2.00	1.28	1.44	.14	1.92	43N	45	I
D 21	195					.12		42N	46	I
D 21	205					.12	2.18	3N	77	I
D 21	215	.52	.78	.65	.26	.12	2.00	2N	77	I
D 21	225					.12	2.12	1N	77	I
D 21	235					.12	2.10	7N	75	I
D 21	245					.12	1.98	9N	74	I
D 21	255					.12	2.22	10N	73	I
D 22	5	.56	2.01	1.28	1.45	.17		51N	38	I
D 22	15	.50	2.07	1.28	1.57	.17	1.98	50N	39	F
D 22	30	.52	1.79	1.15	1.27	.17	1.95	41N	48	F
D 22	40	.55	1.56	1.05	1.01	.13	2.10	39N	49	F
D 22	53	.40	1.27	.83	.87	.11	2.18	1N	77	I
D 22	63					.11	2.22	2N	76	I
D 22	73	.64	1.06	.85	.42	.16	2.21	3N	76	I
D 22	83					.19	2.25	4N	75	F
D 23	5	.65	1.92	1.28	1.27	.17		57N	32	I

TABLE 6 - DIFFUSE DENSITY READINGS (Cont'd)

MISSION [illegible]

PASS	FRAME	D/MIN	D/MAX	D̄	ΔD	BASE FOG	D/MAX CLOUDS	LATITUDE (DEG)	SUN ANGLE	PROCESSING LEVEL
D 23	15	.54	1.72	1.13	1.18	.13	1.65	56N	33	I
D 23	25	.52	1.81	1.16	1.29	.11	1.81	54N	35	I
D 23	35	.80	1.80	1.30	1.00	.11	1.92	42N	47	I
D 23	45	1.00	1.40	1.20	.40	.11	1.99	40N	48	I
D 23	50	1.19	1.59	1.39	.40	.13	2.07	39N	49	I
D 24	5	.52	1.97	1.24	1.45	.11	2.14	52N	37	I
D 24	15	.51	2.00	1.25	1.49	.11		51N	38	I
D 24	25	.35	2.05	1.20	1.70	.11	2.10	49N	40	I
D 24	35	.38	1.52	.95	1.14	.11	1.98	48N	41	I
D 24	45	.30	1.76	1.03	1.46	.11	2.02	46N	42	I
D 24	55	.38	1.64	1.01	1.26	.11		45N	44	I
D 24	65	.32	1.76	1.04	1.44	.10		43N	45	I
D 24	75	.48	1.80	1.14	1.32	.10		41N	47	I
D 24	85	.24	1.52	.88	1.28	.10		40N	48	I
D 24	95	.32	1.42	.87	1.10	.11	1.80	38N	50	I
D 24	105	.56	1.84	1.20	1.28	.11	2.04	37N	51	I
A 24T	5					.12		39N	47	I
A 24T	10					.12		40N	46	I
D 25	5	.66	1.84	1.25	1.18	.12	2.00	56N	33	I
D 25	15	.30	1.57	.93	1.27	.10		55N	34	P
D 25	25	.27	1.64	.95	1.37	.10		53N	36	P
D 25	35	.27	2.05	1.16	1.78	.12		52N	37	P
D 25	45	.40	2.11	1.25	1.71	.20		50N	39	F
D 25	55	.44	1.76	1.10	1.32	.19		48N	40	F
D 25	65	.50	1.85	1.17	1.35	.18		47N	42	F
D 25	75	.54	1.80	1.17	1.26	.18	1.96	45N	43	F
D 25	85	.46	1.92	1.19	1.46	.18	2.12	43N	45	F
D 25	95	.33	2.22	1.27	1.89	.12	2.20	42N	46	F
D 26	5	.48	1.26	.87	.78	.12		81N	6	I
D 26	15	.46	1.22	.84	.76	.12	1.32	79N	8	I
D 26	20	.50	.89	.69	.39	.12	1.44	79N	8	I
D 26	35	.68	1.68	1.18	1.00	.11	1.68	69N	20	I
D 26	41	.98	1.80	1.39	.82	.12	1.80	68N	21	I
D 26	55	.44	1.96	1.20	1.52	.10	1.94	60N	29	I
D 26	65	.52	1.96	1.24	1.44	.12		58N	31	I
D 26	75	.52	1.94	1.23	1.42	.10		57N	32	I
D 26	85	.49	1.90	1.19	1.41	.12		55N	34	I
D 26	95	.40	1.92	1.16	1.52	.12		54N	35	I
D 26	105	.50	1.52	1.01	1.02	.12	2.00	52N	37	I
D 26	115	.87	1.08	.97	.21	.10	1.90	51N	38	I
D 26	125	.30	.89	.59	.59	.12	2.16	4N	76	I
D 26	135	.34	.82	.58	.48	.10	2.12	5N	75	I
D 26	145	.34	1.00	.67	.66	.11	2.12	6N	74	I
D 31	5	.36	1.85	1.10	1.49	.12		37N	51	I
D 31	15	.28	1.66	.97	1.38	.12		36N	52	I
D 31	25	.32	1.48	.90	1.16	.12	1.84	34N	54	I
D 31	35					.10	2.15	30N	58	P
D 31	45					.10	1.92	28N	59	P
D 32	5	.42	1.30	.86	.88	.12	1.96	33N	55	I

FORWARD CAMERA

PASS	FRAME	D/MIN	D/MAX	D̄	ΔD	BASE FOG	D/MAX CLOUDS	LATITUDE (DEG)	SUN ANGLE	PROCESSING LEVEL
D 32	15	.86	1.57	1.21	.71	.12	2.08	32N	56	I
D 32	20	.50	1.68	1.09	1.18	.10	1.84	31N	56	I
D 37	5	.50	2.07	1.28	1.57	.12		53N	36	I
D 37	15	.23	2.02	1.12	1.79	.13		52N	37	I
D 37	25	.35	2.00	1.17	1.65	.12	2.04	50N	39	I
D 37	35	.56	1.94	1.25	1.38	.12	2.08	49N	40	I
D 37	45	.96	2.04	1.50	1.08	.12	2.04	47N	42	I
D 37	55	.75	1.65	1.20	.90	.12	2.00	45N	44	I
D 37	65					.12	1.92	44N	45	I
D 37	75					.12	1.98	42N	47	I
D 37	79					.12	2.00	42N	47	I
D 38	5	.60	1.84	1.22	1.24	.12	2.08	52N	37	I
D 38	15	.33	1.92	1.12	1.59	.12	1.85	51N	38	I
D 38	25	.50	1.52	1.01	1.02	.12	1.90	49N	40	I
D 38	35	.40	1.36	.88	.96	.12		39N	50	I
D 38	45	.42	1.20	.81	.78	.12		38N	51	I
D 38	55	.98	1.28	1.13	.30	.12	1.95	36N	52	I
D 38	65	.82	1.45	1.13	.63	.12	2.04	35N	54	I
D 38	75	.42	1.38	.90	.96	.12	2.00	33N	55	I
D 38	85					.12	2.06	31N	57	I
D 38	95					.12	1.95	30N	58	[illegible]
D 38	105					.12	1.87	28N	60	P
D 38	115					.12	1.80	3N	77	P
D 38	125					.12	2.03	2N	76	I
D 38	135					.14	2.24	1N	76	I
D 38	145	.82	1.34	1.08	.52	.20	2.16	4N	75	F
D 38	155					.14	2.10	6N	75	F
D 39	5	.45	1.82	1.13	1.37	.10		64N	25	I
D 39	15	.30	1.86	1.08	1.56	.10		63N	26	I
D 39	25	.45	1.93	1.19	1.48	.14		61N	28	I
D 39	35	.41	1.89	1.15	1.48	.18		60N	29	F
D 39	45	.46	2.06	1.26	1.60	.16		58N	31	F
D 39	55	.43	1.95	1.19	1.52	.17	2.16	56N	33	F
D 39	65	.31	1.93	1.12	1.62	.12	2.05	55N	34	F
D 39	75	.46	2.14	1.30	1.68	.12	2.16	53N	36	I
D 39	85	.44	2.10	1.27	1.66	.10	2.10	52N	37	I
D 39	91					.10	2.05	51N	38	I
D 39	101	.93	1.62	1.27	.69	.11	1.78	41N	47	I
D 39	111	1.00	1.50	1.25	.50	.10	1.79	39N	49	I
D 40	5	.54	.64	.59	.10	.12		81N	7	I
D 40	15	.76	.90	.83	.14	.12		80N	8	I
D 40	25	.70	1.21	.95	.51	.12		78N	10	I
D 40	35	.53	1.76	1.14	1.23	.20	1.80	55N	34	F
D 40	45	.62	1.32	.97	.70	.18	2.06	54N	35	F
D 40	55	.67	1.40	1.03	.73	.18	1.92	52N	37	F
D 40	65	.76	.96	.86	.20	.18	1.98	51N	38	F
D 40	75	.64	1.94	1.29	1.30	.19	1.76	49N	39	F
D 40	85	.76	1.96	1.36	1.20	.15		48N	41	F
D 40	95	.54	1.38	.96	.84	.12	1.95	46N	42	I
D 40	105	.42	1.62	1.02	1.20	.14	1.52	44N	44	I
D 40	115	.55	1.44	.99	.89	.19	2.08	43N	45	F

TABLE 6 - DIFFUSE DENSITY READINGS (Cont'd)

MISSION SEGMENT 1018- 1

PASS	FRAME	D/MIN	D/MAX	$\bar{D}$	ΔD	BASE FOG	D/MAX CLOUDS	LATITUDE (DEG)	SUN ANGLE	PROCESSING LEVEL
D 40	125	.72	2.14	1.43	1.42	.18	1.87	41N	47	F
D 40	136	.89	2.13	1.51	1.24	.19	2.10	40N	48	F
D 41	5	1.46	1.90	1.68	.44	.14	1.70	29N	59	P
D 41	15	.96	1.24	1.10	.28	.10		28N	60	P
D 41	25	.82	1.30	1.06	.48	.11		26N	61	P
D 41	35	.90	1.38	1.14	.48	.11		25N	62	P
D 41	45	.64	1.74	1.19	1.10	.13	2.00	23N	64	P
D 41	55	.78	1.68	1.23	.90	.13	1.98	21N	65	I
D 41	65	1.28	1.78	1.53	.50	.14		20N	66	I
D 41	72	.62	1.88	1.25	1.26	.12	2.08	19N	67	I
D 42	5	.32	1.90	1.11	1.58	.16		60N	29	I
D 42	15	.54	1.96	1.25	1.42	.18		59N	30	F
D 42	25	.78	1.86	1.32	1.08	.17	1.98	57N	32	F
D 42	35	.42	1.78	1.10	1.36	.11		56N	33	I
D 42	45	.70	1.90	1.30	1.20	.13		54N	35	I
D 42	55	.46	.94	.70	.48	.12		53N	36	F
D 42	65	.40	1.68	1.04	1.28	.18		51N	38	F
D 42	75	.40	1.81	1.10	1.41	.18	2.00	49N	40	F
D 48	5	.48	1.98	1.23	1.50	.12	2.10	37N	52	I
D 48	12	.67	1.46	1.06	.79	.13	2.04	36N	52	I
D 52	5	.56	1.50	1.03	.94	.12		72N	17	I
D 52	15	.90	1.55	1.22	.65	.13	1.59	70N	19	I
D 54	5	.62	1.82	1.22	1.20	.11	1.87	53N	37	I
D 54	15	.70	1.87	1.28	1.17	.11	1.72	52N	38	I
D 54	25	.60	1.97	1.28	1.37	.11		50N	39	I
D 54	35	.56	2.03	1.29	1.47	.13		49N	41	I
D 54	45	.59	2.13	1.36	1.54	.17	1.81	47N	42	F
D 54	55	.68	.75	.71	.07	.17		46N	44	F
D 54	65	.65	1.71	1.18	1.06	.16		44N	45	F
D 54	75	.57	1.37	.97	.80	.11	1.64	43N	46	F
D 54	85	.50	1.24	.87	.74	.14	1.46	41N	48	I
D 54	95	.80	1.53	1.16	.73	.17		39N	49	I
D 54	105	.94	1.49	1.21	.55	.17		38N	51	F
D 54	115	.79	1.45	1.12	.66	.17		36N	52	F
D 54	125	1.03	1.57	1.30	.54	.17	1.91	35N	53	F
D 54	135					.17	2.10	33N	55	F
D 54	145					.17	2.14	32N	56	F
D 55	5	.52	1.62	1.07	1.10	.17		61N	29	I
D 55	15	.47	1.52	.99	1.05	.20		60N	30	F
D 55	25	.48	1.94	1.21	1.46	.18		58N	31	F
D 55	35	.34	1.74	1.04	1.40	.16		57N	33	I
D 55	45	.34	1.75	1.04	1.41	.10	1.78	55N	34	I
D 55	55	.42	1.68	1.05	1.26	.10	1.84	53N	36	I
D 55	65	.43	1.72	1.07	1.29	.10	1.81	52N	37	I
D 55	71					.10	1.96	51N	38	I
D 57	5	.23	1.70	.96	1.47	.10	1.96	59N	31	I
D 57	15	.27	1.80	1.03	1.53	.10	1.95	58N	32	I
D 57	25	.57	1.92	1.24	1.35	.10	2.08	56N	34	I

FORWARD CAMERA

PASS	FRAME	D/MIN	D/MAX	$\bar{D}$	ΔD	BASE FOG	D/MAX CLOUDS	LATITUDE (DEG)	SUN ANGLE	PROCESSING LEVEL
D 57	35					.10	1.95	55N	35	I
D 57	45	.78	1.98	1.38	1.20	.12	1.98	53N	36	I
D 57	55	.51	1.93	1.22	1.42	.16	1.78	52N	38	F
D 57	65	.64	1.86	1.25	1.22	.16		50N	39	F
D 57	75	.55	1.46	1.00	.91	.16		49N	41	F
D 57	85	.50	1.74	1.12	1.24	.15		47N	42	F
D 57	95	.39	1.79	1.09	1.40	.10		45N	44	I
D 57	105	.50	1.73	1.11	1.23	.10		44N	45	I
D 57	115	.91	1.54	1.22	.63	.10		42N	47	I
D 57	125	.86	1.62	1.24	.76	.10	1.82	41N	48	I
D 57	135	.56	1.70	1.13	1.14	.10		39N	50	I
D 57	144					.10	2.10	38N	51	I
D 58	5	.34	1.81	1.07	1.47	.12		67N	23	I
D 58	15	.47	1.80	1.13	1.33	.12	1.79	66N	24	I
D 58	25	.30	1.80	1.05	1.50	.12	1.85	64N	26	I
D 58	35	.39	1.92	1.15	1.53	.18	2.00	63N	27	I
D 58	45	.72	1.88	1.30	1.16	.18	1.98	61N	28	F
D 58	55	.70	1.96	1.33	1.26	.18	1.85	59N	30	F
D 58	65	.45	1.86	1.15	1.41	.18		58N	31	F
D 58	75	.45	1.88	1.16	1.43	.12		56N	33	I
D 58	85	.49	1.88	1.18	1.39	.12		55N	34	I
D 58	95	.33	1.89	1.11	1.56	.12	1.90	53N	36	I
D 58	105	.37	1.52	.94	1.15	.12	1.86	51N	37	I
D 58	115	.48	1.08	.78	.60	.12	1.93	50N	39	I
D 58	125					.12	1.88	48N	40	I
D 58	135					.12	1.94	47N	42	I
D 58	145					.12	2.02	45N	43	I
D 58	155					.12	1.76	44N	45	I
D 58	167					.12	1.92	42N	46	I
D 59	5	.35	1.06	.70	.71	.18		54N	36	F
D 59	15	.33	1.34	.83	1.01	.18		53N	37	F
D 59	25	.35	.99	.67	.64	.18	2.08	51N	38	F
D 59	35	.45	1.14	.79	.69	.18	2.10	49N	40	F
D 59	48	.50	1.72	1.11	1.22	.12		13N	72	I
D 59	58	.52	1.32	.92	.80	.12		12N	73	I
D 59	68	.60	1.40	1.00	.80	.12	1.94	10N	74	I
D 59	78	.54	1.12	.83	.58	.11	2.06	9N	74	I
D 59	88	.60	1.08	.84	.48	.12	2.06	7N	75	I
D 59	98					.12	2.10	5N	75	I
D 65	5					.10	1.90	35N	54	P

TABLE 6 - DIFFUSE DENSITY READINGS (Cont'd)

[illegible] CAMERA

PASS	FRAME	D/MIN	D/MAX	$\bar{D}$	ΔD	BASE FOG	D/MAX CLOUDS	LATITUDE (DEG)	SUN ANGLE	PROCESSING LEVEL
D	1 5					.18	1.99	54N	35	F
D	1 10					.20	1.95	53N	35	F
D	2 15					.20	2.24	16N	69	F
D	5 5					.12		72N	17	I
D	5 15	1.26	1.56	1.41	.30	.12		70N	18	I
D	6 5					.10	1.24	72N	16	P
D	6 15					.10	1.70	70N	18	P
D	6 25	.70	1.48	1.09	.78	.12	1.54	69N	19	I
D	6 35	.72	1.75	1.23	1.03	.12		67N	21	I
D	6 40	.65	1.46	1.05	.81	.12	1.64	66N	22	I
D	6 50	.45	1.97	1.21	1.52	.12		52N	36	I
D	6 60	.42	1.88	1.15	1.46	.12		51N	38	I
D	6 70	.30	1.94	1.14	1.69	.12		49N	39	I
D	6 80					.10	1.90	33N	55	P
D	6 85	.24	1.94	1.09	1.70	.10	1.82	32N	55	P
D	6 95	.34	1.36	.85	1.02	.10	1.40	31N	57	P
D	6 105	.51	1.08	.79	.57	.12	2.15	29N	58	I
D	6 115	.63	1.22	.92	.59	.12	2.10	27N	59	I
D	6 125	.40	1.28	.84	.88	.12	2.18	26N	61	I
D	7 5	1.14	1.44	1.29	.30	.10	1.36	72N	16	I
D	7 15	1.06	1.50	1.28	.44	.12	1.60	70N	18	I
D	7 25	.64	1.98	1.31	1.34	.12	1.98	69N	19	I
D	7 40	.24	1.84	1.04	1.60	.18		61N	27	F
D	7 50	.26	1.90	1.08	1.64	.20		59N	29	F
D	7 60	.54	1.99	1.26	1.45	.18		58N	30	F
D	7 70	.52	1.92	1.22	1.40	.20		56N	32	F
D	7 80	.62	1.80	1.21	1.18	.20	1.71	54N	34	F
D	7 90	.88	2.14	1.51	1.26	.15	1.85	53N	35	F
D	7 100					.10	1.54	42N	46	P
D	7 110	.88	1.14	1.01	.26	.10	1.51	39N	48	P
A	8E 7					.12		38N	48	I
D	8 5	.46	.88	.67	.42	.19		80N	7	F
D	8 15	.68	1.58	1.13	.90	.19	1.24	79N	9	F
D	8 26	.88	1.82	1.35	.94	.12	1.88	57N	32	I
D	8 36	.64	1.86	1.25	1.22	.12	1.90	56N	33	I
D	8 46	.64	1.82	1.23	1.18	.12	1.92	54N	35	I
D	8 56	.54	1.82	1.18	1.28	.12	1.84	52N	36	I
D	8 66	.85	1.92	1.38	1.07	.13		51N	38	I
D	8 76	.86	1.94	1.40	1.08	.13		49N	39	I
D	8 86	.40	1.73	1.06	1.33	.14	1.44	47N	41	I
D	8 96	.48	1.46	.97	.98	.14	1.40	46N	43	I
D	8 106	.40	1.32	.86	.92	.12		44N	44	I
D	8 119					.12	1.94	23N	64	I
D	8 129	.80	1.66	1.23	.86	.12	1.96	21N	66	I
D	8 139	.77	1.84	1.30	1.07	.13	1.85	20N	67	I
D	10 5	.18	.82	.50	.64	.12		81N	7	I
D	10 15	.30	1.76	1.03	1.46	.16		79N	9	F
D	10 29	.70	2.12	1.41	1.42	.16	1.40	69N	19	F

AFT CAMERA

PASS	FRAME	D/MIN	D/MAX	$\bar{D}$	ΔD	BASE FOG	D/MAX CLOUDS	LATITUDE (DEG)	SUN ANGLE	PROCESSING LEVEL
D	10 39	.46	1.92	1.19	1.46	.12		68N	20	I
D	10 49	.38	1.68	1.03	1.30	.12	1.94	59N	30	I
D	10 59	.65	1.76	1.20	1.11	.12	1.96	57N	31	I
D	10 69	.24	1.92	1.08	1.68	.12	1.85	56N	33	I
D	10 79	.30	1.75	1.02	1.45	.12		54N	34	I
D	10 89	.65	1.85	1.25	1.20	.12		12N	72	I
D	10 99	.64	1.62	1.13	.98	.12	1.68	11N	73	I
D	10 109	.60	1.50	1.05	.90	.12	1.44	9N	74	I
D	10 119	.52	1.48	1.00	.96	.12	1.60	7N	75	I
D	10 129	.53	1.49	1.01	.96	.18	2.15	6N	75	F
D	10 139	.57	1.42	.99	.85	.18	2.26	4N	76	F
D	10 149	.66	1.55	1.10	.89	.18	2.20	2N	77	F
D	16E 5	.58	1.46	1.02	.88	.12	1.8N	37N	51	I
D	16E 15	.72	1.86	1.29	1.14	.12	2.10	36N	52	I
D	21 5					.12	1.53	71N	17	I
D	21 11	1.08	1.59	1.33	.51	.12		70N	18	I
D	21 21	.65	2.11	1.38	1.46	.12		59N	30	I
D	21 31	.57	2.12	1.34	1.55	.12		58N	31	I
D	21 41	.55	2.07	1.31	1.52	.12		56N	32	I
D	21 51	.58	2.01	1.29	1.43	.12		54N	34	I
D	21 61	.41	1.96	1.18	1.55	.12		53N	35	I
D	21 71	.40	1.98	1.19	1.58	.12	2.10	51N	37	I
D	21 81	.39	2.09	1.24	1.70	.12	2.06	50N	38	I
D	21 91	.39	2.04	1.21	1.65	.12	1.98	48N	40	I
D	21 101	.43	1.99	1.21	1.56	.12	2.16	46N	41	I
D	21 111	.72	1.94	1.33	1.22	.12	2.01	45N	43	I
D	21 121	.74	1.19	.96	.45	.11	2.06	43N	44	I
D	21 131	.51	1.71	1.11	1.20	.11	1.78	41N	46	I
D	21 141					.14	2.08	3N	77	F
D	21 151	.60	1.09	.84	.49	.17	2.11	2N	77	F
D	21 161					.17	2.06	0N	77	F
D	21 171					.12	1.94	6N	75	I
D	21 181					.11	2.08	8N	74	I
D	21 191					.12	1.98	9N	73	I
D	22 5	.58	1.60	1.09	1.02	.14		51N	37	I
D	22 15	.55	1.60	1.07	1.05	.14		49N	39	I
D	22 29	1.20	1.70	1.45	.50	.18		41N	47	F
D	22 39	.26	1.36	.81	1.10	.13	1.88	39N	48	I
D	22 53	.72	1.52	1.12	.80	.18	2.22	2N	77	F
D	22 63	.86	1.70	1.28	.84	.18	2.22	3N	77	F
D	22 73	.46	1.08	.77	.62	.18	2.21	3N	76	F
D	22 83	.83	1.40	1.11	.57	.18	2.10	4N	76	F
D	23 5	.40	1.92	1.16	1.52	.18		57N	31	F
D	23 15	.49	1.96	1.22	1.47	.18		56N	32	F
D	23 25	.62	1.82	1.22	1.20	.15	1.88	54N	34	I
D	23 36	.58	1.48	1.03	.90	.12	2.02	42N	46	I
D	23 46	.52	1.85	1.18	1.33	.12	2.04	41N	47	I
D	23 50	.93	1.92	1.42	.99	.12	1.78	40N	48	I
A	24E 7					.11		38N	48	I
D	24 5	.52	.72	.62	.20	.11	1.80	52N	36	I

TABLE 6 - DIFFUSE DENSITY READINGS (Cont'd)

MISSION SEGMENT 1018- 1

PASS	FRAME	D/MIN	D/MAX	$\bar{D}$	ΔD	BASE FOG	D/MAX CLOUDS	LATITUDE (DEG)	SUN ANGLE	PROCESSING LEVEL
D 24	15	.52	1.77	1.14	1.25	.11	1.89	51N	37	I
D 24	25	.41	1.69	1.15	1.48	.12		49N	38	I
D 24	35	.54	1.72	1.13	1.18	.12	1.41	48N	40	I
D 24	45	.64	1.32	.98	.68	.11	1.80	46N	41	I
D 24	55	.58	1.56	1.07	.98	.12	1.86	45N	43	I
D 24	65	.41	1.24	.82	.83	.11	1.79	43N	44	I
D 24	75	.58	1.52	1.05	.94	.12	1.55	42N	46	I
D 24	85	.48	1.26	.87	.78	.12	1.95	40N	47	I
D 24	95	.32	2.02	1.17	1.70	.13	1.86	38N	49	I
D 24	105	.58	1.47	1.02	.89	.13	2.19	37N	50	I
D 25	5					.11	1.92	56N	32	I
D 25	15	.89	1.79	1.34	.90	.14	1.82	55N	33	I
D 25	25	.32	1.85	1.08	1.53	.14	1.80	53N	35	I
D 25	35	.50	2.03	1.26	1.53	.13		52N	36	I
D 25	45	.48	1.94	1.21	1.46	.19		50N	38	F
D 25	55	.54	1.70	1.12	1.16	.19		49N	39	F
D 25	65	.60	1.80	1.20	1.20	.19		47N	41	F
D 25	75	.90	1.54	1.22	.64	.19		46N	42	F
D 25	85	.64	1.34	.99	.70	.19	1.94	44N	44	F
D 25	95	.66	1.04	.85	.38	.15	2.09	43N	45	I
D 26	5	.44	.68	.56	.24	.16		81N	7	F
D 26	15	.51	.71	.61	.20	.18	1.03	79N	8	F
D 26	29					.16	1.75	70N	19	F
D 26	39	1.36	1.82	1.59	.46	.17	1.74	68N	20	F
D 26	52	.76	2.06	1.41	1.30	.17		61N	28	F
D 26	62	.74	2.00	1.37	1.26	.18		59N	29	F
D 26	72	.86	2.04	1.45	1.18	.18		58N	31	F
D 26	82	.83	2.04	1.43	1.21	.17		56N	32	F
D 26	92	.81	1.50	1.15	.69	.18		54N	34	F
D 26	102	.39	1.78	1.08	1.39	.10		53N	36	I
D 26	112	.50	1.23	.86	.73	.12	2.02	51N	37	I
D 26	125	.44	1.45	.94	1.01	.17	2.18	2N	77	F
D 26	135	.52	1.16	.84	.64	.17	2.26	4N	76	F
D 26	144	.55	1.86	1.20	1.31	.18	2.22	5N	75	F
D 31	5	.84	1.81	1.32	.97	.19		37N	51	F
D 31	15	.50	1.44	.97	.94	.19	2.09	36N	52	F
D 31	25	.60	1.72	1.16	1.12	.19		34N	53	F
D 31	35					.13	2.25	30N	57	I
D 31	45					.10	1.92	28N	59	P
D 32	5	.46	1.38	.92	.92	.12	2.00	34N	54	I
D 32	15	.62	1.58	1.10	.96	.13	1.88	33N	55	I
D 32	20	1.18	1.66	1.42	.48	.13	1.92	32N	56	I
D 37	5	.76	2.04	1.40	1.28	.12		53N	36	I
D 37	15	.45	2.06	1.25	1.61	.12		52N	37	I
D 37	25	.25	2.02	1.13	1.77	.12	2.06	50N	39	I
D 37	35	.62	2.05	1.33	1.43	.12	2.08	49N	40	I
D 37	45	.68	2.16	1.42	1.48	.12	2.12	47N	42	I
D 37	55	1.00	2.06	1.53	1.06	.16	2.14	45N	43	I
D 37	65					.18	2.18	44N	44	F
D 37	75					.18	2.16	42N	46	F

AFT CAMERA

PASS	FRAME	D/MIN	D/MAX	$\bar{D}$	ΔD	BASE FOG	D/MAX CLOUDS	LATITUDE (DEG)	SUN ANGLE	PROCESSING LEVEL
D 37	80					.18	2.24	41N	47	F
D 38	5	.57	1.86	1.21	1.29	.12	2.08	52N	37	I
D 38	15	.62	1.86	1.24	1.24	.12	2.13	51N	37	I
D 38	25	.29	1.90	1.09	1.61	.12	2.07	49N	39	I
D 38	35	.49	1.12	.80	.63	.11		39N	49	I
D 38	45	.50	1.46	.98	.96	.11		38N	50	I
D 38	55	.37	1.38	.87	1.01	.11	2.11	36N	51	I
D 38	65					.11	1.76	35N	53	I
D 38	75	.60	1.40	1.00	.80	.11	2.08	33N	54	I
D 38	85	1.15	1.22	1.18	.07	.11	2.08	32N	56	I
D 38	95					.08	2.12	30N	57	P
D 38	103					.12	2.24	29N	58	P
D 38	113	.96	1.30	1.13	.34	.16	2.06	3N	77	F
D 38	123					.17	2.12	2N	77	F
D 38	133					.17	2.18	1N	77	F
D 38	143	.71	.98	.84	.27	.16	2.20	4N	76	F
D 38	153	.66	1.22	.94	.56	.19	2.27	6N	75	F
D 39	5	.69	1.82	1.25	1.13	.14		64N	25	I
D 39	15	.48	1.93	1.20	1.45	.12		63N	26	I
D 39	25	.39	1.90	1.14	1.51	.12		61N	28	I
D 39	35	.38	1.99	1.18	1.61	.16		60N	29	F
D 39	45	.50	1.94	1.22	1.44	.18		58N	31	F
D 39	55	.54	1.97	1.25	1.43	.18	2.01	56N	32	F
D 39	65	.64	1.95	1.29	1.31	.18	2.14	55N	34	F
D 39	75	.62	1.89	1.25	1.27	.18	2.20	53N	35	F
D 39	85	.45	2.00	1.22	1.55	.12	2.19	52N	37	I
D 39	95	1.25	1.97	1.61	.72	.12	2.08	50N	38	I
D 39	105	.85	1.56	1.20	.71	.12	1.84	41N	47	I
D 39	115					.14	2.04	40N	48	I
D 40	5	.56	.90	.73	.34	.18		81N	7	F
D 40	15	.49	1.05	.77	.56	.18		80N	8	F
D 40	25	.62	1.48	1.05	.86	.18		79N	10	F
D 40	35	.83	1.88	1.35	1.05	.18		55N	34	F
D 40	45	.59	1.63	1.11	1.04	.18	2.14	54N	35	F
D 40	55	.95	1.94	1.44	.99	.18	2.27	52N	37	F
D 40	65	.86	1.73	1.29	.87	.18	2.18	51N	38	F
D 40	75	.65	2.04	1.34	1.39	.18	2.16	49N	39	F
D 40	85	.84	2.19	1.51	1.35	.18		48N	41	F
D 40	95	.92	1.95	1.43	1.03	.18		46N	42	F
D 40	105	.99	1.92	1.45	.93	.18		44N	44	F
D 40	115	.87	1.32	1.09	.45	.12		43N	45	I
D 40	125	.41	2.20	1.30	1.79	.12	1.95	41N	47	I
D 40	135	.53	2.18	1.35	1.65	.12	1.80	40N	48	I
D 41	5	1.08	1.20	1.14	.12	.08		29N	58	P
D 41	15	1.10	1.32	1.21	.22	.08		28N	59	P
D 41	25	.96	1.38	1.17	.42	.08		26N	60	P
D 41	27	.80	1.46	1.13	.66	.08		26N	61	P
D 41	37	.78	1.48	1.13	.70	.08		24N	62	P
D 41	47	.38	1.20	.79	.82	.08	1.68	23N	64	P
D 41	57	.44	1.62	1.23	1.18	.11	2.18	21N	65	I
D 41	67	1.04	1.86	1.45	.82	.10		20N	66	I

TABLE 6 - DIFFUSE DENSITY READINGS (Cont'd)

AFT CAMERA

PASS	FRAME	D/MIN	D/MAX	$\bar{D}$	ΔD	BASE FOG	D/MAX CLOUDS	LATITUDE (DEG)	SUN ANGLE	PROCESSING LEVEL
D	57	125	1.00	2.00	1.50	1.00	.12		41N	47	I
D	57	135	.87	1.99	1.43	1.12	.12		39N	49	I
D	57	144	1.05	1.76	1.40	.71	.12	1.98	38N	50	I
D	58	5	.48	1.80	1.14	1.32	.12	1.78	67N	22	I
D	58	15	.40	1.78	1.09	1.38	.12		66N	23	I
D	58	25	.28	1.82	1.05	1.54	.12	2.08	64N	25	I
D	58	35	.52	1.98	1.25	1.46	.18	2.12	63N	26	I
D	58	45	.70	1.80	1.25	1.10	.18	2.05	61N	28	I
D	58	55	.82	1.90	1.36	1.08	.18	2.03	60N	29	I
D	58	65	.56	1.94	1.25	1.38	.12	1.86	58N	31	I
D	58	75	.53	1.88	1.20	1.35	.12		57N	32	I
D	58	85	.45	1.93	1.19	1.48	.12		54N	34	I
D	58	95	.52	1.92	1.22	1.40	.12	1.78	54N	35	I
D	58	105	.47	1.90	1.18	1.43	.12	2.00	52N	37	I
D	58	115	.38	1.08	.73	.70	.12	2.05	51N	38	I
D	58	125					.08	1.83	49N	40	P
D	58	135					.10	1.88	48N	41	P
D	58	145					.08	1.90	46N	43	P
D	58	155					.08	1.99	44N	45	P
D	58	165					.10	2.16	43N	46	P
D	59	5	.44	.84	.64	.40	.18	1.91	54N	35	F
D	59	15	.42	1.18	.80	.76	.18		53N	36	F
D	59	25	.41	1.10	.75	.69	.18	2.00	51N	38	F
D	59	35	.50	1.35	.92	.85	.18	2.14	49N	40	F
D	59	39	.42	1.07	.74	.65	.14	2.12	49N	40	F
D	59	49	.44	1.45	.94	1.01	.08		13N	71	P
D	59	59	.40	.94	.67	.54	.08		12N	72	P
D	59	69	.74	1.12	.93	.38	.12		10N	73	I
D	59	79	.50	1.20	.85	.70	.11	2.10	8N	74	I
D	59	89	.69	1.37	1.03	.68	.12	2.21	7N	75	I
D	59	99	.94	1.42	1.18	.48	.12	2.20	5N	75	I
D	65	5					.10	1.92	35N	53	P
D	65	11					.13	2.28	34N	54	I

[illegible]

PASS	FRAME	D/MIN	D/MAX	$\bar{D}$	ΔD	BASE FOG	D/MAX CLOUDS	LATITUDE (DEG)	SUN ANGLE	PROCESSING LEVEL
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.11		19N	67	I
D	52	5	.47	1.74	1.13	1.32	.11		60N	29	I
D	52	11	.47	1.80	1.13	1.33	.16		59N	30	I
D	52	25	.81	2.05	1.43	1.24	.16	1.96	57N	31	F
D	52	35	.76	2.03	1.38	1.29	.16		56N	33	F
D	52	45	.86	1.98	1.42	1.12	.16		54N	34	F
D	52	55	.55	1.85	1.20	1.30	.10		53N	36	I
D	52	65	.33	1.64	.98	1.31	.14		51N	37	I
D	52	75	.39	1.53	.86	.94	.16		49N	39	I
D	48	5	.58	2.16	1.37	1.58	.11	2.23	37N	51	I
D	48	12	.74	1.26	1.00	.52	.12	2.20	36N	51	I
D	52	5	.37	1.01	.69	.64	.08		72N	17	P
D	52	15	.22	1.30	.76	1.08	.08		70N	19	P
D	52	19	.30	1.14	.82	1.04	.08	1.44	70N	19	P
D	54	5	.58	1.94	1.26	1.36	.11		53N	36	I
D	54	15	.68	1.90	1.29	1.22	.12	1.68	52N	37	I
D	54	25	.70	1.82	1.26	1.12	.11	1.72	50N	39	I
D	54	35	.88	2.00	1.44	1.12	.11		49N	40	I
D	54	45	.46	1.99	1.22	1.53	.11		47N	42	I
D	54	55	.48	2.15	1.31	1.67	.16		46N	43	F
D	54	65	.70	1.82	1.26	1.12	.16		44N	45	F
D	54	75	.78	1.76	1.27	.98	.17	1.84	43N	46	F
D	54	85	.94	1.66	1.30	.72	.14	2.08	41N	47	F
D	54	95	.54	1.55	1.04	1.01	.12	1.84	39N	49	I
D	54	105	.42	1.38	.90	.96	.10		38N	50	I
D	54	115	.60	1.50	1.05	.90	.10		36N	52	I
D	54	125	.64	1.40	1.02	.76	.12		35N	53	I
D	54	135	.79	1.54	1.16	.75	.12	1.94	33N	55	I
D	54	146					.11	2.18	31N	57	I
D	55	5	.48	1.73	1.10	1.25	.10		61N	28	I
D	55	15	.34	1.92	1.13	1.58	.16		60N	29	F
D	55	25	.50	1.99	1.24	1.49	.16		58N	31	F
D	55	35	.51	1.96	1.23	1.45	.16		57N	33	F
D	55	45	.64	2.01	1.32	1.37	.16		55N	34	F
D	55	55	.58	1.94	1.26	1.36	.12	2.12	53N	36	I
D	55	65	.51	1.85	1.18	1.34	.10	1.90	52N	37	I
D	55	72	1.13	2.03	1.58	.90	.10	2.06	51N	38	I
D	57	5	.32	1.72	1.02	1.40	.12	2.08	59N	30	I
D	57	15	.40	1.98	1.19	1.58	.16	2.12	58N	31	F
D	57	25	.74	1.99	1.36	1.25	.16	2.19	56N	33	F
D	57	35	.95	1.95	1.45	1.00	.12	2.05	55N	34	I
D	57	45	.70	1.94	1.32	1.24	.12	2.03	53N	35	I
D	57	55	.56	1.98	1.27	1.42	.12	1.95	52N	37	I
D	57	65	.58	1.82	1.20	1.24	.18	1.85	50N	38	F
D	57	75	.72	2.09	1.40	1.37	.18		49N	40	F
D	57	85	.70	1.92	1.31	1.22	.18		47N	41	F
D	57	95	.60	1.90	1.25	1.30	.12		45N	43	I
D	57	105	.84	1.93	1.38	1.09	.12		44N	44	I
D	57	115	.82	2.09	1.45	1.27	.12		42N	46	I

TABLE 6 - DIFFUSE DENSITY READINGS (Cont'd)

MISSION SEGMENT 1016- 2

PASS	FRAME	D/MIN	D/MAX	$\bar{D}$	ΔD	BASE FOG	D/MAX CLOUDS	LATITUDE (DEG)	SUN ANGLE	PROCESSING LEVEL
D 65	0					0.00		0N	0	I
D 66	0					0.00		0N	0	I
D 70	5					.11	1.40	75N	15	I
D 70	15	.80	1.02	.91	.22	.09	1.30	74N	16	P
D 70	25	.73	1.03	.88	.30	.09	1.11	72N	18	P
D 70	35	.62	1.13	.87	.51	.08	.90	71N	19	P
D 70	45	.31	1.41	.86	1.10	.08		69N	21	P
D 70	55	.50	1.73	1.11	1.23	.09		68N	22	P
D 70	65	.55	1.56	1.05	1.01	.10		66N	23	I
D 70	75	.46	1.60	1.03	1.14	.07		65N	25	P
D 70	85	.39	1.36	.87	.97	.09		63N	26	P
D 70	95	.43	1.24	.83	.81	.08		62N	28	P
D 70	105	.45	1.22	.83	.77	.07		60N	29	P
D 70	115	.49	.95	.72	.46	.08	1.25	59N	31	P
D 70	125	.53	1.72	1.12	1.19	.07	1.60	57N	32	P
D 70	135	.53	1.45	.99	.92	.07	1.40	56N	34	P
D 70	145	.29	1.69	.99	1.40	.09	1.60	54N	35	P
D 70	155	.78	1.84	1.31	1.06	.10	1.76	53N	37	I
D 70	165	.60	1.40	1.00	.80	.07	1.60	51N	38	P
D 70	175	.40	1.40	.90	1.00	.07	1.69	50N	40	P
D 70	185	.33	1.42	.87	1.09	.09	1.86	48N	41	P
D 70	195	.30	1.04	.67	.74	.10	1.92	47N	43	I
D 70	205	.44	1.31	.87	.87	.09	1.24	45N	44	I
D 70	215	.42	1.33	.87	.91	.10	1.70	44N	46	I
D 70	225	.70	.96	.83	.26	.09	1.60	42N	47	I
D 70	235	.47	.98	.82	.51	.10	1.84	41N	49	I
D 70	245	.71	.94	.82	.23	.10	1.78	39N	50	I
D 70	255					.12	1.50	38N	52	I
D 70	258	.54	1.40	.97	.86	.12	1.75	37N	52	I
D 70	268					.12	1.12	36N	53	I
D 70	278					.12	1.25	34N	55	I
D 70	288					.09	2.03	33N	56	P
D 70	298					.08	2.10	31N	58	P
D 70	308					.08	2.18	30N	59	P
D 70	314					.10	2.06	29N	60	I
D 70	323	.31	.62	.46	.31	.09	2.13	5N	76	P
D 70	333	.37	.60	.48	.23	.10	2.10	5N	76	I
D 70	343	.41	.97	.69	.56	.10	2.17	5N	76	I
D 70	353	.47	1.11	.79	.64	.10	2.19	4N	75	I
D 70	363					.10	2.04	4N	75	I
D 70	373	.67	1.00	.83	.33	.10	2.11	4N	75	I
D 70	385	.39	.79	.59	.40	.09	2.10	7N	74	I
D 70	395					.10	1.71	9N	72	I
D 71	5	1.09	1.52	1.30	.43	.08	1.65	73N	17	P
D 71	15	1.16	1.62	1.39	.46	.10	1.77	72N	18	I
D 71	25	.70	1.50	1.10	.80	.10	1.56	70N	20	I
D 71	35	.74	1.36	1.05	.62	.10	1.77	69N	21	I
D 71	45	.74	1.54	1.14	.80	.10		67N	23	I
D 71	55	.66	1.72	1.19	1.06	.10		66N	24	I
D 71	65	.58	1.30	.94	.72	.08		64N	26	P
D 71	75	.37	1.68	1.02	1.31	.10		63N	27	I
D 71	85	.36	1.76	1.06	1.40	.10	1.48	61N	29	I

FORWARD CAMERA

PASS	FRAME	D/MIN	D/MAX	$\bar{D}$	ΔD	BASE FOG	D/MAX CLOUDS	LATITUDE (DEG)	SUN ANGLE	PROCESSING LEVEL
D 71	95	.32	1.88	1.10	1.56	.10	1.60	60N	30	I
D 71	105	.34	1.72	1.03	1.38	.10	1.40	58N	32	I
D 71	115	.29	1.90	1.09	1.61	.12		57N	33	I
D 71	125	.42	2.03	1.22	1.61	.16		55N	35	F
D 71	135	.62	2.08	1.35	1.46	.16		53N	37	F
D 71	145	.52	2.02	1.27	1.50	.17		52N	38	F
D 71	155	.53	1.82	1.17	1.29	.14	2.06	50N	40	F
D 71	170	.57	1.65	1.11	1.08	.10	1.98	48N	49	I
D 71	180	.76	1.56	1.16	.80	.10	1.88	46N	50	I
D 71	190	.56	2.10	1.33	1.54	.10	2.18	38N	51	I
D 71	200	.39	1.90	1.14	1.51	.10	2.14	37N	53	I
D 71	210	.50	2.06	1.28	1.56	.10	2.16	35N	54	I
D 71	220	1.06	1.50	1.28	.44	.08	1.82	34N	56	I
D 71	230	.60	1.64	1.12	1.04	.08	1.93	32N	57	P
D 71	240	.32	1.72	1.02	1.40	.10	2.14	31N	58	I
D 71	250	.20	1.56	.88	1.36	.08	2.12	29N	60	P
D 71	260	.58	.88	.73	.30	.10	2.24	27N	61	I
D 71	270	.80	1.42	1.11	.62	.10	2.16	26N	63	I
D 71	280	.70	.83	.76	.13	.10	2.15	24N	64	I
D 71	290	.45	1.30	.87	.85	.10	2.20	23N	65	I
D 71	307	.56	.86	.71	.30	.12	2.18	5N	76	I
D 71	317	.51	.72	.61	.21	.10	2.18	4N	76	F
D 72	5	.87	1.60	1.23	.73	.10	1.65	75N	15	I
D 72	15	.62	1.89	1.25	1.27	.11		74N	16	I
D 72	25	.59	1.06	.82	.47	.09		72N	18	I
D 72	35	.59	1.09	.84	.50	.09	1.17	71N	19	P
D 72	45	.72	1.80	.91	.38	.09	1.56	69N	21	P
D 72	55	.60	1.39	.99	.79	.09	1.49	68N	22	P
D 72	65	.69	1.61	1.15	.92	.11	1.69	66N	23	I
D 72	75	.59	1.79	1.19	1.20	.11	1.73	65N	25	I
D 72	85	.33	1.59	.96	1.26	.11	1.77	63N	26	I
D 72	95	.28	1.71	.99	1.43	.11	1.79	62N	28	I
D 72	105	.28	1.31	.79	1.03	.11	1.71	60N	29	I
D 72	115	.48	1.79	1.13	1.31	.11	1.86	59N	31	I
D 72	125	.59	1.71	1.15	1.12	.11	1.80	57N	32	I
D 72	135	.38	1.62	1.00	1.24	.11	1.90	56N	34	I
D 72	145	.30	1.78	1.04	1.48	.11	1.92	54N	35	I
D 72	155	.39	1.75	1.07	1.36	.11	1.91	53N	37	I
D 72	165	.50	1.86	1.18	1.36	.11	2.00	51N	38	I
D 72	175	1.31	1.99	1.65	.68	.11	2.01	50N	40	I
D 72	185	.59	1.97	1.28	1.38	.11	2.06	48N	41	I
D 72	195	.28	.94	.61	.66	.11	1.97	47N	43	I
D 72	205	.55	1.58	1.06	1.03	.11	2.08	45N	44	I
D 72	215	.70	1.24	.97	.54	.10	1.91	44N	46	I
D 72	220	1.06	1.55	1.30	.49	.11	2.08	43N	46	I
D 72	230	1.78	2.08	1.93	.30	.11	2.11	41N	48	I
D 72	240					.09	1.98	40N	49	P
D 72	244	.90	1.59	1.24	.69	.09	2.11	39N	50	P
D 72	254	1.00	1.52	1.26	.52	.10	1.92	38N	51	P
D 72	264	.24	1.70	.97	1.46	.08	1.82	36N	53	P
D 72	274	.53	1.83	1.18	1.30	.09	1.82	35N	54	P
D 72	284	.80	1.67	1.23	.87	.08	1.98	33N	56	P
D 72	294	.81	1.98	1.39	1.17	.09	1.81	32N	57	P
D 72	304	.72	1.45	1.08	.73	.11	2.00	30N	59	I

TABLE 6 - DIFFUSE DENSITY READINGS (Cont'd)

FORWARD CAMERA

PASS	FRAME	D/MIN	D/MAX	$\bar{D}$	ΔD	BASE FOG	D/MAX CLOUDS	LATITUDE (DEG)	SUN ANGLE	PROCESSING LEVEL
D 79	15	.27	.90	.58	.63	.10	2.11	22N	66	I
D 79	20	.20	1.39	.79	1.19	.10	1.30	21N	66	I
D 80	5	1.02	1.98	1.50	.96	.08		50N	41	P
D 80	15	.60	1.40	1.00	.80	.08	1.59	48N	42	P
D 80	18	.27	1.51	.89	1.24	.08	1.63	47N	42	P
D 81	5	.16	.57	.36	.41	.08	1.60	36N	54	P
D 81	15	.25	1.13	.69	.88	.10	2.16	34N	55	P
D 81	19					.10	2.09	34N	55	P
D 82	5	1.44	1.82	1.63	.38	.12		68N	23	I
D 84	15	.86	1.52	1.19	.66	.10	1.45	67N	24	P
D 84	25	.28	1.28	.78	1.00	.10	1.56	65N	26	P
D 84	35					.10	1.54	64N	27	P
D 84	45	.89	1.40	1.14	.51	.10	1.40	62N	29	P
D 85	5					.10	1.48	71N	20	I
D 85	15	1.44	1.70	1.57	.26	.10	1.90	70N	21	I
D 85	25	.96	1.70	1.33	.74	.10	1.76	68N	23	I
D 85	35	.80	1.74	1.27	.94	.10	1.72	67N	24	I
D 85	45	.90	1.76	1.33	.86	.10	2.16	65N	26	I
D 85	55	1.02	1.82	1.42	.80	.10	1.86	64N	27	I
D 85	65	.80	1.90	1.35	1.10	.10	1.92	62N	29	I
D 85	74	1.10	1.90	1.50	.80	.10	1.82	61N	30	I
D 86	5	1.00	1.37	1.18	.37	.10	1.56	75N	15	I
D 86	15					.11	1.93	74N	16	I
D 86	30	.92	1.76	1.34	.84	.11		69N	22	I
D 86	40	.63	1.82	1.22	1.19	.11		67N	24	I
D 86	50	.77	1.76	1.26	.99	.11	1.69	66N	25	I
D 86	60	.42	1.85	1.13	1.43	.11	1.93	53N	38	I
D 86	78	.53	2.04	1.28	1.51	.12	2.16	51N	39	I
D 86	88	.45	1.90	1.17	1.45	.12	1.95	50N	41	I
D 86	98	.38	1.69	1.03	1.31	.12	2.06	48N	42	I
D 86	108	.44	1.72	1.08	1.28	.12	2.19	47N	44	I
D 86	118	.43	1.85	1.14	1.42	.12	2.16	45N	45	I
D 86	128	.48	1.96	1.22	1.48	.12	2.19	44N	47	I
D 86	138	.31	1.82	1.06	1.51	.12	2.15	42N	48	I
D 86	145	.46	2.05	1.25	1.59	.12	2.20	41N	49	I
D 87	5	.82	1.54	1.18	.72	.11		42N	49	I
D 87	15	1.22	1.58	1.40	.36	.11	1.81	41N	50	I
D 87	25	.24	1.44	.84	1.20	.10		39N	51	I
D 87	35	.43	1.40	.91	.97	.11		38N	52	I
D 87	45	.42	1.16	.79	.74	.10	2.04	36N	54	I
D 87	55	.22	1.12	.67	.90	.11	2.08	35N	55	I
D 87	65	.60	2.12	1.36	1.52	.20	2.20	33N	56	I
D 87	75	.44	2.12	1.28	1.68	.18	2.20	32N	58	I
D 87	85	.41	.96	.68	.55	.18	2.26	30N	59	I
D 87	95	.34	1.04	.69	.70	.18	2.06	29N	60	I
D 87	105	.42	1.36	.89	.94	.18	2.25	27N	62	I
D 87	115	.33	1.23	.78	.90	.18	2.16	26N	63	I
D 87	125	.42	1.22	.82	.80	.18	2.21	24N	64	I
D 87	135	.34	.78	.56	.44	.12	2.09	23N	66	I

TABLE 6 - DIFFUSE DENSITY READINGS (Cont'd)

MISSION SEGMENT 1018- 2

FORWARD CAMERA

PASS	FRAME	D/MIN	D/MAX	$\bar{D}$	ΔD	BASE FOG	D/MAX CLOUDS	LATITUDE (DEG)	SUN ANGLE	PROCESSING LEVEL
D 87	150	.58	1.15	.86	.57	.10	2.18	4N	76	I
D 87	160	.60	1.18	.89	.58	.11	2.22	3N	76	I
D 87	170	.67	1.32	.99	.65	.10	2.26	2N	76	I
D 88	5	.42	1.96	1.19	1.54	.14	2.00	57N	34	I
D 88	15	.44	1.86	1.15	1.42	.13	2.08	56N	35	I
D 88	25	.68	1.74	1.21	1.06	.13	2.06	54N	37	I
D 88	35					.14	2.02	53N	38	I
D 88	45	1.42	1.62	1.52	.20	.13	2.08	51N	40	I
D 88	55	.30	1.38	.84	1.08	.14	2.06	46N	45	I
D 88	65	.43	2.22	1.32	1.79	.14		44N	47	I
D 88	75	.46	2.24	1.35	1.78	.13	2.10	42N	48	I
D 88	85	1.36	1.62	1.49	.26	.12		41N	50	I
D 88	95	1.32	1.54	1.43	.22	.12		39N	51	I
D 88	105	1.12	1.56	1.34	.44	.12	1.58	38N	52	I
D 88	115	1.10	1.90	1.50	.80	.12	2.14	36N	54	I
D 88	125	.96	1.58	1.27	.62	.12	2.20	35N	55	I
D 88	135	.90	1.55	1.22	.65	.12	2.02	33N	56	I
D 88	145	.43	1.60	1.01	1.17	.10	1.90	32N	58	P
D 88	155					.10	2.00	30N	59	P
D 88	164	.56	1.00	.78	.44	.10	1.88	29N	60	P
D 89	5	.90	1.52	1.21	.62	.12	1.23	75N	16	I
D 89	15	.30	1.34	.82	1.04	.12	1.30	74N	17	I
D 89	25	1.30	1.46	1.38	.16	.11	1.62	72N	19	I
D 89	35	1.14	1.64	1.39	.50	.12	1.74	71N	20	I
D 89	45	1.26	1.71	1.48	.45	.12	1.87	69N	22	I
D 89	55	1.38	1.70	1.54	.32	.12	1.80	68N	23	I
D 89	62	1.15	1.39	1.27	.24	.12		66N	25	I
D 89	72	.80	1.41	1.10	.61	.10	1.48	57N	33	I
D 89	82	.71	1.30	1.00	.59	.10	1.46	54N	36	I
D 89	95	.63	1.92	1.27	1.29	.12		52N	39	I
D 89	105	.46	1.88	1.17	1.42	.11	2.06	50N	40	I
D 89	115	.55	1.50	1.02	.95	.11		48N	44	I
D 89	125	.49	1.55	1.02	1.06	.12		45N	45	I
D 89	135	.45	1.45	.95	1.00	.12		43N	47	I
D 89	145	.72	1.48	1.10	.76	.12		42N	48	I
D 89	155	.72	1.46	1.09	.74	.12		40N	50	I
D 89	165	.90	1.44	1.17	.54	.10		39N	51	I
D 89	175	.46	1.60	1.03	1.14	.12		37N	54	I
D 90	5	.60	1.52	1.06	.92	.10	1.32	76N	14	I
D 90	15	.30	1.22	.76	.92	.10		75N	15	I
D 90	25	.24	1.56	.90	1.32	.10	1.50	73N	17	I
D 90	35	.45	1.62	1.03	1.17	.10	1.55	72N	18	I
D 90	45					.10	1.66	70N	20	I
D 90	55	.92	1.38	1.15	.46	.10	1.62	69N	21	I
D 90	65					.10	1.89	67N	23	I
D 90	73	1.08	1.86	1.47	.78	.10	1.72	66N	24	I
D 90	83	.34	1.46	.90	1.12	.10	1.62	65N	25	I
D 90	93					.10	1.80	63N	27	I
D 90	103					.10	1.89	62N	28	I
D 90	113					.10	1.90	60N	30	I
D 90	125	.70	1.85	1.27	1.15	.10	1.92	56N	34	I
D 90	135	.56	1.74	1.15	1.18	.10	1.94	54N	36	I

PASS	FRAME	D/MIN	D/MAX	$\bar{D}$	ΔD	BASE FOG	D/MAX CLOUDS	LATITUDE (DEG)	SUN ANGLE	PROCESSING LEVEL
D 90	147	.86	1.46	1.16	.60	.10	2.09	8N	75	I
D 90	157	.96	1.28	1.12	.32	.10	2.16	7N	75	I
D 90	167	.44	1.06	.75	.62	.10	2.04	5N	75	I
D 90	177	.30	1.09	.69	.79	.10	2.00	4N	76	I
D 90	187	.34	1.00	.67	.66	.10	2.12	3N	76	I
D 90	197					.10	2.22	2N	76	I
D 91	5	.40	.88	.64	.48	.09		81N	8	P
D 91	15	.20	1.18	.69	.98	.08	1.10	80N	10	P
D 91	31	.30	1.45	.87	1.15	.08	1.64	70N	21	P
D 91	41	.48	1.74	1.11	1.26	.09	1.96	66N	23	P
D 91	55	.26	1.50	.88	1.24	.10	1.82	60N	31	P
D 91	65	.26	1.38	.82	1.12	.08	1.90	59N	32	P
D 91	75	.26	1.00	.63	.74	.08	1.74	57N	34	P
D 91	85	.28	1.43	.85	1.15	.10	1.92	55N	35	I
D 91	95	.26	1.06	.66	.80	.10	1.84	54N	37	I
D 91	105	.21	.50	.35	.29	.10	1.92	52N	38	I
D 91	115	.27	.84	.55	.57	.10	1.98	51N	40	I
D 91	125	.36	.62	.49	.26	.10	2.02	49N	41	I
D 91	135	.36	.84	.60	.48	.16	2.16	48N	42	I
D 91	145	.31	.71	.51	.40	.16		46N	44	I
D 91	157	.60	.96	.78	.36	.18	2.14	44N	46	I
D 95	5	.29	2.06	1.17	1.77	.14	1.79	47N	43	I
D 95	15	.25	1.93	1.09	1.68	.12		46N	45	I
D 95	27	.25	1.99	1.12	1.74	.12		42N	49	I
D 95	37	.27	1.38	.82	1.11	.12	1.52	40N	50	I
D 95	50	.28	1.67	.97	1.39	.12	1.56	21N	67	I
D 95	60					.12	2.02	19N	68	I
D 96	5	.29	1.00	.64	.71	.11	1.89	31N	59	I
D 96	15	.29	1.35	1.07	.56	.11	2.14	30N	60	I
D 96	25					.11	2.15	28N	61	I
D 96	35					.11	2.21	26N	63	I
D 96	45					.12	2.20	25N	64	I
D 97	5	.27	2.07	1.17	1.80	.11		48N	43	I
D 97	15	.25	2.05	1.15	1.80	.11		47N	44	I
D 97	20	.27	2.06	1.16	1.79	.11		46N	44	I
D 97	30	.51	1.23	.87	.72	.11	2.20	33N	57	I
D 97	40					.11	2.18	31N	58	I

TABLE 6 - DIFFUSE DENSITY READINGS (Cont'd)

AFT CAMERA

PASS	FRAME	D/MIN	D/MAX	$\bar{D}$	ΔD	BASE FOG	D/MAX CLOUDS	LATITUDE (DEG)	SUN ANGLE	PROCESSING LEVEL
D	71	95	.56	1.82	1.19	1.26	.16	1.80	60N	30	F
D	71	105	.60	1.90	1.25	1.30	.17	1.82	58N	31	F
D	71	115	.58	1.92	1.25	1.34	.17	1.80	57N	33	F
D	71	125	.48	1.90	1.19	1.42	.16		55N	34	F
D	71	135	.58	2.04	1.31	1.46	.16		53N	36	F
D	71	145	.82	2.06	1.44	1.24	.17		52N	37	F
D	71	155	.54	1.86	1.20	1.32	.17	2.17	50N	39	F
D	71	170	.98	1.74	1.36	.76	.17	2.18	41N	48	F
D	71	180	1.10	1.80	1.45	.70	.17	2.08	40N	49	F
D	71	190	1.26	1.64	1.45	.38	.17	2.10	38N	50	F
D	71	200	1.10	2.00	1.55	.90	.17	2.26	37N	52	F
D	71	210	1.00	1.80	1.40	.80	.16	2.07	35N	53	F
D	71	220	.86	1.90	1.38	1.04	.12	1.86	34N	55	I
D	71	230					.12	2.10	32N	56	I
D	71	237	.98	2.00	1.49	1.02	.12	2.12	31N	57	I
D	71	247	.42	2.16	1.29	1.74	.12	2.27	29N	58	I
D	71	257	.56	2.18	1.37	1.62	.17	2.28	28N	60	F
D	71	267	1.12	1.75	1.43	.63	.18	2.34	26N	61	F
D	71	277					.18	2.30	25N	63	F
D	71	287	1.27	1.60	1.43	.33	.18	2.28	23N	64	F
D	71	297	.98	1.50	1.24	.52	.18	2.34	22N	65	F
D	71	307	.88	1.46	1.17	.58	.18	2.28	5N	76	F
D	71	317	1.12	1.38	1.25	.26	.18	2.02	4N	77	F
D	72	5	1.18	1.84	1.51	.66	.17	1.70	75N	15	F
D	72	15	1.18	1.88	1.53	.70	.16	1.78	74N	16	F
D	72	25	1.28	1.74	1.51	.46	.12		72N	17	I
D	72	35	.97	1.68	1.32	.71	.12	1.66	71N	19	I
D	72	45	.94	1.46	1.20	.52	.10	1.74	69N	20	I
D	72	55	.96	1.56	1.26	.60	.11	1.80	68N	22	I
D	72	65	.98	1.82	1.60	.84	.12	1.69	66N	23	I
D	72	75	.74	1.78	1.26	1.04	.12	1.66	65N	25	I
D	72	85	.50	1.74	1.12	1.24	.11	1.68	63N	26	I
D	72	95	.34	1.78	1.06	1.44	.10	1.64	62N	28	I
D	72	105	.34	1.62	.98	1.28	.10	1.75	60N	29	I
D	72	115	.45	1.84	1.14	1.39	.10	1.78	59N	30	I
D	72	125	.54	1.80	1.17	1.26	.10	1.86	57N	32	I
D	72	135	.48	1.76	1.12	1.28	.10	1.90	56N	33	I
D	72	145	.64	1.64	1.14	1.00	.11	1.96	54N	35	I
D	72	155	.40	1.74	1.07	1.34	.11	1.93	53N	36	I
D	72	165	.73	1.86	1.29	1.13	.10	2.00	51N	38	I
D	72	175	.64	1.78	1.21	1.14	.10	2.02	50N	39	I
D	72	185	1.14	2.01	1.57	.87	.10	2.08	48N	41	I
D	72	195	.64	2.09	1.36	1.45	.13		47N	42	I
D	72	205	1.47	1.68	1.57	.21	.18	2.25	45N	44	I
D	72	215					.10	2.16	44N	45	I
D	72	225					.10	2.16	42N	46	I
D	72	235					.10	2.28	41N	48	I
D	72	245					.11	1.92	39N	49	I
D	72	255	1.00	1.60	1.30	.60	.10	1.92	38N	51	I
D	72	265	.99	1.51	1.25	.52	.10	1.73	36N	52	I
D	72	275	.49	1.84	1.16	1.35	.10	2.20	35N	54	I
D	72	285	1.50	2.21	1.85	.71	.10	2.18	33N	55	I
D	72	295	.90	2.22	1.56	1.32	.10	2.20	32N	57	I
D	72	30M	.79	1.18	.98	.39	.10	2.22	30N	5M	I

TABLE 6 - DIFFUSE DENSITY READINGS (Cont'd)

MISSION SEGMENT 1010- 2

PASS	FRAME	D/MIN	D/MAX	$\bar{D}$	ΔD	BASE FOG	D/MAX CLOUDS	LATITUDE (DEG)	SUN ANGLE	PROCESSING LEVEL
A 73E	5					.10		38N	47	I
A 73E	12					.10		38N	46	I
D 73	5	.82	1.12	.97	.30	.10	1.48	75N	15	I
D 73	15	.76	1.42	1.09	.66	.10	1.28	74N	16	I
D 73	25	.90	1.50	1.20	.60	.11	1.60	72N	18	I
D 73	35	1.18	1.48	1.33	.30	.10		71N	19	I
D 73	45	1.28	1.60	1.44	.32	.10		69N	20	I
D 73	55	.68	1.52	1.10	.84	.11	1.80	68N	22	I
D 73	65	1.10	1.70	1.40	.60	.11	1.74	66N	23	I
D 73	75	.76	1.70	1.23	.94	.10	1.66	65N	25	I
D 73	85	.72	1.85	1.28	1.13	.12	1.40	63N	26	I
D 73	95	.70	1.92	1.31	1.22	.16		62N	28	F
D 73	105	.60	1.88	1.24	1.28	.16		60N	29	F
D 73	115	.68	2.00	1.34	1.32	.17	2.12	59N	31	F
D 73	125	.64	2.08	1.36	1.44	.17	2.20	57N	32	F
D 73	135	.72	1.86	1.29	1.14	.17		56N	34	F
D 73	145	1.36	1.84	1.60	.48	.16		54N	35	F
D 73	155					.16	1.88	53N	37	F
D 73	165	.97	1.24	1.10	.27	.17	2.06	51N	38	F
D 73	175	.50	1.45	.97	.95	.16	2.10	50N	40	F
D 73	185	1.10	2.12	1.61	1.02	.16		48N	41	F
D 73	195	.87	2.00	1.43	1.13	.16		47N	43	F
D 73	205	.80	1.88	1.34	1.08	.16		45N	44	F
D 73	215	.49	1.67	1.08	1.18	.16		44N	45	F
D 73	225	.69	1.67	1.18	.98	.14		42N	47	F
D 73	235	.59	1.46	1.02	.87	.11		41N	48	I
D 73	245	.90	1.69	1.29	.79	.11		39N	50	I
D 73	255	.50	1.34	.92	.84	.11	1.65	38N	51	I
D 73	262	.56	2.18	1.37	1.62	.13	1.98	37N	52	I
D 74	5	.68	1.44	1.06	.76	.18	1.12	77N	13	F
D 74	15	1.06	1.62	1.34	.56	.17	1.64	76N	14	F
D 74	25					.16	1.84	74N	16	F
D 74	35	.65	1.76	1.20	1.11	.16	2.04	72N	17	F
D 74	45	1.20	1.90	1.55	.70	.17	2.04	71N	19	F
D 74	58					.12	1.82	60N	30	I
D 74	68					.11	1.86	58N	32	I
D 74	78					.11	1.92	56N	33	I
D 74	88	1.32	1.83	1.57	.51	.12	1.93	55N	35	I
D 74	90	.89	1.84	1.36	.95	.12	1.84	54N	35	I
D 74	100					.12	1.80	53N	36	I
D 74	117	.72	1.20	.96	.48	.18	2.24	6N	76	F
D 74	127	.54	1.32	.93	.78	.17	2.28	4N	76	F
D 74	137	.51	1.10	.80	.59	.16	2.30	2N	77	F
D 74	143	.60	1.12	.86	.52	.15	2.22	1N	77	F
D 75	5	.30	1.16	.73	.86	.16	1.86	55N	35	F
D 75	15	.42	1.18	.80	.76	.16	2.20	54N	36	F
D 75	25	.98	1.46	1.22	.48	.18	2.18	52N	37	F
D 75	35	.70	1.34	1.02	.64	.18	2.26	51N	39	F
D 75	45	.60	1.30	.95	.70	.18	2.14	49N	40	F
D 75	52	.48	.94	.71	.46	.18	2.10	48N	41	F
D 79	5					.16	1.80	23N	59	F

AFT CAMERA

PASS	FRAME	D/MIN	D/MAX	$\bar{D}$	ΔD	BASE FOG	D/MAX CLOUDS	LATITUDE (DEG)	SUN ANGLE	PROCESSING LEVEL
D 79	15	.56	1.54	1.05	.98	.16	2.23	22N	66	F
D 79	20	.48	1.70	1.09	1.22	.16	2.24	21N	66	F
D 80	5	.72	1.92	1.32	1.20	.12		5UN	40	I
D 80	15	1.40	2.10	1.75	.70	.12	2.08	48N	42	I
D 80	18	1.20	2.06	1.63	.86	.12	1.96	48N	42	I
D 81	5	.68	1.48	1.08	.80	.18	2.18	36N	53	F
D 81	15	.96	1.70	1.33	.74	.18	2.22	34N	55	F
D 81	19	.82	1.83	1.32	1.01	.19	2.26	34N	55	F
D 84	0	1.44	1.68	1.56	.24	.12		68N	22	I
D 84	15	.95	1.65	1.30	.70	.12	1.80	67N	23	I
D 84	25	1.28	1.90	1.59	.62	.12	1.71	65N	25	I
D 84	35	.92	1.70	1.35	.86	.13	1.80	64N	26	I
D 84	47					.12	1.98	62N	28	I
D 85	5	1.28	1.54	1.41	.26	.12		71N	19	I
D 85	15					.12	1.70	7UN	20	I
D 85	25	.92	1.67	1.29	.75	.12	1.76	68N	22	I
D 85	35	.86	1.76	1.31	.90	.12	1.52	67N	23	I
D 85	45	1.10	1.80	1.45	.70	.12	1.68	65N	25	I
D 85	55	.98	2.10	1.54	1.12	.14		64N	26	I
D 85	65	1.18	1.88	1.53	.70	.12	1.80	61N	29	I
D 85	75	.96	1.80	1.38	.84	.13	1.84	6UN	30	I
D 86	5	.49	1.16	.82	.67	.12		75N	15	I
D 86	15					.12	1.40	74N	16	I
D 86	30	.74	1.60	1.17	.86	.12		69N	21	I
D 86	40	.74	1.98	1.36	1.24	.12		67N	23	I
D 86	50	.66	1.88	1.27	1.22	.12		66N	24	I
D 86	58	.78	2.06	1.42	1.28	.12	1.84	64N	26	I
D 86	68	.46	1.94	1.20	1.48	.12	2.02	53N	37	F
D 86	78	.80	1.90	1.35	1.10	.12	1.94	51N	38	F
D 86	88	.66	2.00	1.33	1.34	.12	2.03	50N	40	F
D 86	98	.48	1.68	1.08	1.20	.12	2.06	48N	41	F
D 86	108	.64	1.88	1.26	1.24	.16	2.04	47N	43	F
D 86	118	.92	1.90	1.41	.98	.18	2.10	45N	44	F
D 86	128	.94	1.60	1.27	.66	.18	2.23	44N	46	F
D 86	138	.94	1.85	1.39	.91	.18	2.24	42N	47	F
D 86	146	.95	1.90	1.42	.95	.18	2.22	41N	48	F
D 87	5	1.10	1.66	1.38	.56	.18	1.72	42N	48	F
D 87	15	1.36	1.82	1.59	.46	.18	1.80	41N	49	F
D 87	25	1.38	1.86	1.62	.48	.18	1.96	39N	50	F
D 87	35	.96	1.84	1.40	.88	.18		38N	52	F
D 87	45	.76	1.74	1.25	.98	.18	1.98	36N	53	F
D 87	55	.82	1.74	1.28	.92	.18	2.12	35N	55	F
D 87	65	.54	2.14	1.34	1.60	.18	2.10	33N	56	F
D 87	75	.60	1.60	1.10	1.00	.18	2.22	32N	57	F
D 87	85	.68	1.52	1.10	.84	.18	2.22	30N	59	F
D 87	95	.42	1.50	.96	1.08	.18	2.22	29N	60	F
D 87	105	.46	1.46	.96	1.00	.19	2.10	27N	61	F
D 87	115	.42	1.66	1.04	1.24	.19	2.32	26N	63	F
D 87	125	.42	1.52	.97	1.10	.19	2.25	24N	64	F

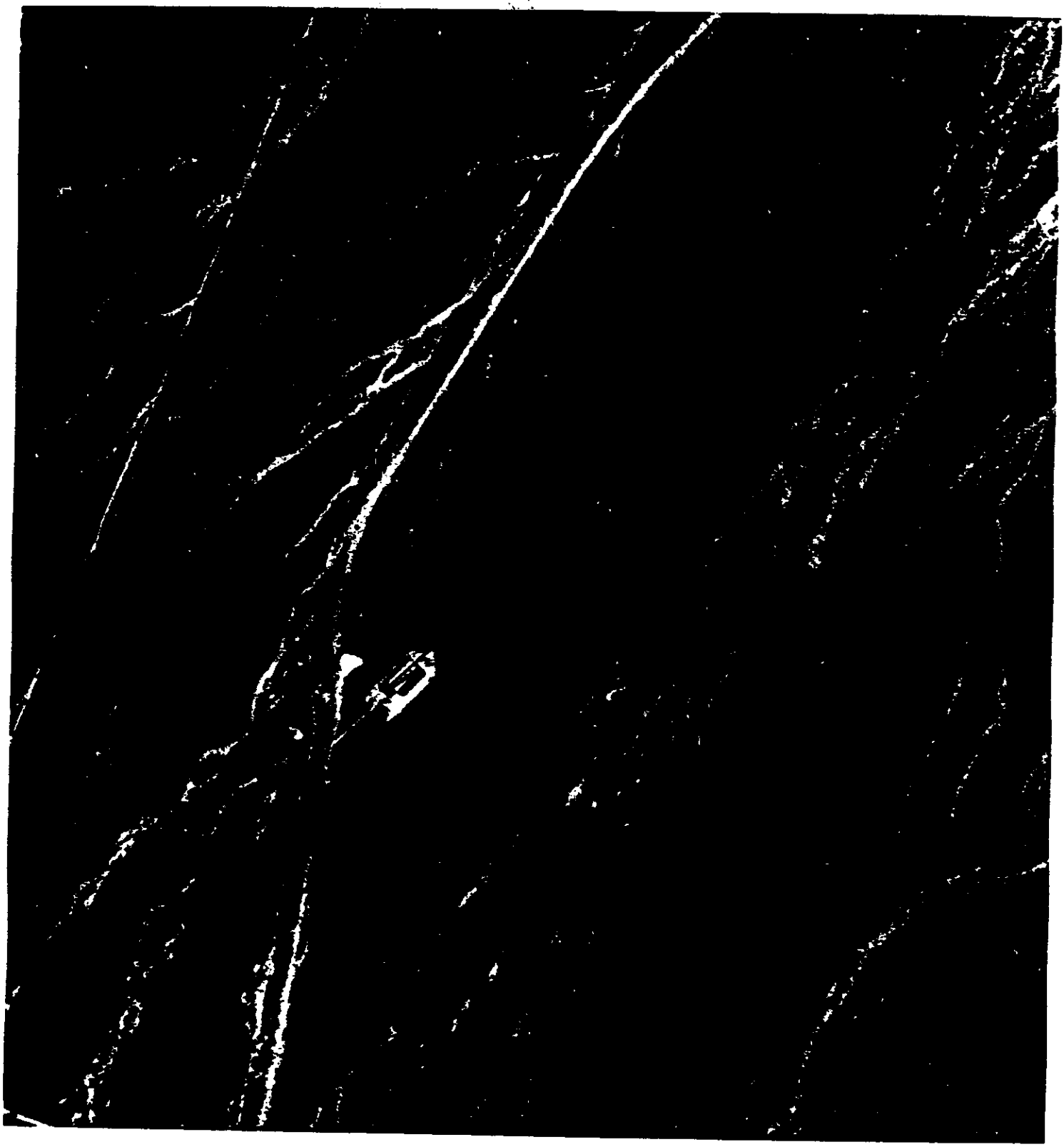
TABLE 6 - DIFFUSE DENSITY READINGS (Cont'd)

PASS		FRAME	D/MIN	D/MAX	$\bar{D}$	ΔD	BASE FOG	D/MAX CLOUDS	LATITUDE (DEG)	SUN ANGLE	PROCESSING LEVEL
D	87	[illegible]	[illegible]	1.56	1.11	.86	.18	2.28	23N	66	F
D	87	[illegible]	[illegible]	1.48	1.26	[illegible]	.19	2.18	4N	77	I
D	87	[illegible]					.19	2.24	2N	77	F
D	87	[illegible]					.19	2.14	1N	76	I
D	88	5	1.16	1.83	1.43	.74	.18	2.12	57N	33	F
D	88	15	.96	1.83	1.38	.89	.18	2.17	56N	34	F
D	88	25	.96	2.06	1.51	1.10	.18	2.16	54N	36	F
D	88	35					.12	1.90	53N	37	I
D	88	45					.12	2.02	51N	39	I
D	88	57	.28	2.08	1.18	1.80	.11	2.00	45N	45	I
D	88	67	.39	1.90	1.14	1.51	.12	1.98	44N	46	I
D	88	78	.82	2.12	1.47	1.30	.12		42N	48	I
D	88	88	.90	1.60	1.25	.70	.12	1.96	40N	49	I
D	88	98					.12	1.58	39N	51	I
D	88	108					.10	1.64	37N	52	I
D	88	118	1.24	1.75	1.49	.51	.12	1.94	36N	54	I
D	88	128					.12	2.24	34N	55	I
D	88	138	1.34	2.14	1.76	.80	.12	2.14	33N	57	I
D	88	148	.57	2.06	1.31	1.49	.12	2.08	31N	58	I
D	88	158	1.50	1.92	1.71	.42	.12	2.26	30N	60	I
D	88	163					.12	2.22	29N	60	I
D	89	5	.32	1.16	.74	.84	.10	1.42	75N	15	I
D	89	15	.96	1.52	1.24	.56	.12	1.68	74N	16	I
D	89	25	.90	1.62	1.26	.72	.11	1.40	72N	18	I
D	89	35	1.20	1.52	1.36	.32	.12	1.56	71N	19	I
D	89	45	1.06	1.62	1.34	.56	.12	1.58	69N	21	I
D	89	55	1.10	1.70	1.40	.60	.12	1.78	68N	22	I
D	89	62	1.28	1.64	1.46	.36	.12	1.76	66N	24	I
D	89	72	.82	1.84	1.33	1.02	.12	1.84	58N	33	I
D	89	82	1.00	1.84	1.42	.84	.12	1.86	56N	34	I
D	89	95	.42	1.92	1.17	1.50	.14	2.10	52N	38	I
D	89	105	1.08	2.10	1.59	1.02	.18	2.16	50N	40	F
D	89	115	1.13	1.64	1.38	.51	.18		46N	44	F
D	89	125	.70	1.60	1.15	.90	.18		45N	45	F
D	89	135	1.08	1.86	1.47	.78	.18		43N	46	F
D	89	145	1.18	1.72	1.45	.54	.18		42N	48	F
D	89	155	.96	1.92	1.44	.96	.18		40N	49	F
D	89	165	1.48	2.02	1.75	.54	.19		39N	51	F
D	89	175	1.48	1.84	1.66	.36	.19		37N	52	F
D	90	5	.54	1.74	1.14	1.20	.16		76N	14	F
D	90	15	.56	1.62	1.09	1.06	.16		75N	15	F
D	90	25	.52	1.64	1.08	1.12	.17		73N	17	F
D	90	35	.50	1.74	1.12	1.24	.17	1.76	72N	18	F
D	90	45	1.00	1.72	1.36	.72	.17	1.84	70N	20	F
D	90	55					.16	1.86	69N	21	F
D	90	65					.10	1.68	67N	23	I
D	90	75	1.30	1.64	1.47	.34	.10	1.82	66N	24	I
D	90	85	1.09	1.60	1.34	.51	.11	1.72	64N	26	I
D	90	95					.10	1.82	63N	27	I
D	90	105					.10	1.80	61N	29	I
D	90	115					.10	1.92	60N	30	I
D	90	125	.82	1.91	1.36	1.09	.11	1.99	56N	34	I

AFT CAMERA

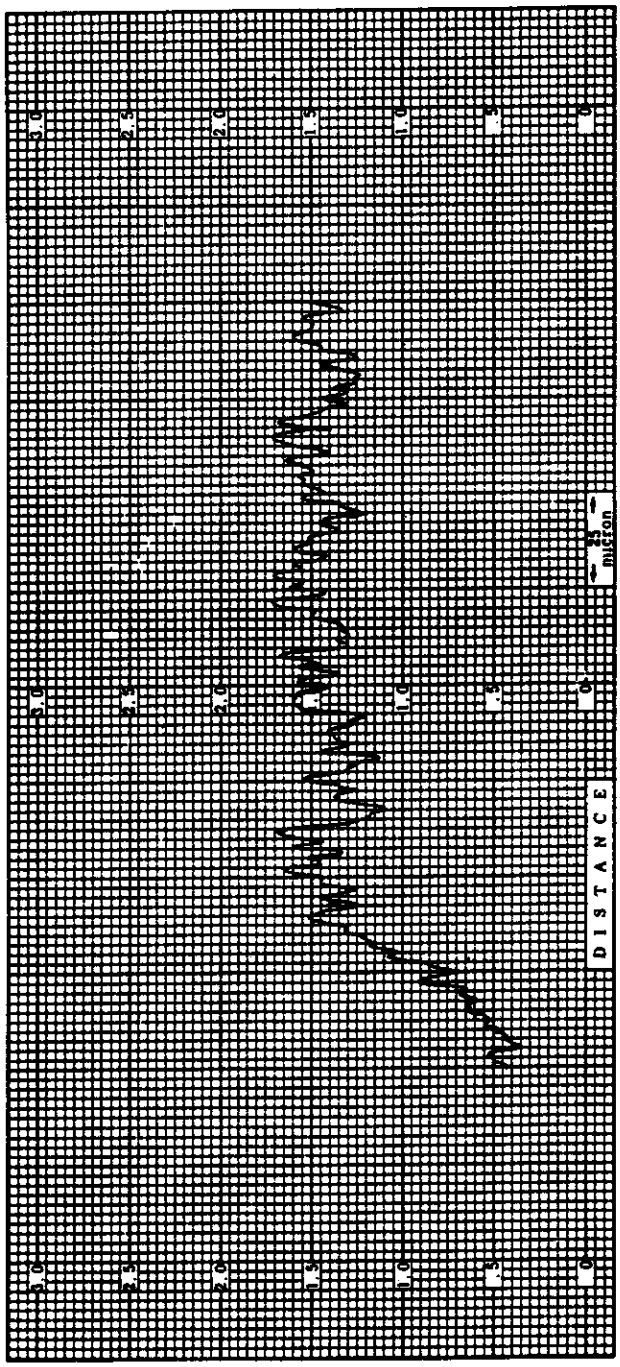
PASS		FRAME	D/MIN	D/MAX	$\bar{D}$	ΔD	BASE FOG	D/MAX CLOUDS	LATITUDE (DEG)	SUN ANGLE	PROCESSING LEVEL
D	90	135	.84	1.86	1.35	1.02	.16	2.01	55N	35	I
D	90	148	.70	1.10	.90	.40	.11	2.14	7N	75	I
D	90	158	.90	1.40	1.15	.50	.10	2.06	6N	75	I
D	90	168	.72	1.46	1.09	.74	.12	2.16	5N	75	I
D	90	178	.80	1.37	1.08	.57	.17	2.26	4N	76	F
D	90	188	.55	1.27	.91	.72	.17	1.96	2N	76	F
D	90	198	.92	1.50	1.21	.58	.16	2.12	1N	76	F
D	91	5	.38	1.00	.69	.62	.16	1.09	81N	9	F
D	91	15	.67	1.51	1.09	.84	.16	1.32	80N	10	F
D	91	30					.16	1.99	70N	20	F
D	91	40	.95	1.89	1.42	.94	.16	2.14	68N	22	F
D	91	50	.82	1.72	1.27	.90	.16	2.10	61N	29	F
D	91	60	.52	1.91	1.21	1.39	.16	2.06	59N	31	F
D	91	70	.22	1.39	.80	1.17	.10	1.77	58N	32	I
D	91	80	.42	1.34	.88	.92	.13	1.93	56N	34	I
D	91	90	.48	1.62	1.05	1.14	.16	2.06	55N	35	F
D	91	100	.66	1.31	.98	.65	.17	2.29	53N	37	F
D	91	110	.55	1.10	.82	.55	.16	2.20	52N	38	F
D	91	120	.60	1.30	.95	.70	.16	2.12	50N	40	F
D	91	130	.89	1.13	1.01	.24	.16	2.18	49N	41	F
D	91	140	.55	1.07	.81	.52	.16	2.22	47N	43	F
D	91	150	.55	1.36	.95	.81	.16	2.12	46N	44	F
D	91	158	.55	1.10	.82	.55	.16	2.16	44N	46	F
D	95	5	.48	2.02	1.25	1.54	.14	1.92	48N	43	I
D	95	15	.42	1.94	1.18	1.52	.12		46N	44	I
D	95	28	.36	1.98	1.17	1.62	.12		42N	48	I
D	95	38	.35	1.30	.82	.95	.16		40N	49	F
D	95	50	.49	1.78	1.13	1.29	.18	1.92	21N	67	F
D	95	60	.70	1.84	1.27	1.14	.18	2.23	19N	68	F
D	96	5	.68	1.30	.99	.62	.18	2.06	31N	58	F
D	96	15	.84	1.50	1.17	.66	.16	2.18	30N	59	F
D	96	25					.10	2.06	28N	60	I
D	96	35					.10	2.04	27N	62	I
D	96	47					.12	2.22	25N	63	I
D	97	5	.48	2.00	1.24	1.52	.10		48N	42	I
D	97	15	.50	2.16	1.33	1.66	.17		47N	43	F
D	97	29	.73	1.72	1.22	.99	.11	2.28	35N	55	I
D	97	40	.79	1.84	1.31	1.05	.11	2.28	33N	57	I

MISSION 1018-1 PASS D16 FRAME 005 FWD
10 DIA ENLG 51° SUN ANGLE 36° LATITUDE



MISSION 1018-1 PASS D16 FRAME 005 FWD
40 DIA ENLG 51°SUN ANGLE 36° LATITUDE

MANN-DATA MICRO-ANALYZER TRACE
(TRACE NO. C-1)



PASS DIGE FRAME 005 CAMERA POSITION FWD

MA SCAN SPEED 0.05mm/min CHART SPEED 2"/min. SPOT SIZE 1.58μ

CORN DESCRIPTION

MISSION SEGMENT 1018-1 **PASS:** D16E **FRAME:** 005 **CAMERA POSITION:** Forward

LOCATION: Indian Springs, Nevada **DATE:** 26 March 1965

TYPE OF DISPLAY: 1. High Contrast Bar Target (Fixed) **RESOLUTION:** 1. Could not be resolved.

REMARKS:

CAMERA DATA

ALTITUDE: 612,000'	**FOCAL LENGTH:** 609.628mm	**FILTER:** Wratten 25
SLIT WIDTH: 0.250"	**EXPOSURE TIME:** 1/260 sec.	**LENS:** f/3.5
TIME OF EXPOSURE: 2013Z	**FILM TYPE:** 4404	**EMULSION NO.** 4404-82
SUN ANGLE: 51°		

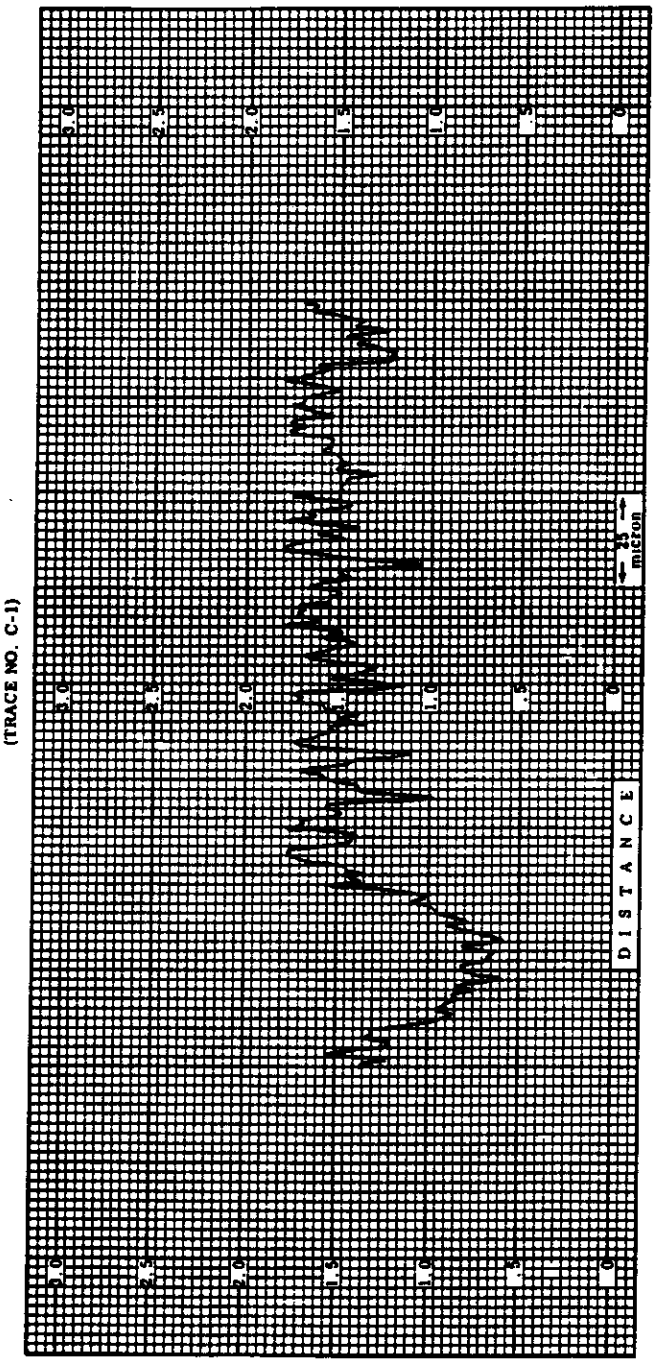
PROCESSING DATA

DEVELOPMENT LEVEL: Intermediate	**BASE PLUS FOG:** 0.10	**Δ LOG E:** 0.29

MISSION 1018-1 PASS D16 FRAME 011 AFT
10 DIA ENLG 51° SUN ANGLE 36° LATITUDE

MISSION 1018-1 PASS D16 FRAME 011 AFT
40 DIA ENLG 51° SUN ANGLE 36° LATITUDE

MANN-DATA MICRO-ANALYZER TRACE
(TRACE NO. C-1)



PASS D16E
FRAME 011
CAMERA POSITION AFT
MA SCAN SPEED 0.05mm/min
CHART SPEED 2"/min.
SPOT SIZE 1.58μ

CORN DESCRIPTION

MISSION SEGMENT 1018-1 **PASS:** D16E **FRAME:** 011 **CAMERA POSITION:** Aft

LOCATION: Indian Springs, Nevada **DATE:** 26 March 1965

TYPE OF DISPLAY: 1. High Contrast Bar Target (Fixed) **RESOLUTION:** 1. Could not be resolved.

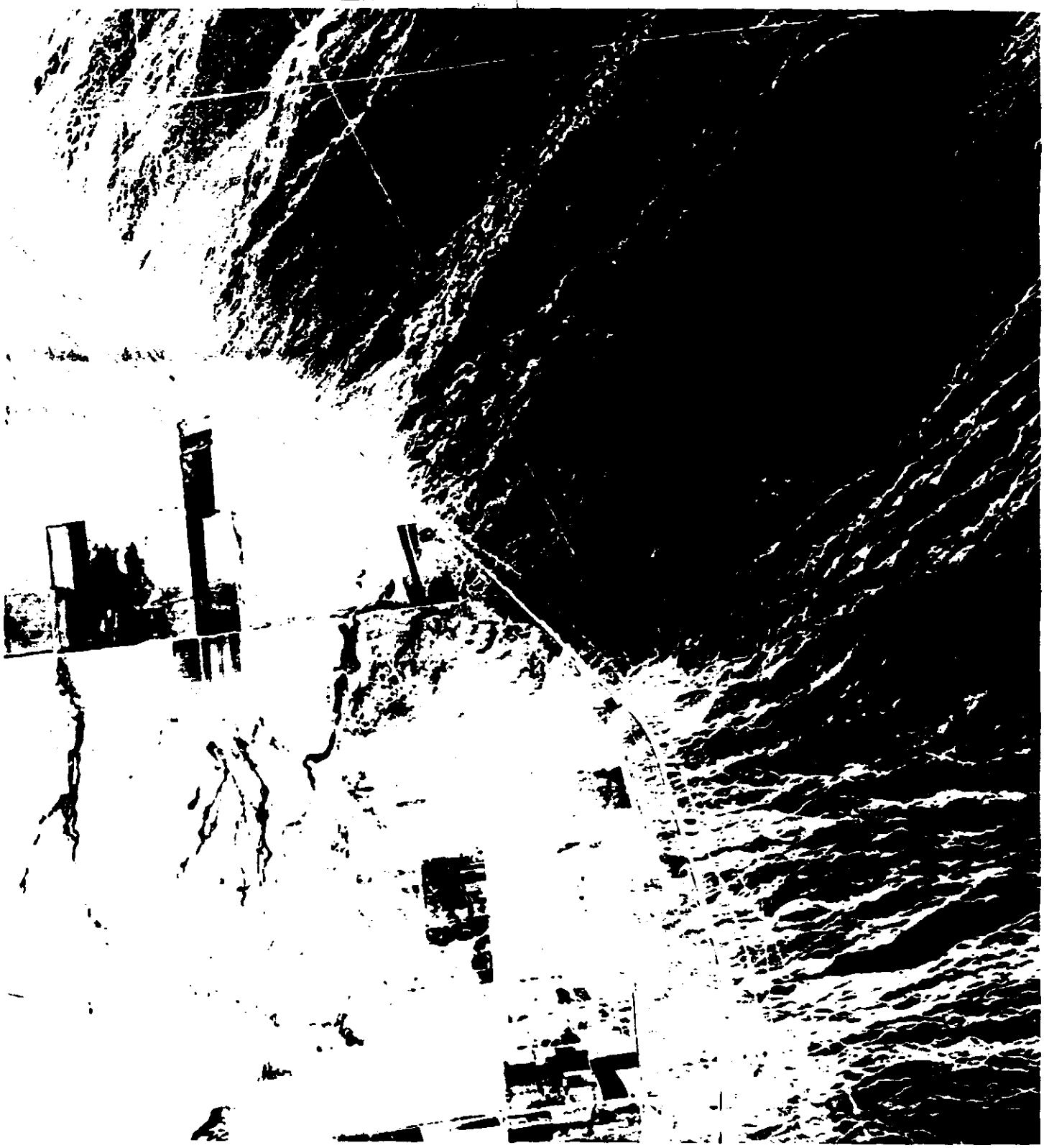
REMARKS:

CAMERA DATA

ALTITUDE: 612,000'	**FOCAL LENGTH:** 609.295mm	**FILTER:** Wratten 21
SLIT WIDTH: 0.175"	**EXPOSURE TIME:** 1/390 sec.	**LENS:** f/3.5
TIME OF EXPOSURE: 2013Z	**FILM TYPE:** 4404	**EMULSION NO.** 4404-82
SUN ANGLE: 51°		

PROCESSING DATA

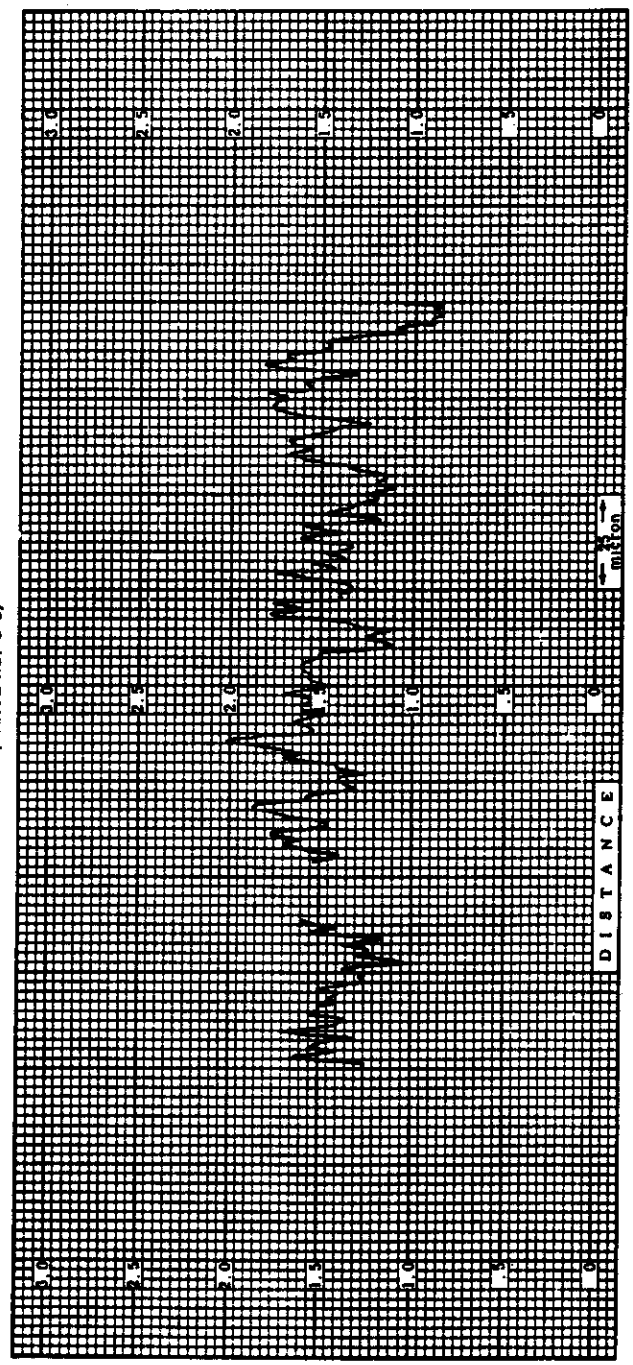
DEVELOPMENT LEVEL: Intermediate **BASE PLUS FOG:** 0.12 **Δ LOG E:** 0.35



MISSION 1018-1 PASS D16 FRAME 008 FWD
10 DIA ENLG 51° SUN ANGLE 36° LATITUDE

MISSION 1018-1 PASS D16 FRAME 008 FWD
40 DIA ENLG 51°SUN ANGLE 36° LATITUDE

MANN-DATA MICRO-ANALYZER TRACE
(TRACE NO. C-2)



CORN DESCRIPTION

MISSION SEGMENT 1018-1 **PASS:** D16E **FRAME:** 008 **CAMERA POSITION:** Forward

LOCATION: Pahrump, Nevada **DATE:** 26 March 1965

TYPE OF DISPLAY: 1. High Contrast Bar Target (Fixed) **RESOLUTION:** 1. 12' 2"

REMARKS:

CAMERA DATA

ALTITUDE: 612,000'	**FOCAL LENGTH:** 609.628mm	**FILTER:** Wratten 25
SLIT WIDTH: 0.250"	**EXPOSURE TIME:** 1/260 sec.	**LENS:** f/3.5
TIME OF EXPOSURE: 2013Z	**FILM TYPE:** 4404	**EMULSION NO.** 4404-82
SUN ANGLE: 51°		

PROCESSING DATA

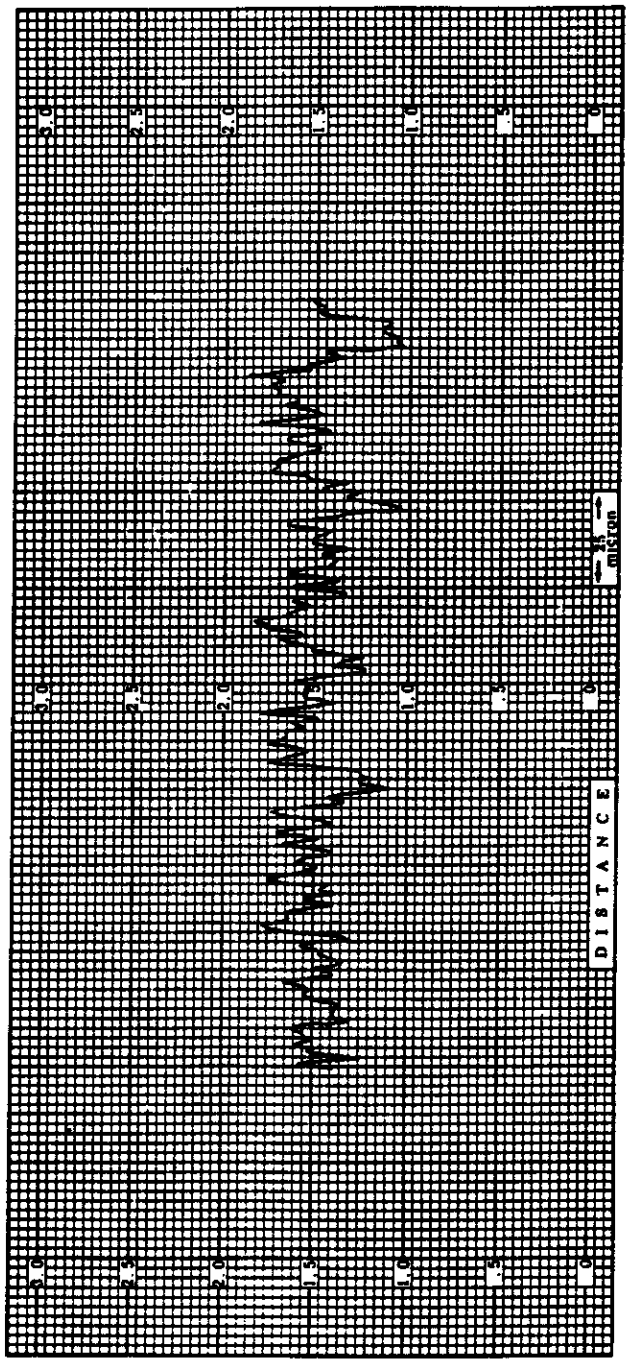
DEVELOPMENT LEVEL: Intermediate **BASE PLUS FOG:** 0.10 **Δ LOG E:** 0.49

MISSION 1018-1 PASS D16 FRAME 014 AFT
10 DIA ENLG 52° SUN ANGLE 36° LATITUDE

MISSION 1018-1 PASS D16 FRAME 014 AFT
40 DIA ENLG 52° SUN ANGLE 36° LATITUDE

MANN-DATA MICRO-ANALYZER TRACE

(TRACE NO. C-2)



PASS D16E FRAME 014 CAMERA POSITION AFT

MA SCAN SPEED 0.05mm/min. CHART SPEED 2"/min. SPOT SIZE 1.58μ

CORN DESCRIPTION

MISSION SEGMENT 1018-1 **PASS:** D16E **FRAME:** 014 **CAMERA POSITION:** Aft

LOCATION: Pahrump, Nevada **DATE:** 26 March 1965

TYPE OF DISPLAY: 1. High Contrast Bar Target (Fixed) **RESOLUTION:** 1. 12' 2"

REMARKS:

CAMERA DATA

ALTITUDE: 612,000'	**FOCAL LENGTH:** 609.295mm	**FILTER:** Wratten 21
SLIT WIDTH: 0.175"	**EXPOSURE TIME:** 1/390 sec.	**LENS:** f/3.5
TIME OF EXPOSURE: 2013Z	**FILM TYPE:** 4404	**EMULSION NO.** 4404-82
SUN ANGLE: 52°		

PROCESSING DATA

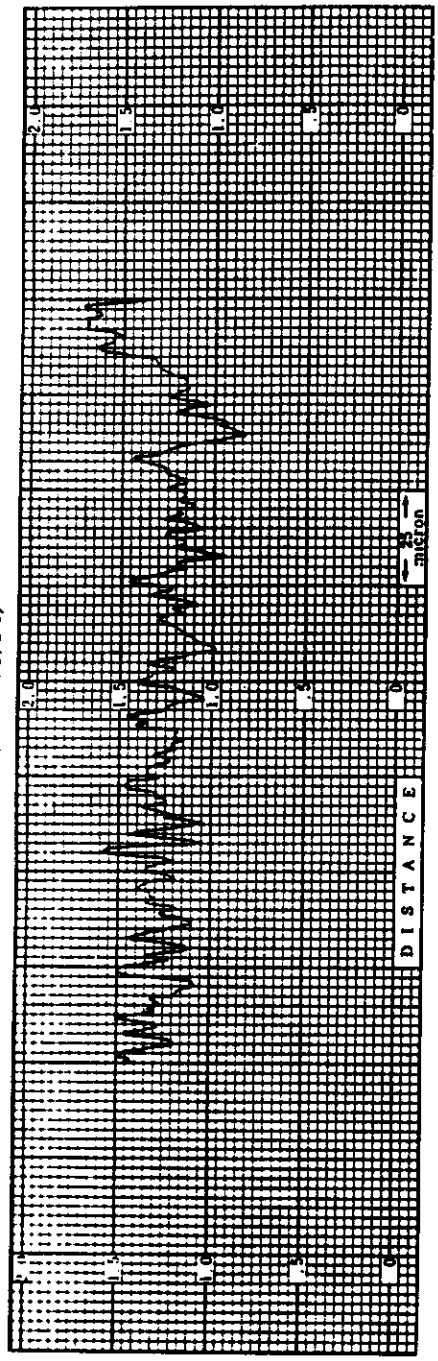
DEVELOPMENT LEVEL: Intermediate **BASE PLUS FOG:** 0.12 **Δ LOG E:** 0.35

MISSION 1018-1 PASS D16 FRAME 009 FWD
10 DIA ENLG 51° SUN ANGLE 36° LATITUDE

MISSION 1018-1 PASS D16 FRAME 009 FWD
40 DIA ENLG 51° SUN ANGLE 36° LATITUDE

MANN-DATA MICRO-ANALYZER TRACE

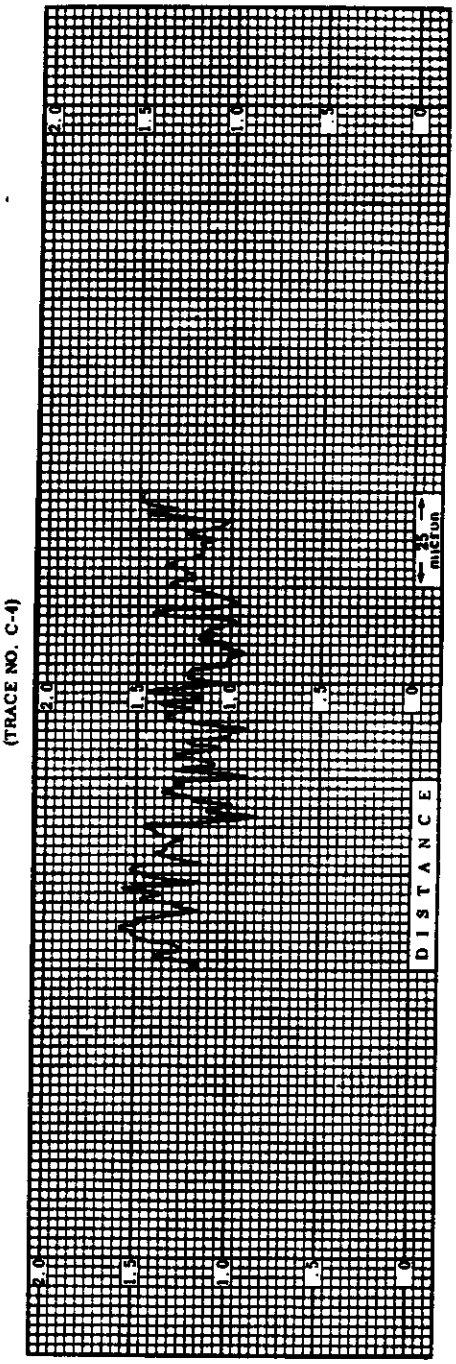
(TRACE NO. C-3)



PASS D16E FRAME 009 CAMERA POSITION FWD

MA SCAN SPEED 0.05mm/min. CHART SPEED 2"/min. SPOT SIZE 1.58μ

(TRACE NO. C-4)



PASS D16E FRAME 009 CAMERA POSITION FWD

MA SCAN SPEED 0.05mm/min. CHART SPEED 2"/min. SPOT SIZE 1.58μ

CORN DESCRIPTION

MISSION SEGMENT 1018-1 **PASS:** D16E **FRAME:** 009 **CAMERA POSITION:** Forward

LOCATION: Pahrump, Nevada **DATE:** 26 March 1965

TYPE OF DISPLAY: 1. Medium Contrast "T" Bar Target (Mobile) **RESOLUTION:** 1. 14'

REMARKS:

CAMERA DATA

ALTITUDE: 612,000'	**FOCAL LENGTH:** 609.628mm	**FILTER:** Wratten 25
SLIT WIDTH: 0.250"	**EXPOSURE TIME:** 1/260 sec.	**LENS:** f/3.5
TIME OF EXPOSURE: 2013Z	**FILM TYPE:** 4404	**EMULSION NO.** 4404-82
SUN ANGLE: 51°		

PROCESSING DATA

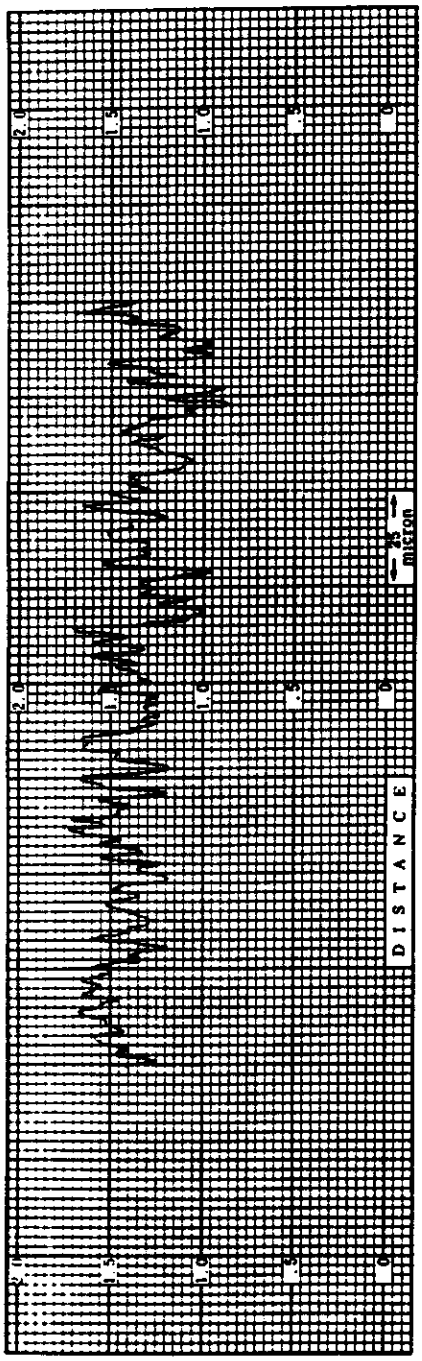
DEVELOPMENT LEVEL: Intermediate **BASE PLUS FOG:** 0.12 **Δ LOG E:** 0.22

MISSION 1018-1 PASS D16 FRAME 015 AFT
10 DIA ENLG 52° SUN ANGLE 36° LATITUDE

MISSION 1018-1 PASS D16 FRAME 015 AFT
40 DIA ENLG 52° SUN ANGLE 36° LATITUDE

MANN-DATA MICRO-ANALYZER TRACE

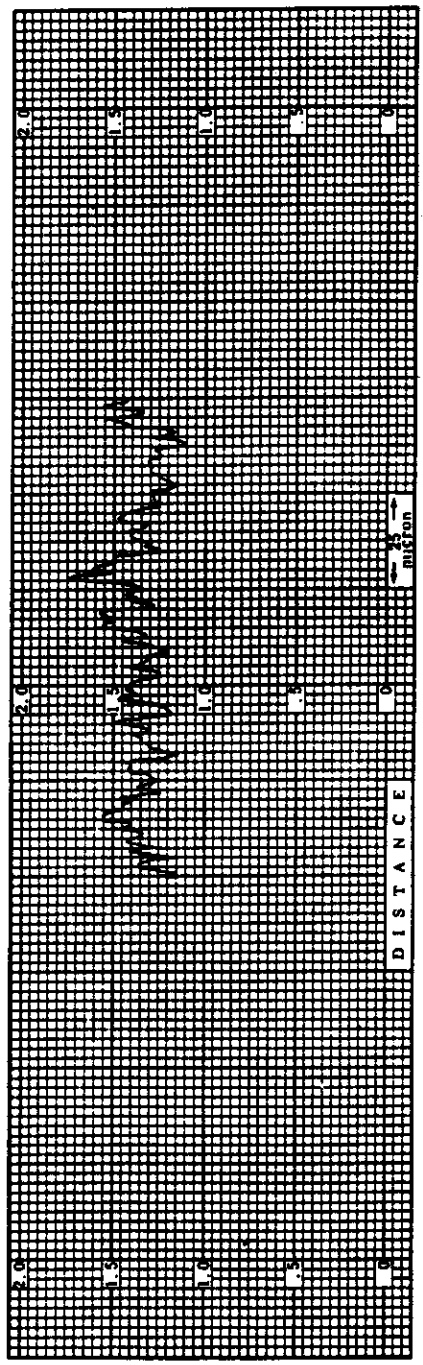
(TRACE NO. C-3)



PASS D16E FRAME 015 CAMERA POSITION AFT

MA SCAN SPEED 0.05mm/min. CHART SPEED 2"/min. SPOT SIZE 1.58μ

(TRACE NO. C-4)



PASS D16E FRAME 015 CAMERA POSITION AFT

MA SCAN SPEED 0.05mm/min. CHART SPEED 2"/min. SPOT SIZE 1.58μ

CORN DESCRIPTION

MISSION SEGMENT 1018-1 **PASS:** D16E **FRAME:** 015 **CAMERA POSITION:** Aft

LOCATION: Pahrump, Nevada **DATE:** 26 March 1965

TYPE OF DISPLAY: 1. Medium Contrast "T" Bar Target (Mobile) **RESOLUTION:** 1. 14'

REMARKS:

CAMERA DATA

ALTITUDE: 612,000'	**FOCAL LENGTH:** 609.295mm	**FILTER:** Wratten 21
SLIT WIDTH: 0.175"	**EXPOSURE TIME:** 1/390 sec.	**LENS:** f/3.5
TIME OF EXPOSURE: 2013Z	**FILM TYPE:** 4404	**EMULSION NO.** 4404-82
SUN ANGLE: 52°		

PROCESSING DATA

DEVELOPMENT LEVEL: Intermediate **BASE PLUS FOG:** 0.12 **Δ LOG E:** 0.38

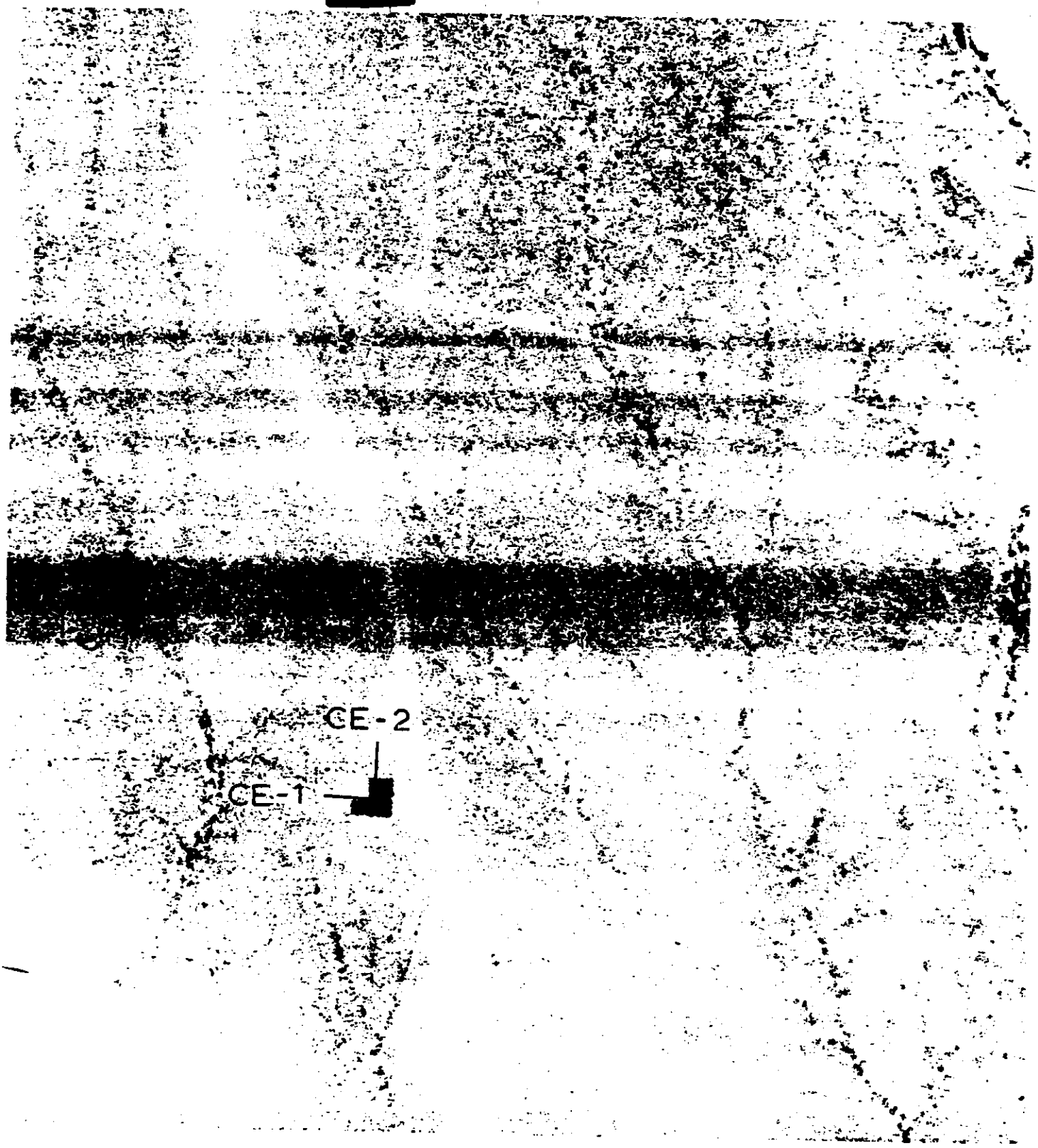
CORN WEATHER DATA

Location: Pahrump, Nevada Time: 2025Z Date: 26 March 1965

PRESSURE (millibars)	ALTITUDE (feet)	TEMPERATURE (C°)	DEW POINT (C°)	RELATIVE HUMIDITY (%)	WIND	
					Direction (0° - 360°)	Speed (knots)
859		13.5	-3.6	30		
850	4,678	12.6	-4.5	30	192	7
796		6.2	-10.1	30		
709		-2.0		50		
700	9,840	-2.9	-11.6	51	279	4
661		-6.7	-13.6	58		
580		-15.5	-21.1	62		
570		-16.9	-20.9	71		
551		-18.7		66		
530		-20.9	-24.0	76		
519		-19.7	-34.7	25		
502		-18.5	-41.0	12		
500	18,238	-18.5	-41.0	12	297	14
400	22,049	-32.8	-49.3	18	309	14
346		-40.8	-56.6	17		
291		-48.9		20		
253		-54.7		19	280	15
222		-60.5	-72.8	20		
200	38,484	-63.8	-75.4	20	280	16
189		-64.5	-76.3	20		
176		-61.8	-73.6	20		
168		-63.8	-75.4	20		
154		-64.0	-75.4	20	280	14
146		-61.6		20		
138		-60.6	-73.1	19		
127		-57.3	* MB	MB		
114		-57.8	MB	MB		
100	52,723	-60.9	MB	MB	270	14
93		-64.0	MB	MB		
84		-61.8	MB	MB		
78		-62.7	MB	MB		
74		-61.6	MB	MB		
65		-62.5	MB	MB	275	8
60		-57.1	MB	MB		
56		-59.2	MB	MB		
50	67,027	-59.0	MB	MB		
43		-64.5	MB	MB		
37		-62.0	MB	MB		
33		-54.0	MB	MB	270	9
31		-55.2	MB	MB		
29		-52.3	MB	MB		
27		-47.2	MB	MB		
25		-46.6	MB	MB		
23	82,020	-43.2	MB	MB		
22		-35.9	MB	MB		
20		-35.9	MB	MB		
19		-34.7	MB	MB		

* MB: No reading could be taken.

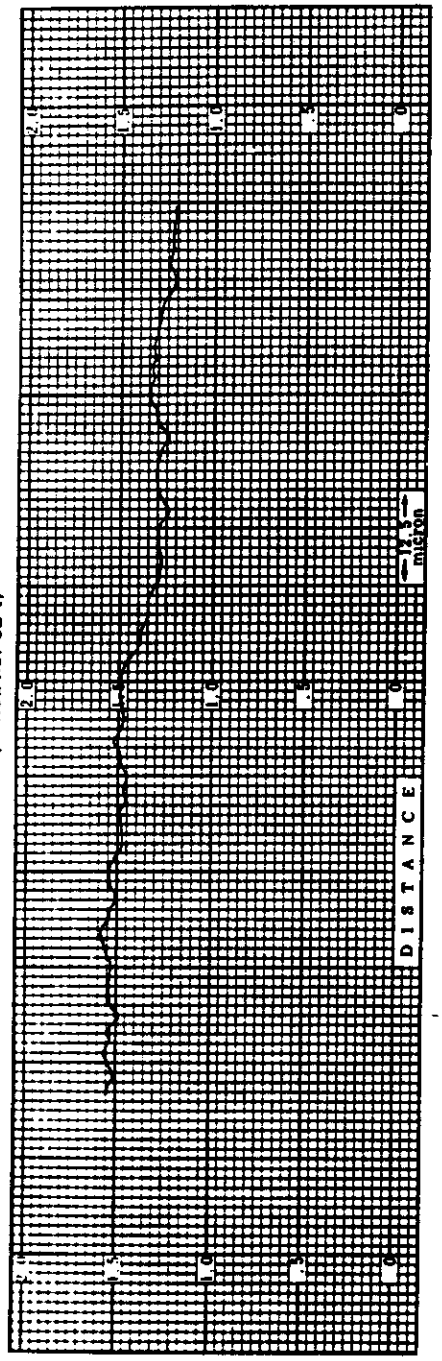
MISSION 1018-1 PASS D32 FRAME 010 FWD
10 DIA ENLG 55° SUN ANGLE 32° LATITUDE



MISSION 1018-1 PASS D32 FRAME 010 FWD
40 DIA ENLG 55° SUN ANGLE 32° LATITUDE

MANN-DATA MICRO-ANALYZER TRACE

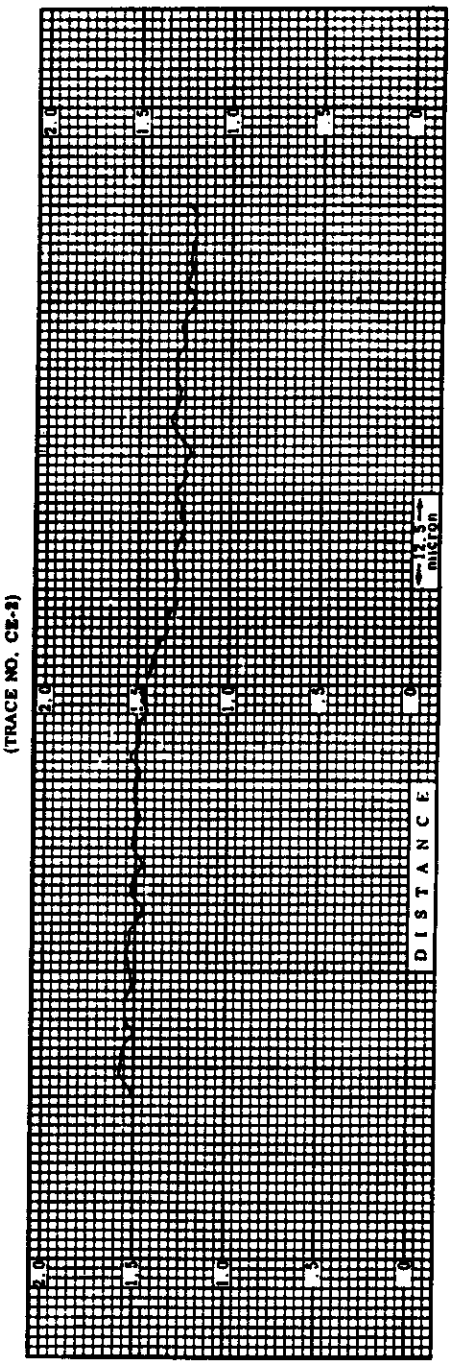
(TRACE NO. CE-1)



PASS D32 FRAME 010 CAMERA POSITION FWD

MA SCAN SPEED 0.05mm/min. CHART SPEED 4"/min. SLIT SIZE 1μ x 80μ

(TRACE NO. CE-2)



PASS D32 FRAME 010 CAMERA POSITION FWD

MA SCAN SPEED 0.05mm/min. CHART SPEED 4"/min. SLIT SIZE 1μ x 80μ

CORN DESCRIPTION

MISSION SEGMENT 1018-1 PASS: D32 FRAME: 010 CAMERA POSITION: Forward

LOCATION: Palomas Plain, Arizona DATE: 27 March 1965

TYPE OF DISPLAY: 1. 200' Controlled Scene Brightness Target (Mobile)

RESOLUTION: (Average)
1. MTF/AIM: 18.2'
50% Spread: 12.7'
M-RES: 14.9'
V-RES: 13.4'

REMARKS:

CAMERA DATA

ALTITUDE: 605,000' FOCAL LENGTH: 609.628mm FILTER: Wratten 25

SLIT WIDTH: 0.250" EXPOSURE TIME: 1/260 sec. LENS: f/3.5

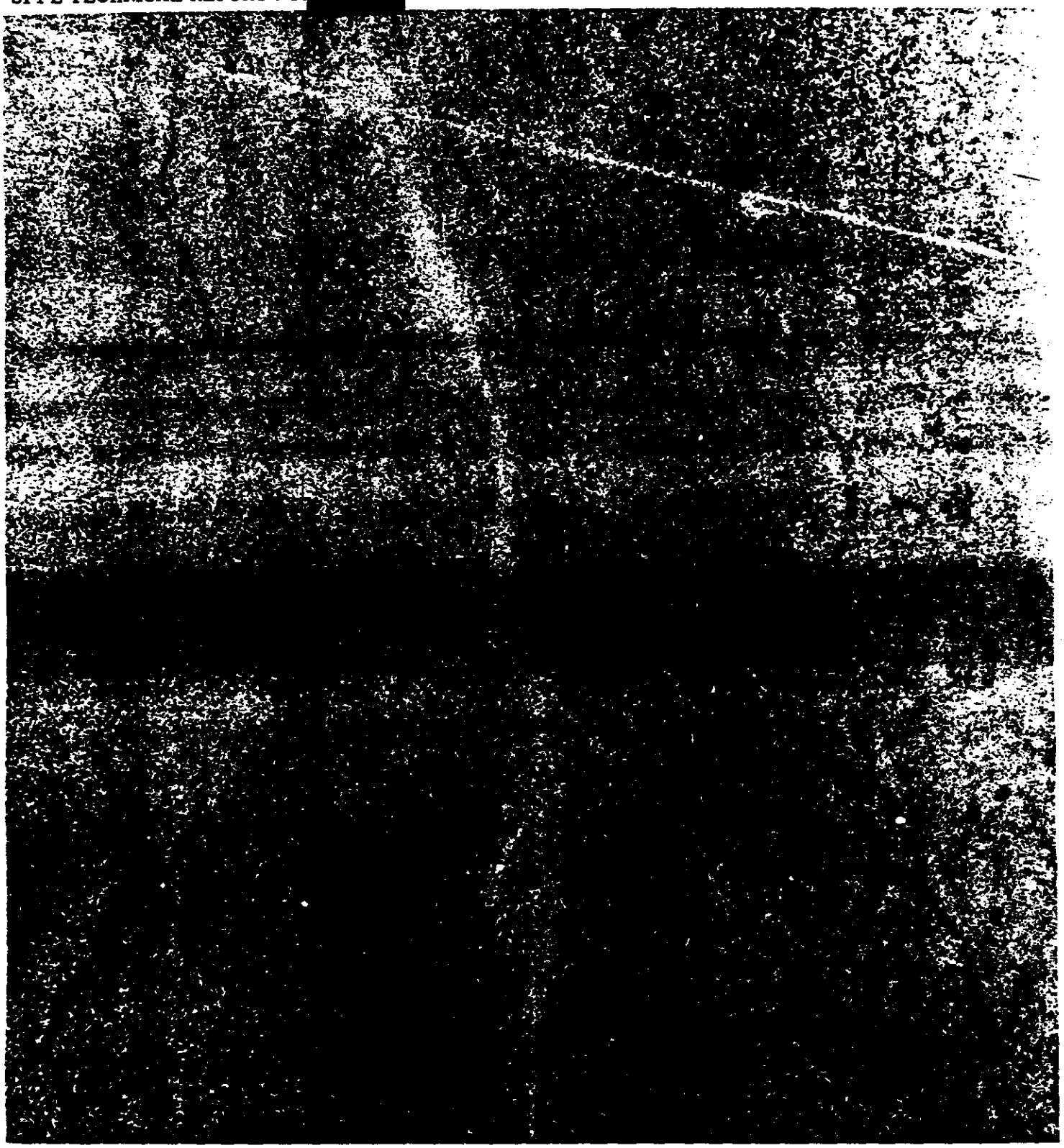
TIME OF EXPOSURE: 2011Z FILM TYPE: 4404 EMULSION NO. 4404-82

SUN ANGLE: 55°

PROCESSING DATA

DEVELOPMENT LEVEL: Intermediate BASE PLUS FOG: 0.13 Δ LOG E: 0.12

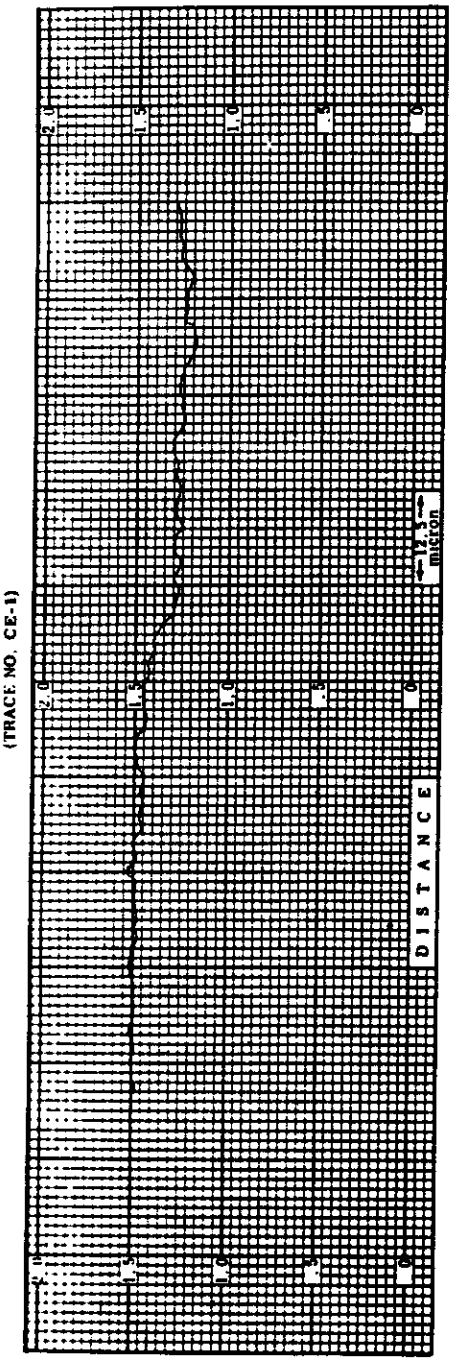
MISSION 1018-1 PASS D32 FRAME 016 AFT
10 DIA ENLG 56° SUN ANGLE 32° LATITUDE



MISSION 1018-1 PASS D32 FRAME 016 AFT
40 DIA ENLG 56° SUN ANGLE 32° LATITUDE

MANN-DATA MICRO-ANALYZER TRACE

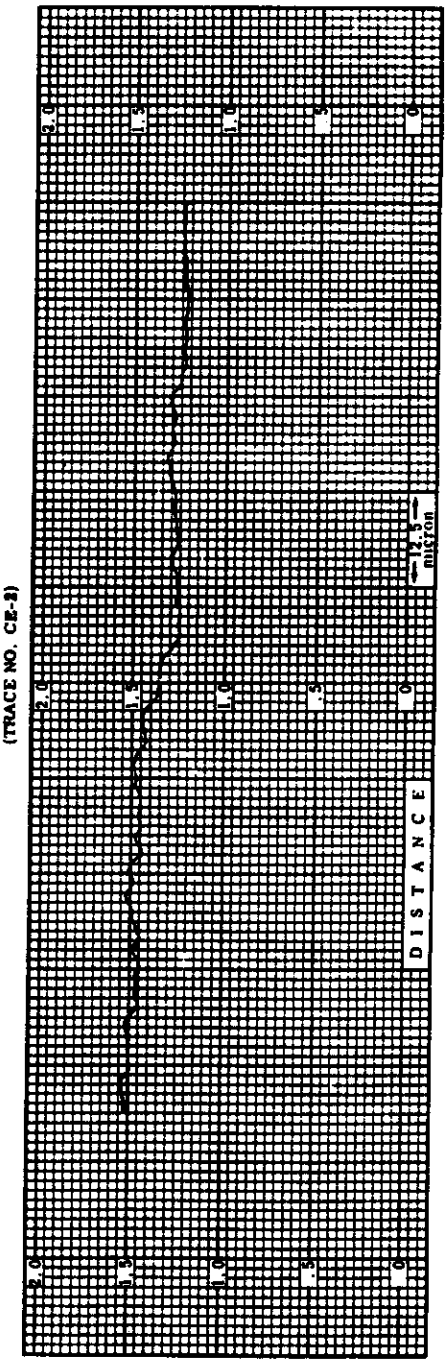
(TRACE NO. CE-1)



PASS D32 FRAME 016 CAMERA POSITION AFT

MA SCAN SPEED 0.05mm/min. CHART SPEED 4"/min. SLIT SIZE 1μ x 80μ

(TRACE NO. CE-2)



PASS D32 FRAME 016 CAMERA POSITION AFT

MA SCAN SPEED 0.05mm min. CHART SPEED 4"/min. SLIT SIZE 1μ x 80μ

CORN DESCRIPTION

MISSION SEGMENT 1018-1 **PASS:** D32 **FRAME:** 016 **CAMERA POSITION:** Aft

LOCATION: Palomas Plain, Arizona **DATE:** 27 March 1965

TYPE OF DISPLAY: 1. 200' Controlled Scene Brightness Target (Mobile)

RESOLUTION: (Average)
1. MTF/AIM: 14.3'
50% Spread: 12.1'
M-RES: 12.4'
V-RES: 15.9'

REMARKS:

CAMERA DATA

ALTITUDE: 605,000'	FOCAL LENGTH: 609.295mm	FILTER: Wratten 21
SLIT WIDTH: 0.175"	EXPOSURE TIME: 1/390 sec.	LENS: f/3.5
TIME OF EXPOSURE: 2011Z	FILM TYPE: 4404	EMULSION NO. 4404-82
SUN ANGLE: 56°		

PROCESSING DATA

DEVELOPMENT LEVEL: Intermediate **BASE PLUS FOG:** 0.12 **Δ LOG E:** 0.12

CORN WEATHER DATA

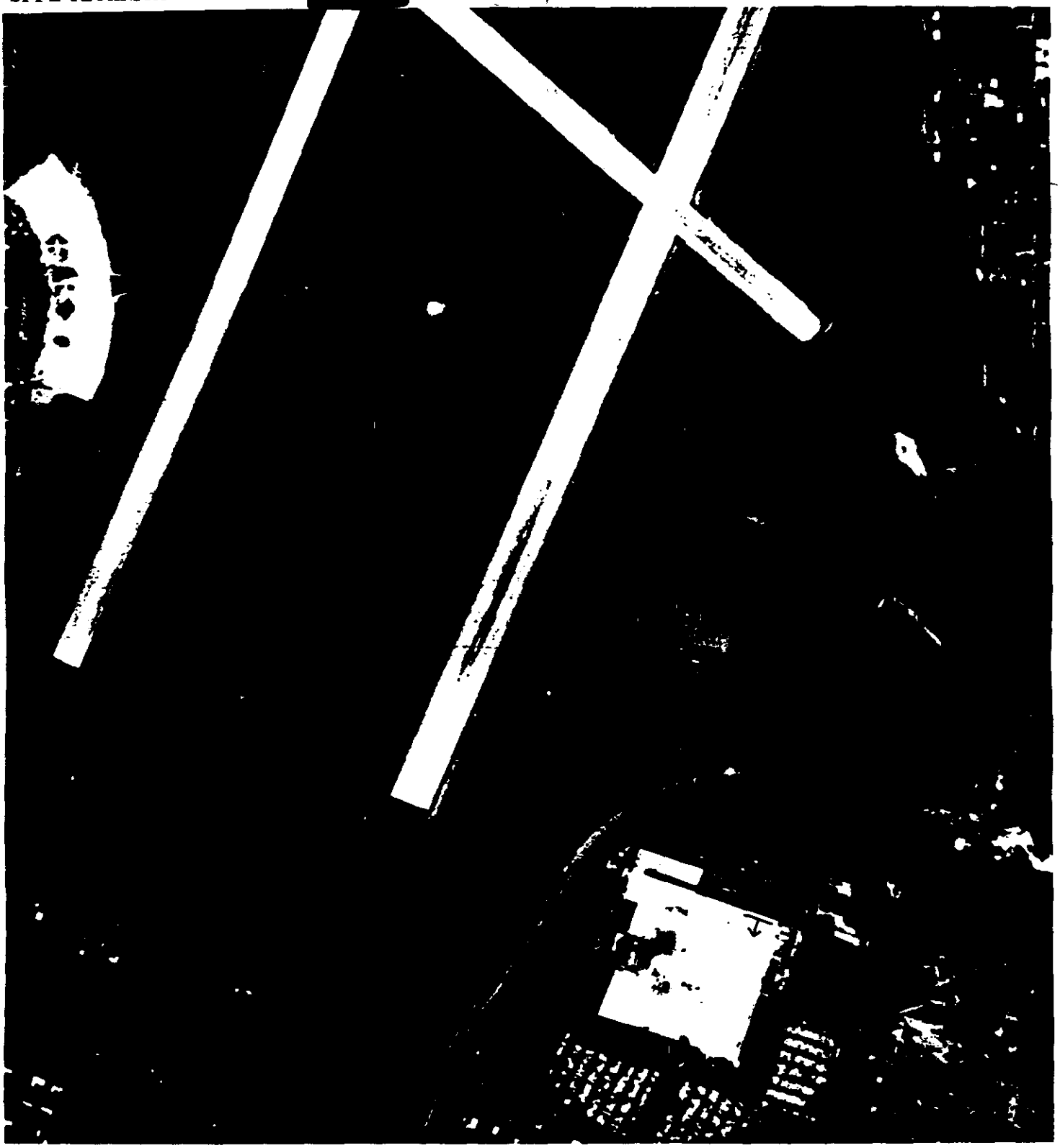
Location: Yuma, Arizona Time: 2000Z Date: 27 March 1965

PRESSURE (millibars)	ALTITUDE (feet)	TEMPERATURE (C°)	DEW POINT (C°)	RELATIVE HUMIDITY (%)	WIND	
					Direction (0° - 360°)	Speed (knots)
995		24.5	3.2	25		
985		21.9	-0.8	22		
912		16.3	-3.2	26		
850	4,678	12.2	-5.3	29		
764		6.0	-9.8	31		
700	9,840	0.4	-18.3	23		
672		-2.2	-22.7	19		
636		-2.6	-30.1	10		
542		-12.7	-34.7	14		
500	18,238	-16.5	-31.6	26		
492		-17.3	-31.5	28		
435		-25.2	-33.3	46		
400	22,049	-29.2	-36.2	51		
337		-39.5	-47.6	42		
300	29,258	-46.2	*MB	MB		
260		-54.2	MB	MB		
250	33,957	-55.8	MB	MB		
222		-60.8	MB	MB		
200	38,484	-62.2	MB	MB		
186		-63.1	MB	MB		
174		-58.9	MB	MB		
150	44,324	-60.5	MB	MB		

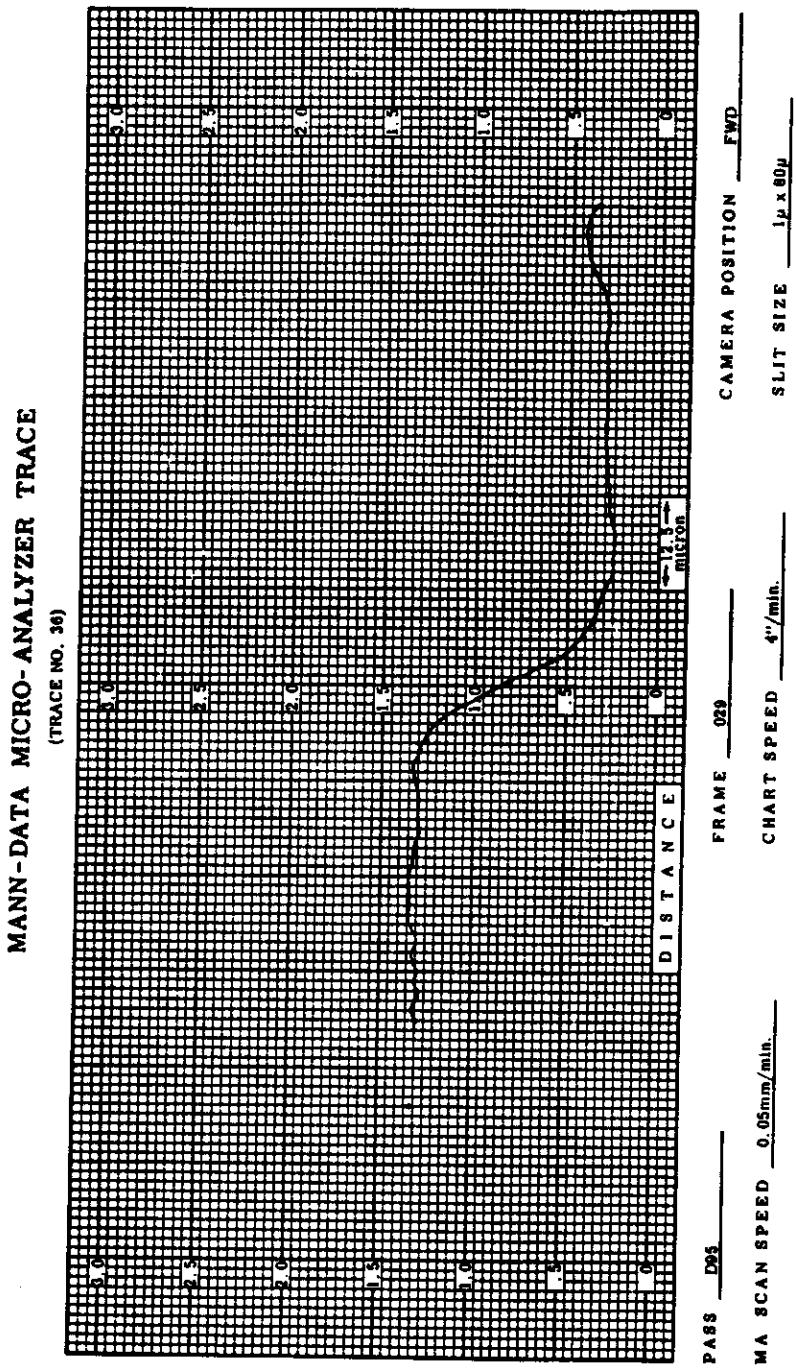
Wind data was not valid due to the failure of the TMQ-5 (Control Recorder).

*MB: No reading could be taken.

MISSION 1018-2 PASS D95 FRAME 029 FWD
10 DIA ENLG 42° SUN ANGLE 49° LATITUDE



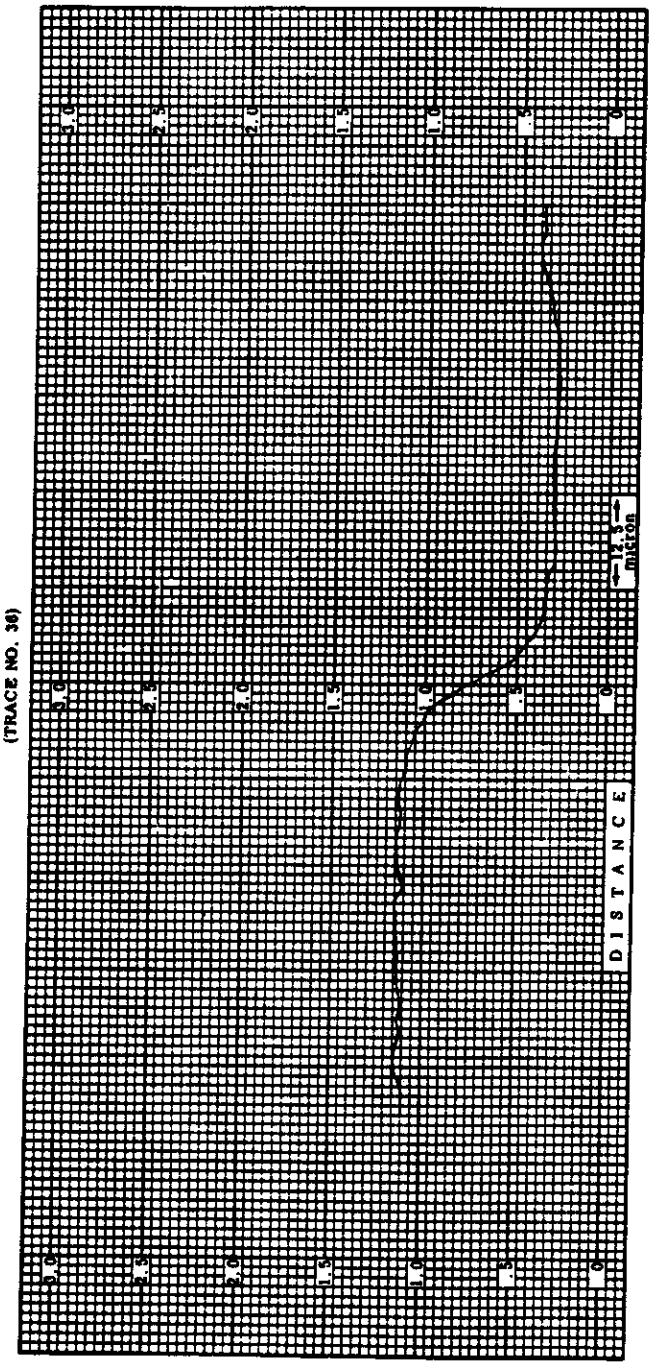
MISSION 1018-2 PASS D95 FRAME 029 FWD
40 DIA ENLG 42° SUN ANGLE 49° LATITUDE


MANN-DATA MICRO-ANALYZER TRACE
(TRACE NO. 36)
5.0
2.5
2.0
1.5
1.0
.5
0
DISTANCE
12.5 micron
PASS D95
FRAME 029
CAMERA POSITION FWD
MA SCAN SPEED 0.05mm/min.
CHART SPEED 4"/min.
SLIT SIZE 1μ x 80μ

MISSION 1018-2 PASS D95 FRAME 035 AFT
10 DIA ENLG 41° SUN ANGLE 49° LATITUDE

MISSION 1018-2 PASS D95 FRAME 035 AFT
40 DIA ENLG 41° SUN ANGLE 49° LATITUDE

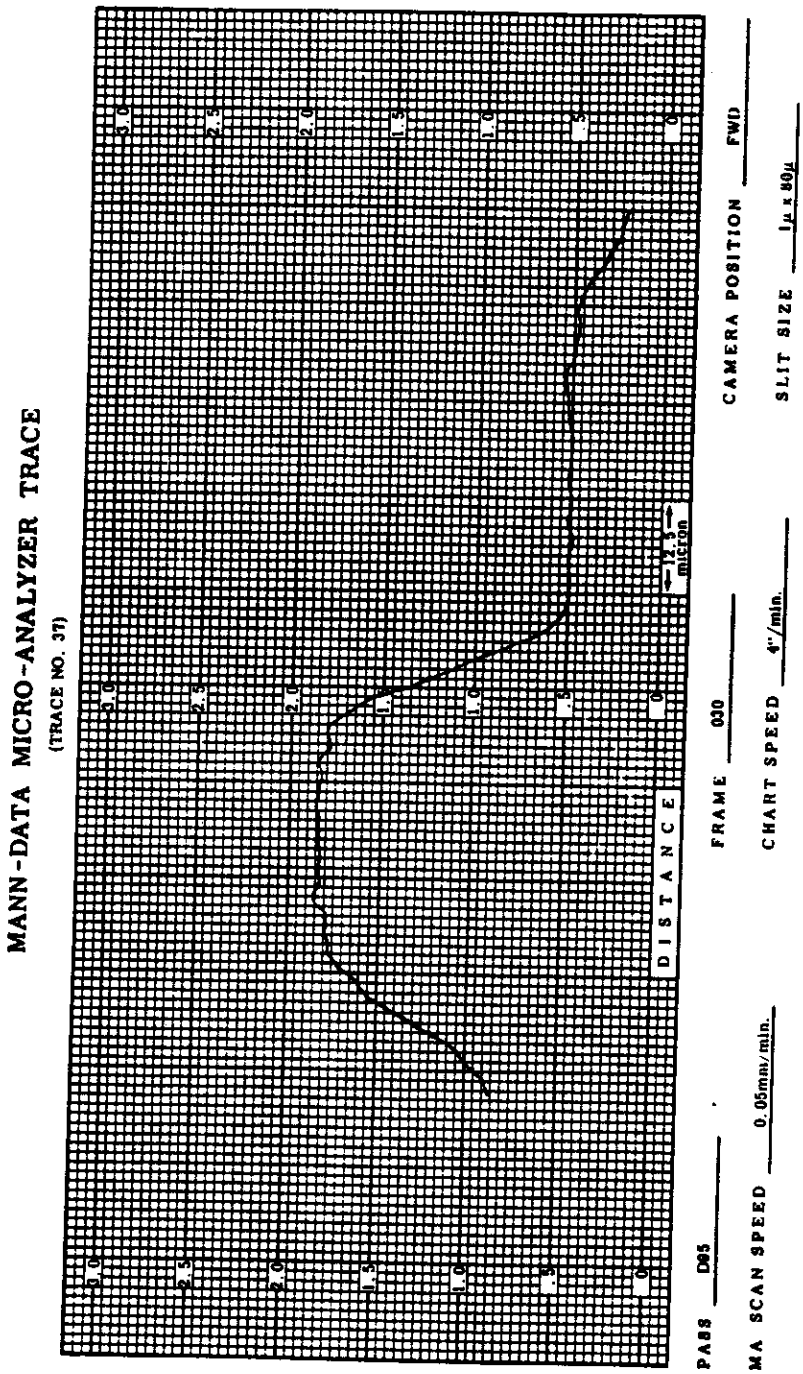
MANN-DATA MICRO-ANALYZER TRACE
(TRACE NO. 36)

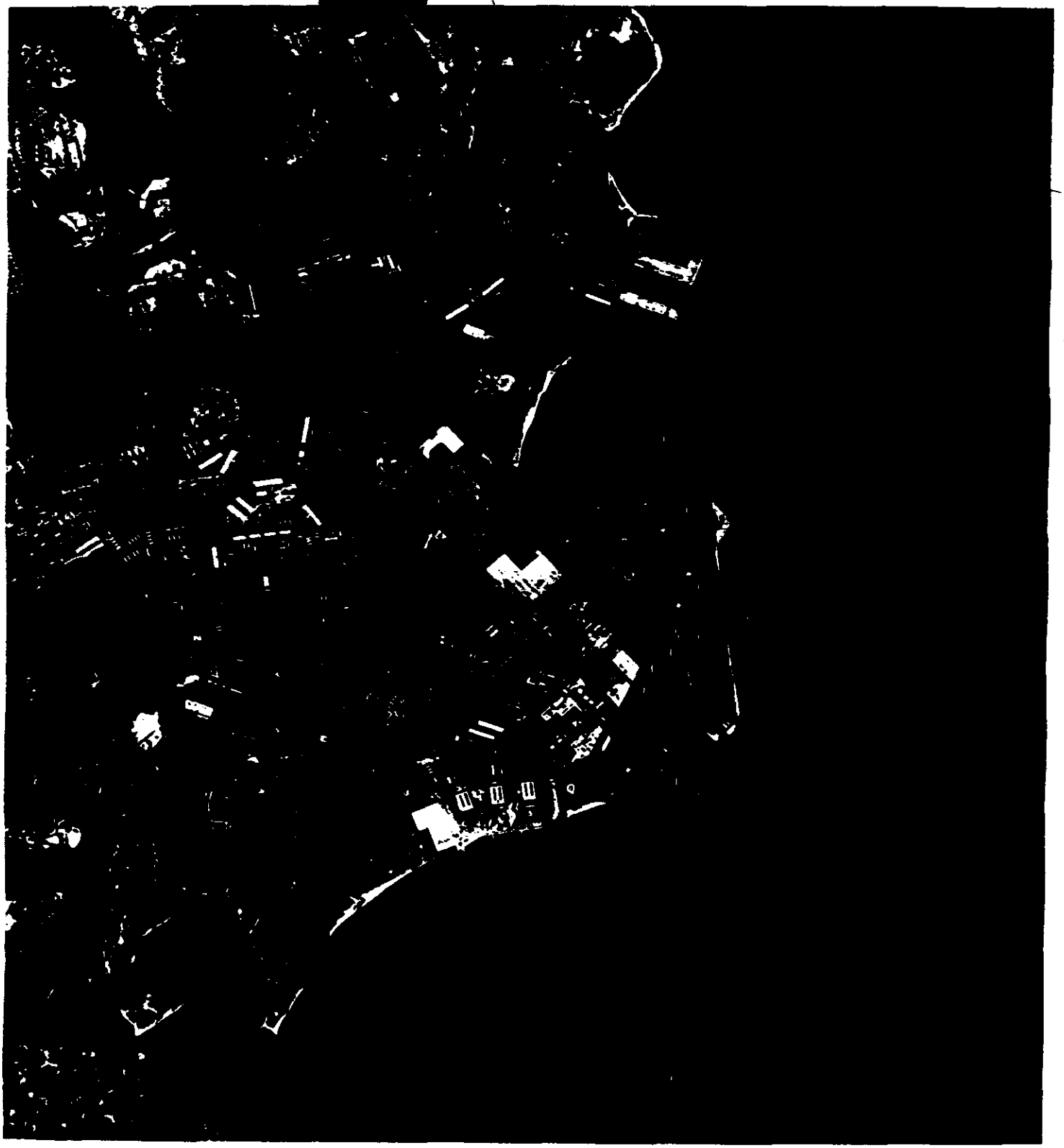


CAMERA POSITION AFT
SLIT SIZE 1μ x 80μ
FRAME 035
CHART SPEED 4"/min.
PASS D95
MA SCAN SPEED 0.05mm/min.

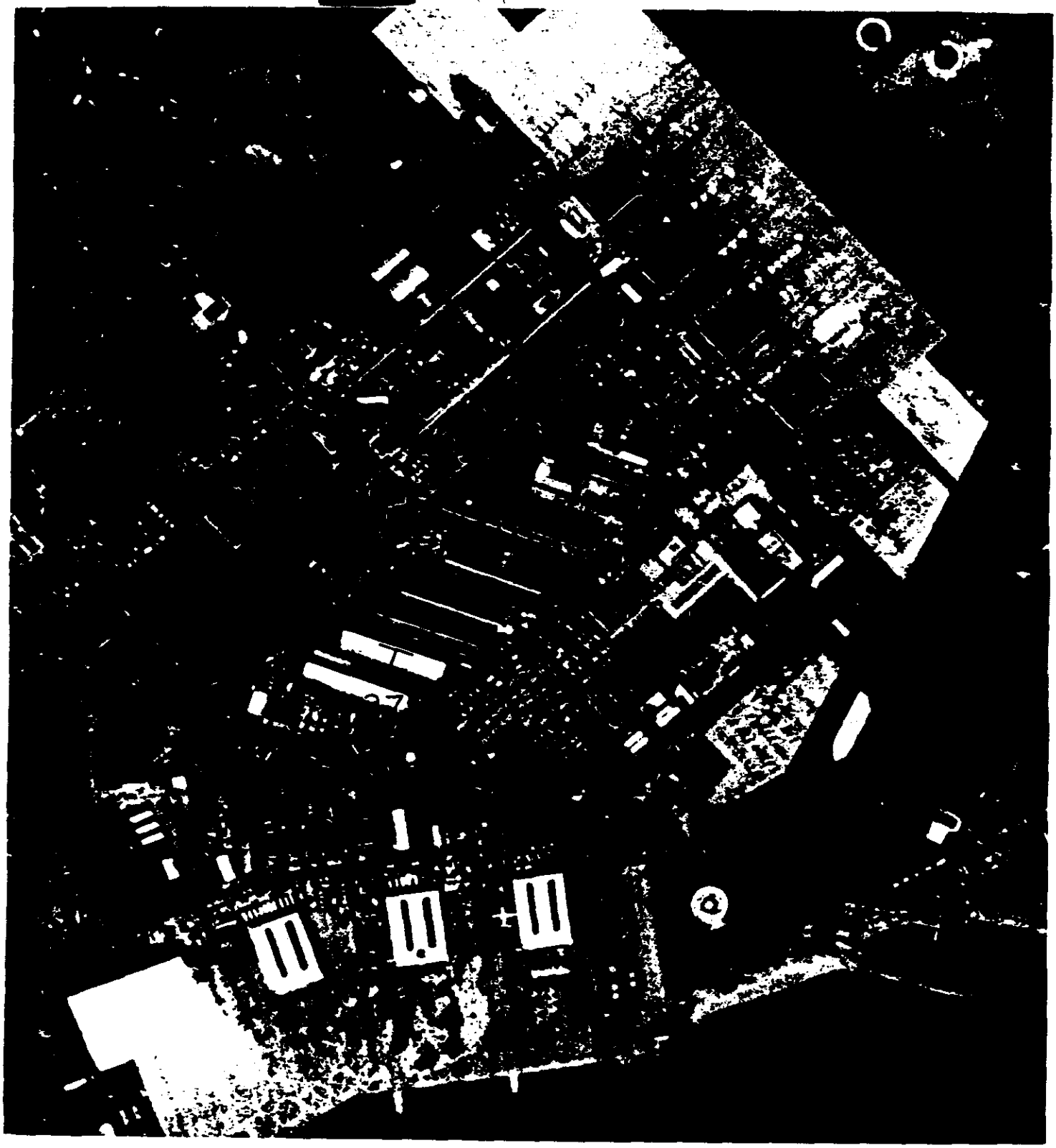
MISSION 1018-2 PASS D95 FRAME 030 FWD
10 DIA ENLG 42° SUN ANGLE 49° LATITUDE

MISSION 1018-2 PASS D95 FRAME 030 FWD
40 DIA ENLG 42° SUN ANGLE 49° LATITUDE


MANN-DATA MICRO-ANALYZER TRACE
(TRACE NO. 37)
3.0
2.5
2.0
1.5
1.0
.5
0
DISTANCE
12.5 micron
PASS D95
FRAME 030
CAMERA POSITION FWD
MA SCAN SPEED 0.05mm/min.
CHART SPEED 4"/min.
SLIT SIZE 1μ x 80μ

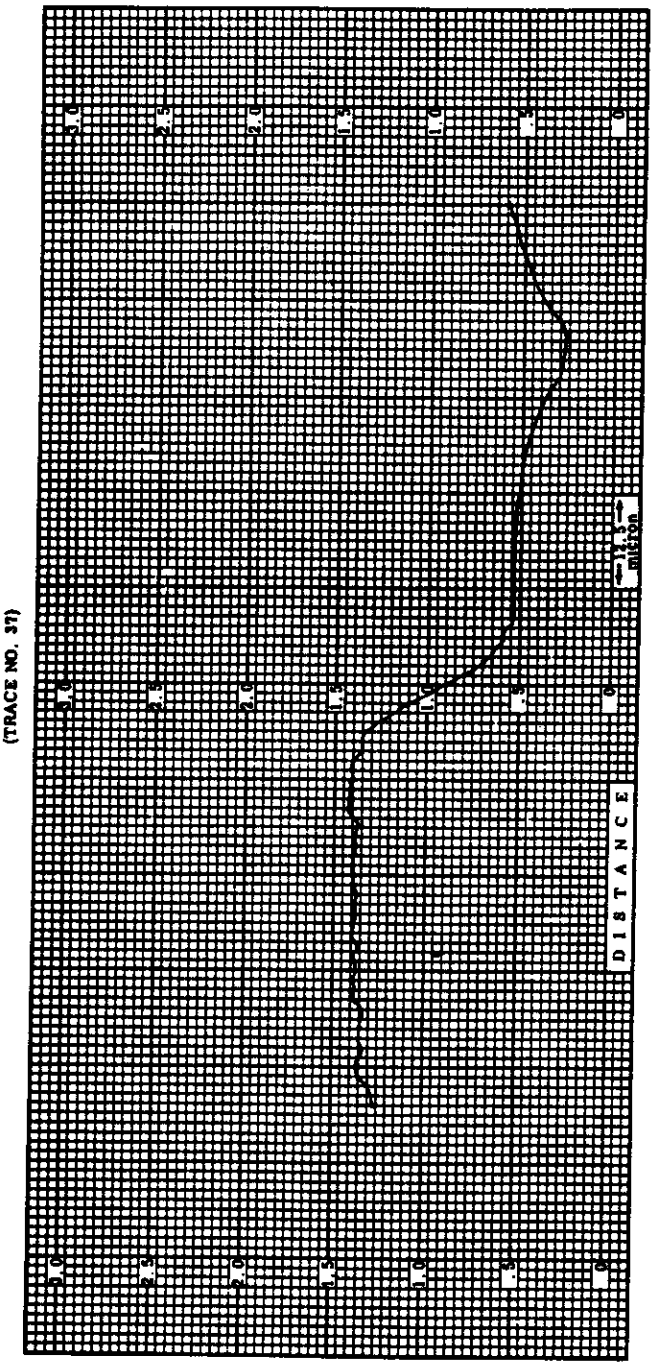


MISSION 1018-2 PASS D95 FRAME 036 AFT
10 DIA ENLG 41° SUN ANGLE 49° LATITUDE



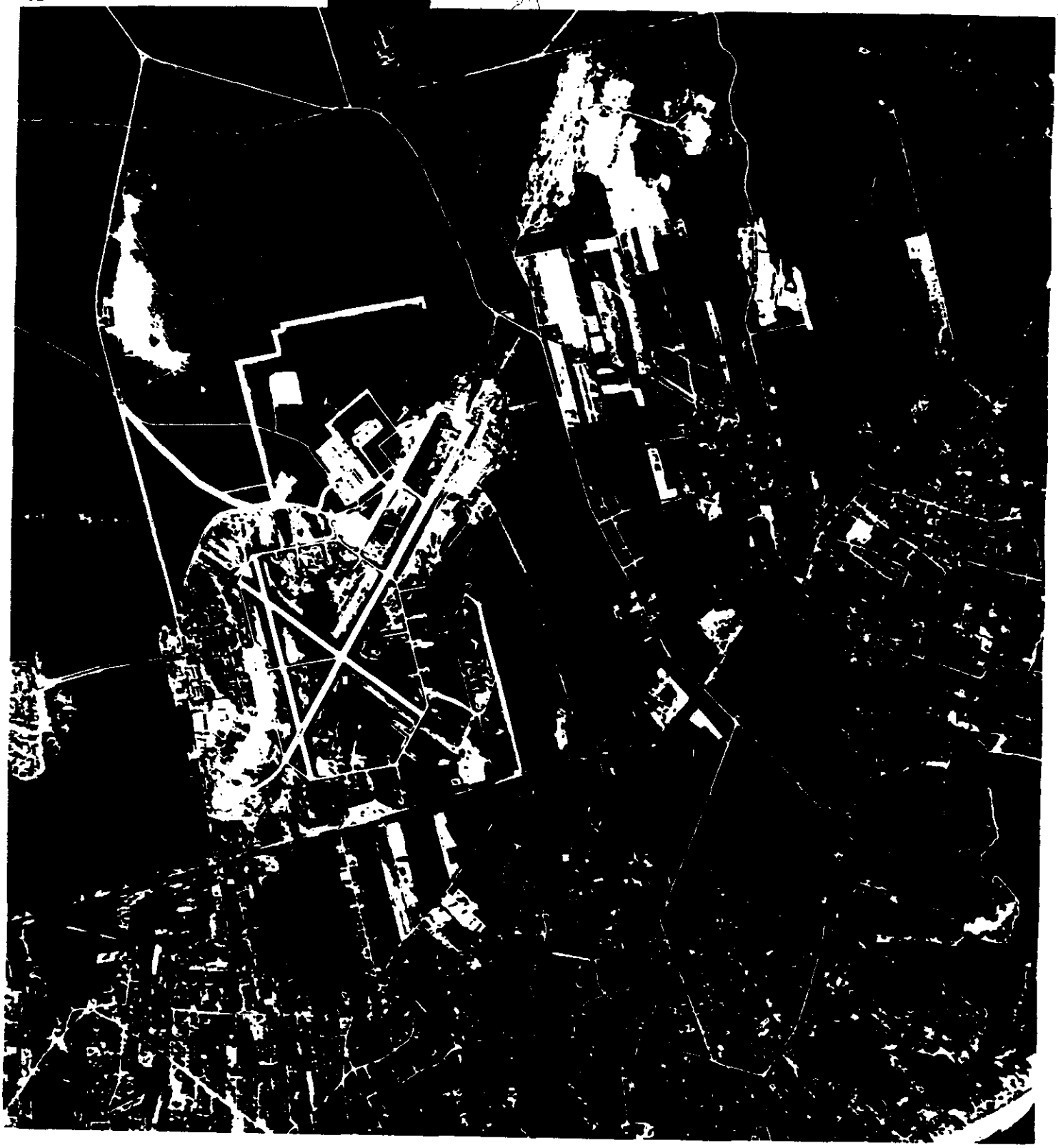
MISSION 1018-2 PASS D95 FRAME 036 AFT
40 DIA ENLG 41° SUN ANGLE 49° LATITUDE

MANN-DATA MICRO-ANALYZER TRACE
(TRACE NO. 37)



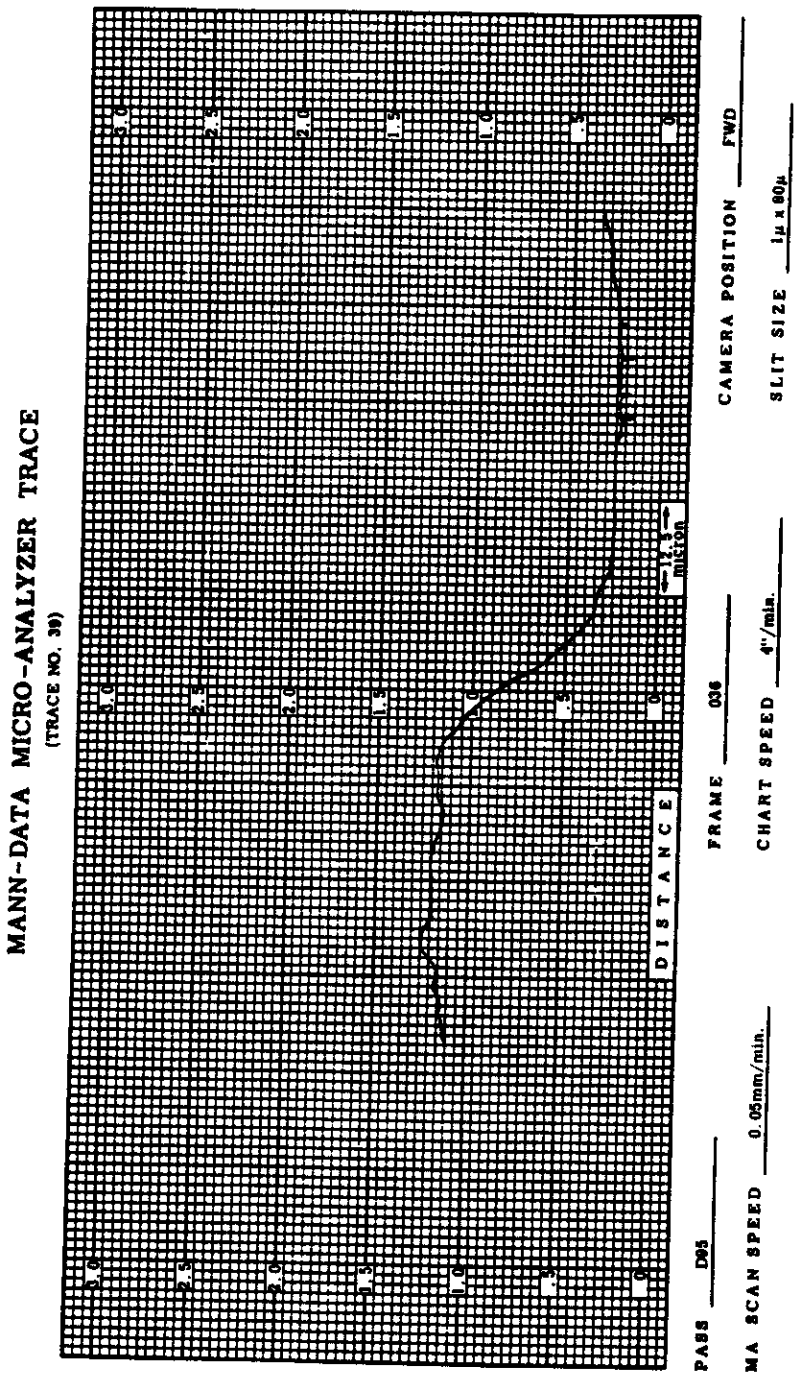
PASS 1305 FRAME 036 CAMERA POSITION AFT

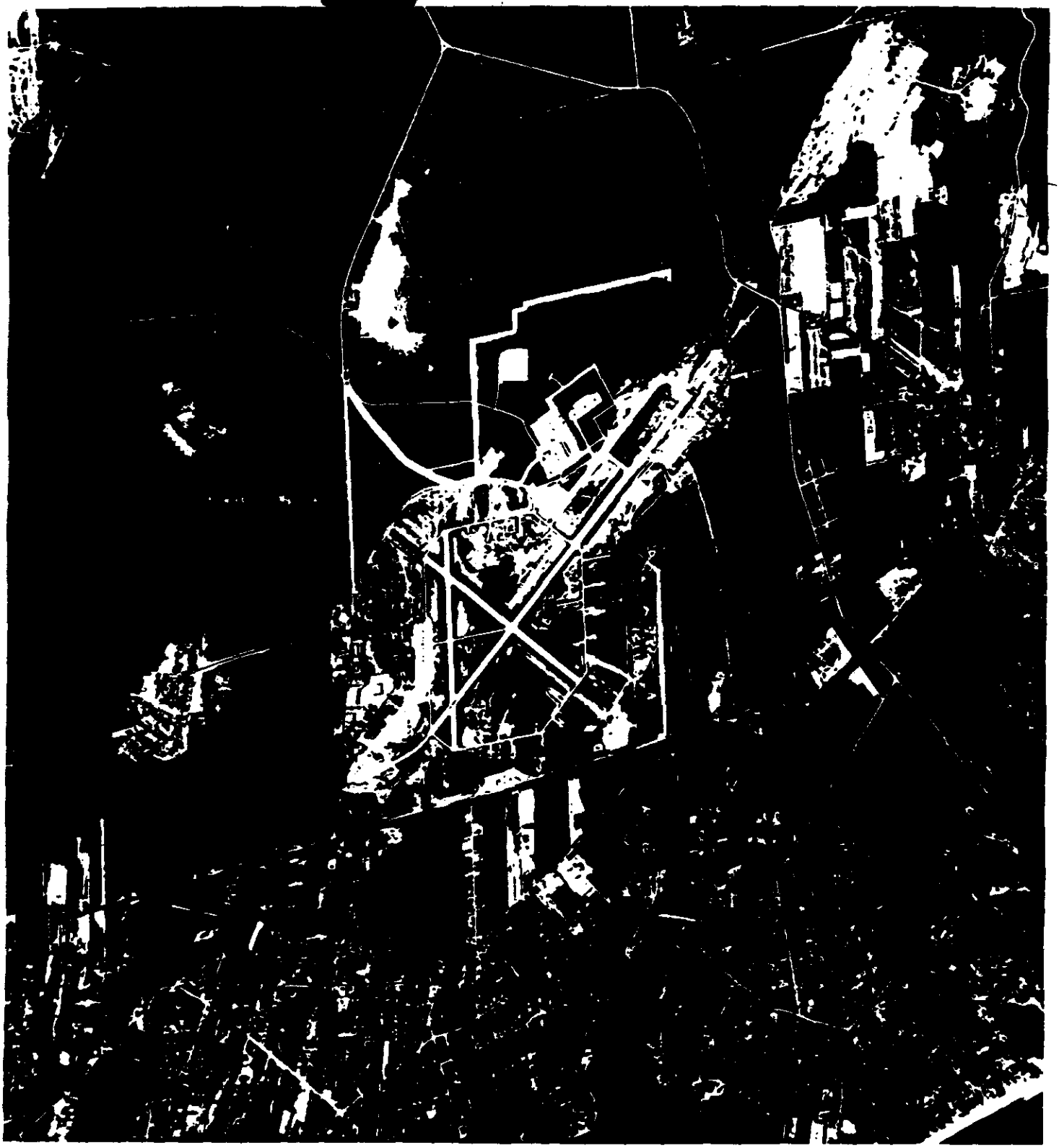
MA SCAN SPEED 0.05mm/min. CHART SPEED 4"/min. SLIT SIZE 1μ x 80μ



MISSION 1018-2 PASS D95 FRAME 036 FWD
10 DIA ENLG 41° SUN ANGLE 50° LATITUDE

MISSION 1018-2 PASS D95 FRAME 036 FWD
40 DIA ENLG 41° SUN ANGLE 50° LATITUDE

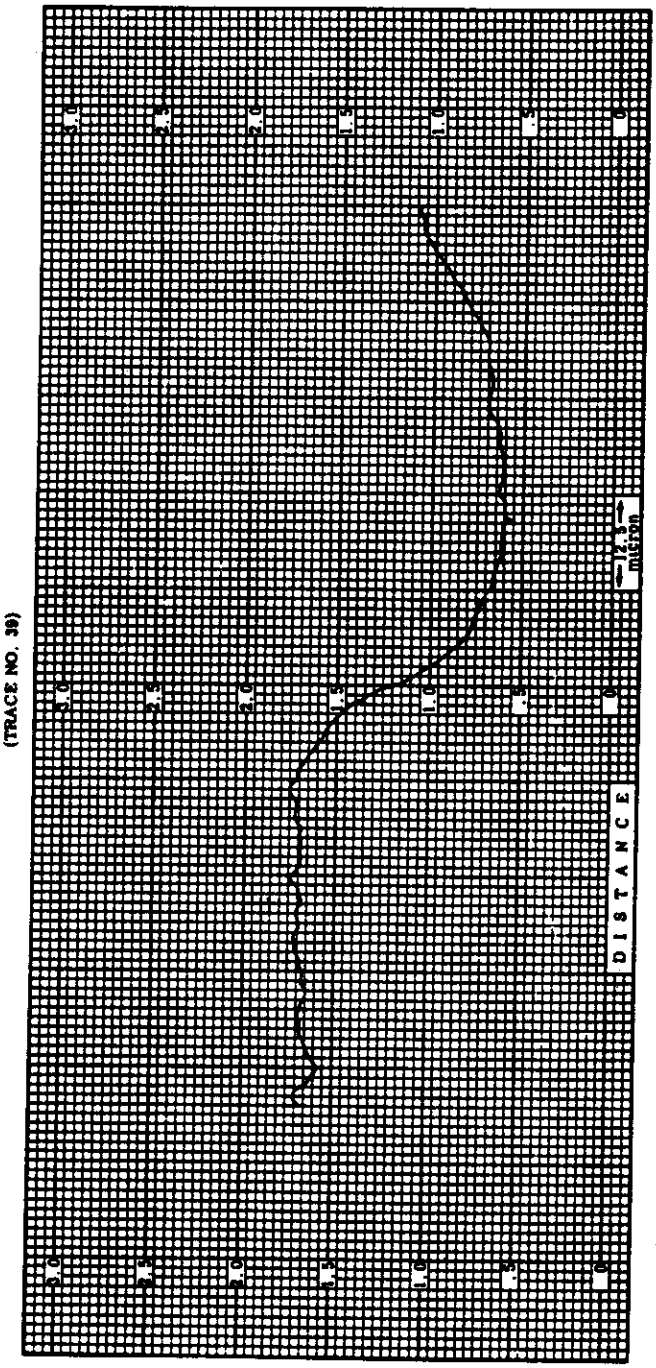

MANN-DATA MICRO-ANALYZER TRACE
(TRACE NO. 39)
3.0
2.5
2.0
1.5
1.0
.5
0
DISTANCE
12.5 micron
PASS D95
FRAME 036
CAMERA POSITION FWD
MA SCAN SPEED 0.05mm/min.
CHART SPEED 4"/min.
SLIT SIZE 1μ x 80μ



MISSION 1018-2 PASS D95 FRAME 042 AFT
10 DIA ENLG 39° SUN ANGLE 50° LATITUDE

MISSION 1018-2 PASS D95 FRAME 042 AFT
40 DIA ENLG 39° SUN ANGLE 50° LATITUDE

MANN-DATA MICRO-ANALYZER TRACE
(TRACE NO. 39)



CAMERA POSITION AFT
SLIT SIZE 1μ x 80μ
FRAME 042
CHART SPEED 4"/min.
PASS D95
MA SCAN SPEED 0.05mm/min.

MISSION SEGMENT 1018-1

TABLE 7 - EDGE SCAN DATA

Forward Camera

Mission Data			MTF AIM	Spread Function Width at 50% Amplitude		M-RES	V-RES	Density		Subject	Grid		Orientation
Trace Nr.	Pass Nr.	Frame Nr.		Microns	Reciprocal			Dmin	Dmax		X	Y	
1	D24	093	80	14.5	69	57	75	0.42	1.45	Dam	51.2	11.4	73°
3	D24	094	67	12.9	77	73	85	0.50	1.42	Ramp	39.9	11.4	76°
4	D25	038	81	12.1	83	67	82	0.60	1.27	Ramp	21.9	12.3	122
5	D26	056	55	17.6	57	55	89	0.78	1.85	Runway	74.6	11.9	116°
6	D26	058	68	15.4	65	57	78	0.94	1.87	Runway	72.8	10.6	130°
8	D31	013	71	13.5	74	72	90	0.65	1.05	Runway	26.3	11.4	78°
9	D31	013	72	11.3	89	77	90	0.57	1.47	Runway	54.1	10.3	84°
10	D31	013	50	10.7	93	79	92	1.29	1.89	Building	53.7	10.3	39°
12	D31	019	88	10.6	94	84	78	0.63	1.42	Ramp	58.8	11.5	115°
13	D25	058	63	11.0	91	91	65	0.40	0.80	Building	40.7	10.3	42°
14	D36	042	88	9.1	110	108	67	0.91	1.30	Runway	42.3	9.8	55°
15	D42	011	85	12.7	79	60	82	1.30	2.01	Ramp	12.6	13.0	29°
16	D42	073	70	13.9	72	60	80	0.52	1.47	Ramp	43.3	13.2	93°
17	D42	074	63	12.6	79	53	78	0.74	1.43	Runway	72.6	11.3	96°
18	D42	074	76	14.1	71	42	80	0.66	1.83	Building	79.7	13.3	111°
19	D54	081	63	19.2	52	45	70	0.45	1.23	Dam	40.3	14.0	153°
20	D54	087	88	11.0	91	82	78	1.27	1.63	Building	77.3	12.7	116°
21	D54	089	64	16.0	63	66	82	1.17	1.51	Runway	72.4	12.2	80°
22	D59	007	77	10.8	92	59	78	0.68	1.36	Runway	70.4	13.5	167°
23	D59	007	45	18.4	54	62	78	0.66	1.76	Runway	41.8	11.7	146°
24	D59	009	83	12.2	82	65	79	0.78	1.25	Runway	62.3	12.2	156°
25	D59	010	40	18.7	53	52	72	0.77	1.43	Runway	77.4	12.0	166°
26	D59	011	57	14.4	69	62	87	0.77	1.44	Ramp	65.2	10.7	5
28	D59	012	111	9.9	101	84	78	0.50	0.95	Building	74.3	11.5	116°
29	D59	014	46	21.1	47	39	90	0.82	1.48	Runway	80.7	11.5	147°
30	D60	019	88	12.0	83	73	82	0.53	1.45	Ramp	45.7	10.9	157
CE-1*	D32	010	58	11.1	90	88	78	1.30	1.54	CORN	34.7	14.3	92
CE-2*	D32	010	51	14.0	71	53	70	1.25	1.57	CORN	34.7	14.3	2
AVERAGE			70	13.6	77	67	79	0.78	1.47				

*Photographic enlargements (10X and 40X) and Micro-Analyzer traces are included in Appendix 6, pages 6-39 through 6-43.

MISSION SEGMENT 1018-1

TABLE 7 EDGE SCAN DATA (Continued)

All Cameras

Mission Data			MTF AIM	Spread Function Width at 50% Amplitude		M-RES	V-RES	Density		Subject	Grid		Orientation
Frame Nr.	Pass Nr.	Frame Nr.		Microns	Reciprocal			Dmin	Dmax		X	Y	
1	D24	099	76	13.5	74	60	68	0.54	1.63	Dam	40.4	12.6	70°
3	D24	100	80	12.6	79	83	89	0.65	1.46	Ramp	51.7	12.6	79°
4	D25	044	95	12.3	81	51	85	0.63	1.40	Ramp	69.6	12.5	132
5	D26	062	75	8.8	114	86	82	1.32	2.05	Runway	17.0	12.5	103°
6	D26	064	71	13.4	75	67	82	1.45	2.10	Runway	18.5	13.6	120°
8	D31	019	112	8.9	113	92	82	1.14	1.53	Runway	65.5	13.4	87°
9	D31	020	77	11.7	86	82	00	1.18	1.91	Runway	37.5	9.3	79°
10	D31	020	96	7.9	127	97	88	1.24	1.75	Building	37.8	9.5	36°
12	D31	025	84	10.7	93	68	88	1.17	1.91	Ramp	32.5	14.3	107°
13	D25	065	87	11.8	85	72	67	0.50	0.92	Building	51.2	9.7	44°
14	D38	048	66	9.0	111	51	67	1.00	1.37	Runway	49.5	13.8	57°
15	D42	017	89	15.8	63	65	75	1.25	2.11	Ramp	79.2	11.7	32°
16	D42	079	43	24.2	41	47	75	0.52	1.61	Ramp	47.7	11.6	93°
17	D42	080	61	14.4	69	52	75	0.86	1.62	Runway	16.7	13.4	82°
18	D42	080	68	13.2	76	62	70	0.88	1.44	Building	12.2	11.5	97°
19	D54	087	68	12.5	80	58	63	0.71	1.53	Dam	51.5	11.2	154°
20	D54	093	56	13.1	76	42	75	1.29	1.56	Building	14.7	12.3	100°
21	D54	095	51	16.8	60	53	72	1.10	1.49	Runway	19.4	13.0	68°
22	D59	013	72	10.0	100	77	72	1.00	1.63	Runway	22.2	10.4	167°
23	D59	015	50	18.2	55	53	75	0.76	1.43	Runway	49.5	12.4	146°
24	D59	015	98	8.0	126	98	78	1.05	1.53	Runway	29.5	12.3	154°
25	D59	016	75	10.8	93	63	78	1.03	1.56	Runway	14.4	12.7	165°
26	D59	017	88	8.9	112	84	85	0.97	1.54	Ramp	26.4	13.8	5°
28	D59	018	70	11.7	85	67	80	0.69	1.17	Building	17.3	13.0	105°
29	D59	020	33	26.0	38	26	85	1.03	1.64	Runway	10.7	13.5	139°
30	D59	025	100	9.5	106	87	90	0.80	1.53	Ramp	46.3	13.8	158°
CE-1*	D32	016	61	15.7	64	68	85	1.27	1.50	CORN	57.0	9.7	92°
CE-2*	D32	016	81	9.0	111	95	61	1.23	1.44	CORN	57.0	9.7	3°
AVERAGE			74	12.8	86	68	77	1.36	1.58				

* Photographic enlargements (10X and 40X) and Micro-Analyzer traces are included in Appendix 6, pages 6-45 through 6-49.

MISSION SEGMENT 1018-2

TABLE 7 - EDGE SCAN DATA (Cont'd)

Forward Camera

Mission Data			MTF AIM	Spread Function Width at 50% Amplitude		M-RES	V-RES	Density		Subject	Grid		Orientation
Trace Nr.	Pass Nr.	Frame Nr.		Microns	Reciprocal			Dmin	Dmax		X	Y	
31	D95	025	125	9.4	106	90	84	0.54	1.65	Building	48.4	12.5	133
32	D95	026	76	13.5	74	58	90	0.79	1.25	Ramp	52.3	10.7	88
33	D95	028	71	13.9	72	68	82	0.43	1.14	Runway	52.3	11.3	176
34	D95	026	89	12.5	80	64	82	0.92	2.00	Ramp	57.5	10.6	143
35	D95	036	88	10.1	99	68	85	0.90	2.06	Ramp	57.7	10.6	143
36*	D95	029	72	13.1	77	72	82	0.25	1.33	Building	42.4	10.2	18
37*	D95	030	125	10.7	94	83	90	0.48	1.85	Building	43.2	11.3	17
38	D95	030	86	9.6	104	88	94	0.80	1.40	Building	42.8	11.7	80
39*	D95	036	58	15.6	64	62	94	0.25	1.18	Runway	17.8	12.3	116
40	D70	202	47	21.6	46	35	78	0.51	1.06	Runway	80.5	14.2	144
42	D75	031	50	17.8	56	60	70	1.00	1.37	Ramp	30.0	10.2	75
43	D75	036	66	14.4	69	64	75	0.70	1.38	Runway	30.2	10.8	178
44	D75	047	117	10.6	94	74	75	0.57	1.09	Building	34.6	11.2	57
45	D81	014	64	14.8	67	56	80	0.70	1.54	Runway	81.2	12.3	45
46	D86	067	56	13.5	74	68	75	0.65	1.45	Runway	15.8	9.5	50
47	D87	118	80	12.5	80	75	78	1.01	1.77	Ramp	43.5	12.1	115
48	D87	128	106	9.6	104	86	90	1.13	1.70	Runway	71.3	13.9	43
49	D91	134	52	19.4	52	43	89	0.66	1.58	Runway	12.3	13.0	86
50	D91	140	60	14.4	69	67	78	0.66	1.41	Ramp	48.7	10.4	41
51	D91	141	71	13.1	77	63	90	0.70	1.55	Runway	72.7	9.8	106
52	D91	141	68	13.2	76	69	94	0.68	1.43	Runway	43.5	11.3	41
53	D91	142	67	13.2	76	60	82	0.63	1.40	Runway	46.1	11.3	37
54	D91	142	59	13.4	75	69	90	0.77	1.48	Runway	12.6	10.8	59
55	D91	142	74	11.1	90	73	85	0.75	1.59	Runway	12.7	10.9	59
56	D91	143	101	10.8	92	74	90	0.84	1.48	Runway	64.2	10.8	23
57	D91	144	65	13.1	76	70	82	0.69	1.52	Runway	22.5	13.5	57
58	D91	146	66	11.2	89	77	94	0.84	1.46	Runway	48.3	10.7	76
59	D91	148	56	14.9	67	67	82	0.73	1.43	Runway	25.3	11.3	62
60	D91	148	74	12.9	78	72	78	0.76	1.31	Ramp	25.4	11.4	171
AVERAGE			73	13.4	78	68	82	0.69	1.48				

*Photographic enlargements (10X and 40X) and Micro-Analyzer traces are included in Appendix 6, pages 6-53 through 6-81.

MISSION - SEGMENT 1018-2

TABLE 7 - EDGE SCAN DATA (Cont'd)

Aft Camera

Mission Data			MTF AIM	Spread Function Width at 50% Amplitude		M-RES	V-RES	Density		Subject	Grid		Orientation
Trace Nr	Pass Nr	Frame Nr		Microns	Reciprocal			Dmin	Dmax		X	Y	
31	D95	031	61	13.8	72	58	90	0.53	1.76	Building	43.8	10.3	132°
32	D95	032	92	9.8	102	63	94	0.67	0.94	Ramp	39.7	12.2	85°
33	D95	032	73	9.2	109	81	90	0.48	0.92	Runway	39.8	11.7	177°
34	D95	032	69	13.2	77	60	87	0.53	1.35	Ramp	64.6	12.5	145°
35	D95	032	59	13.8	73	79	97	0.52	1.41	Ramp	64.7	12.5	145°
36*	D95	035	86	11.3	88	76	90	0.29	1.14	Building	50.0	13.2	19°
37*	D95	036	75	10.7	93	98	98	0.54	1.43	Building	48.0	12.1	18°
38	D95	036	92	10.1	99	75	99	1.22	1.79	Building	49.5	11.6	82°
39*	D95	042	60	14.2	70	72	99	0.61	1.76	Runway	74.0	11.4	127°
40	D70	208	88	13.1	76	60	80	1.21	1.79	Runway	11.6	11.9	137°
42	D75	037	72	10.3	97	65	75	0.69	1.41	Ramp	62.2	14.4	84°
43	D75	042	60	11.8	85	69	82	0.84	1.35	Runway	61.1	13.7	178°
44	D75	053	86	9.3	108	96	85	0.79	1.28	Building	27.1	13.5	62°
45	D81	020	46	16.8	60	44	85	1.24	1.93	Runway	10.3	12.4	38°
46	D86	094	100	11.5	87	78	82	0.56	1.33	Runway	76.7	14.3	59°
47	D87	124	70	9.7	103	94	85	1.23	1.76	Ramp	48.2	13.3	116°
48	D87	134	83	11.3	88	77	94	1.44	1.83	Runway	20.8	11.5	38°
49	D91	140	55	17.1	58	51	90	0.83	1.58	Runway	79.4	11.6	103°
50	D91	146	60	15.0	67	67	78	0.49	1.40	Ramp	43.1	14.3	42°
51	D91	148	62	14.5	69	51	94	1.00	1.56	Runway	19.1	10.2	93°
52	D91	147	55	16.5	61	50	99	0.79	1.47	Runway	48.3	14.2	41°
53	D91	148	70	14.5	69	66	82	0.76	1.50	Runway	44.8	13.8	37°
54	D91	148	54	16.4	61	51	86	0.79	1.49	Runway	79.6	13.8	22°
56	D91	149	105	9.7	103	86	82	1.04	1.61	Runway	27.4	13.9	22°
57	D91	150	54	17.7	57	50	90	0.82	1.54	Runway	69.2	11.2	66°
58	D91	152	63	14.2	70	58	85	1.00	1.59	Runway	82.3	11.7	75°
59	D91	154	84	11.2	89	69	99	0.78	1.35	Runway	66.6	13.6	71°
60	D91	154	83	10.3	97	98	80	0.74	1.26	Ramp	66.7	13.7	171°
AVERAGE			72	12.9	83	68	83	0.81	1.49				

*Photographic enlargements (10X and 40X) and Micro-Analyzer traces are included in Appendix 6, pages 6-59 through 6-87.

Analysis of Photographic Image

to Evaluate System Performance

Mission 1018

Analysis of Photographic Image to Evaluate System Performance

TABLE OF CONTENTS

Mission 1018

TITLE:

Summary of Microdensitometer Derived Image Quality Data Collected from Mission 1018

SECTION I: INTRODUCTION

The normal quality evaluation of a photographic reconnaissance mission is based on a subjective judgment of the ground detail resolved on the film. In an attempt to find an objective measurement technique for image evaluation, the microdensitometer has been used to scan sharp scene edges present on the film. An illustration showing the conversion of a scene edge to M. T. F. and spread function is presented in Section IA.

Edges suitable for use in microdensitometer edge tracing should fulfill the criteria of the mathematical unit step function. In practice, the following restrictions are placed on the edges selected for tracing.

(1) The edge should appear sharp visually at 100X magnification. Additionally, the two density levels extending away from the edge should be uniform for several resolution widths (15 or more microns on each side of the edge).

The minimum length of an edge is 150 μ. The most common type of scene edge having these characteristics is found in the image of the roof of a large industrial building; ventilators, etc. must be avoided.

(2) The contrast of the edge must be high enough so that the edge can be readily aligned in the microdensitometer and yet not be of such high contrast that bleeding or halation is present.

(3) The subject must be free of cloud cover and cloud shadows and have a minimum amount of haze.

(4) The first 5 frames after each camera start up and the last 5 frames before shut down are avoided.

(5) Two inches from each end of the frame are not used.

(6) Subjects which occur in areas of soft spots or minus density are not used.

(7) Within acceptable portions of the frame there are no limitations nor restrictions on the location or orientation of the edge.

Three or more separate random sections of each edge are traced. Multiple tracings are made without changing focus or edge alignment.

Mission 1018

In this report, the evaluation data is presented as spread function width in microns and resolving power in lines per millimeter. A statistical summary of the edge data for this mission is presented in Section II, giving the arithmetic mean, standard deviation, coefficient of dispersion, and number of edges. Section IIA is included to show a statistical breakdown of the forward and aft camera quality.

Section III is a summary of all C/M/J Missions that have been recomputed with the new SWRDR computer program. Image Quality Ranking of all C/M/J Missions is listed in Section IIIA. A summary of the P.I. rating and the computed values for the M.I.P. frame is listed in Section IIIB. Frequency plots of the spread function and resolving power data are presented as Section IV to show the distribution of values. A tabulation of the location, description, and image quality data for each edge is presented as Section V.

Appendix A is included to show the edge orientation reference system and edge location grid. In use, the film is placed on an illuminator with the titling correct reading (i.e. emulsion down) with the camera take-up end at the right and the supply at the left. The orientation of an edge is described as 000 for longitudinal and 090 for transverse edges; the numbering system runs in a clockwise direction. The coordinate locator grid consists of centimeter squares numbered such that the center of the frame is given as X46.0, Y12.0. X numbers increase toward the take-up and Y numbers increase toward the title.

The image quality data was obtained from sharp scene edges in the original negative by scanning with a Kodak Model 5 microdensitometer. A 1 x 80 micron slit was used. The data reduction consisted of the following steps:

(a) hand smoothing of the microdensitometer strip chart recording,

(b) key punching of chart (density) values at sample distance increments of 0.420 microns,

(c) I.B.M. 7044 computer conversion of chart values to relative exposure values, and transfer function by numerical methods.

Mission 1018

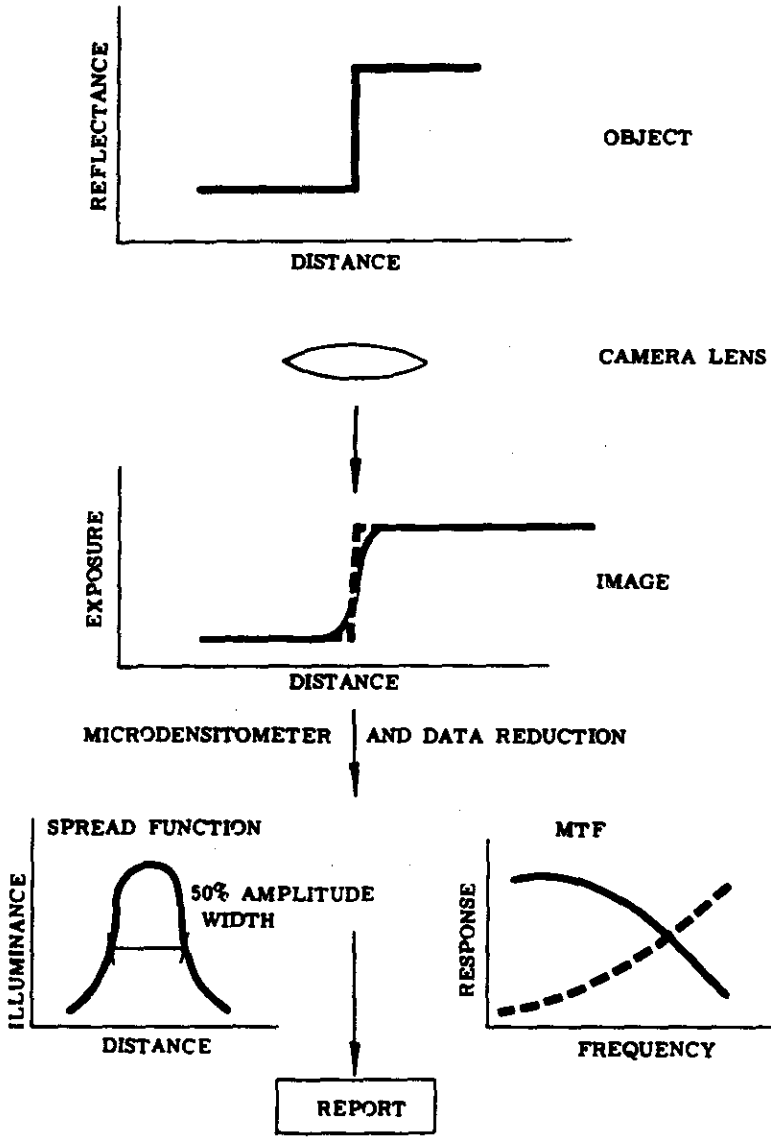
The edge resolving power was predicted graphically as the intersection of the MTF curve and the aerial image modulation curve for 4404 film at a test object contrast of 2:1. The spread function width was calculated from the first differences of relative exposure as the width at which the gradient became 50% of the maximum gradient.

Each edge was traced three to five times on the microdensitometer. The computed spread function widths and resolutions of the individual tracings and the averaged values for each edge are presented in Section V.

Analysis of Photographic Image to Evaluate System Performance

SECTION IA

Conversion of Scene Edge to MTF and Spread Function



Analysis of Photographic Image to Evaluate System Performance

SECTION II SUMMARY SHEET

Mission Segment 1018-1

Resolution in lines/mm based on the aerial image modulation - 4404 curve from edge trace data reduced by computer techniques.

Arithmetic Mean	88.7 l/mm
Standard Deviation	18.3 l/mm
Coefficient of Dispersion	21%
Number of Edges	34
M.I.P. Frame	78 l/mm

Spread function width at 50% amplitude in microns from edge trace data reduced by computer techniques.

Arithmetic Mean	9.6 μ
Standard Deviation	2.5 μ
Coefficient of Dispersion	26%
Number of Edges	34
M.I.P. Frame	9.9 μ

Analysis of Photographic Image to Evaluate System Performance

SECTION IIA SUMMARY SHEET

Mission Segment 1018-1

Resolution in lines/mm based on the aerial image modulation - 4404 curve from edge trace data reduced by computer techniques.

	FWD Camera	AFT Camera
Arithmetic Mean	81.3 l/mm	96.1 l/mm
Standard Deviation	15.5 l/mm	18.2 l/mm
Coefficient of Dispersion	19%	19%
Number of Edges	17	17

Spread function width at 50% amplitude in microns from edge trace data reduced by computer techniques.

	FWD Camera	AFT Camera
Arithmetic Mean	10.3 μ	8.8 μ
Standard Deviation	2.3 μ	2.5 μ
Coefficient of Dispersion	22%	29%
Number of Edges	17	17

Analysis of Photographic Image to Evaluate System Performance

SECTION III - MISSION SEGMENT 1018-1

Summary of all C/M/J Missions Traced and Computed With the New SWRDR Computer Program

Mission Number	Number of Edges	Spread Function Width at 50% Amplitude in Microns, Computer Calculations			Resolution in lines/mm from A.I.M. 4404 Curve, Computer Calculations		
		Arithmetic Mean	Standard Deviation	Coefficient of Dispersion	Arithmetic Mean	Standard Deviation	Coefficient of Dispersion
1007-2*	106	12.2	3.9	32%	71.0	18.0	25%
1008-1*	103	10.6	3.2	30%	83.0	21.1	25%
1008-2*	123	10.2	3.9	38%	84.3	21.0	25%
1009-1	80	11.7	4.2	36%	75.3	19.9	26%
1009-2	110	13.0	5.0	39%	74.1	21.7	29%
1010-1	119	9.8	3.3	33%	89.4	22.7	25%
1010-2	110	9.8	3.2	32%	84.3	21.4	25%
1011-1	115	10.9	3.8	35%	80.5	21.6	27%
1012-1	94	10.1	3.7	36%	86.1	20.4	24%
1012-2	100	10.2	3.1	31%	84.0	21.4	26%
1013-1	49	10.8	4.1	38%	83.3	27.3	33%
1014-1	92	10.8	4.5	41%	83.0	24.7	30%
1014-2	90	11.7	3.9	34%	74.2	20.1	27%
1015-1	35**	8.8	2.3	26%	93.1	16.5	18%
1015-2	40**	9.2	2.3	25%	89.7	17.8	20%
1016-1	31**	9.7	2.3	24%	88.0	18.6	21%
1016-2	33**	9.8	3.2	32%	91.5	16.1	18%
1017-1	42**	10.2	3.5	34%	86.6	18.8	22%
1017-2	45**	11.4	3.6	31%	82.2	17.8	22%
1018-1	34**	9.6	2.5	26%	88.7	18.3	21%

*A 1 x 320 micron slit was used

**Each edge was traced three or more times on the microdensitometer

Analysis of Photographic Image to Evaluate System Performance

SECTION IIIA - MISSION SEGMENT 1018-1

Image Quality Ranking of C/M/J Missions

Mission Number	Average Resolution in lines/mm for A.I.M. 4404 Curve
1015-1	93.1 l/mm
1016-2	91.5 l/mm
1015-2	89.7 l/mm
1010-1	89.4 l/mm
1018-1	88.7 l/mm
1016-1	88.0 l/mm
1017-1	86.6 l/mm
1012-1	86.1 l/mm
1008-2	84.3 l/mm
1010-2	84.3 l/mm
1012-2	84.0 l/mm
1013-1	83.3 l/mm
1008-1	83.0 l/mm
1014-1	83.0 l/mm
1017-2	82.2 l/mm
1011-1	80.5 l/mm
1009-1	75.3 l/mm
1014-2	74.2 l/mm
1009-2	74.1 l/mm
1007-2	71.0 l/mm

NOTE: Since this is a research and development effort, modifications and improvements are continually being made in the methods of collecting edge data and in the computer data reduction. Caution is advised in making system comparisons based on lines per millimeter resolution or spread function width until better methods become available for calibration of the edge tracing technique.

Analysis of Photographic Image to Evaluate System Performance

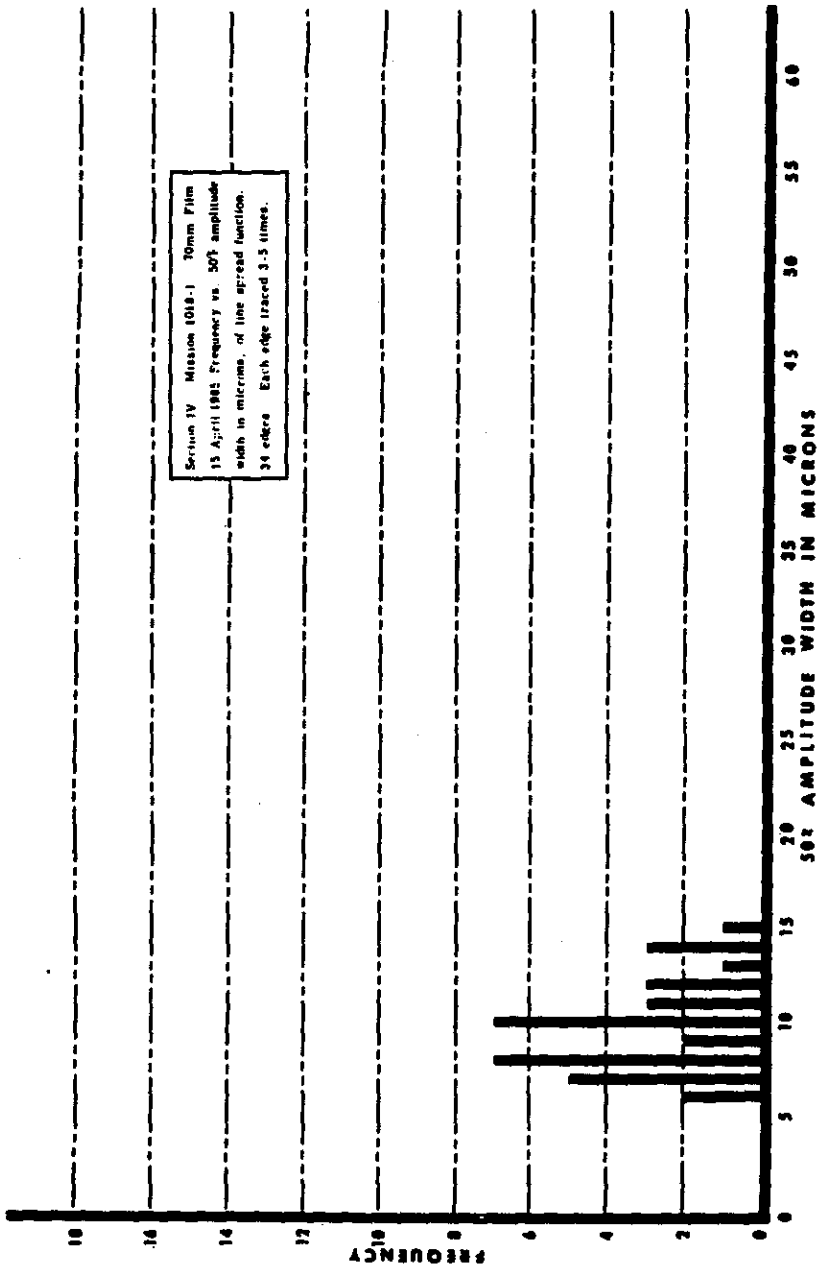
SECTION IIIB M. I. P. SUMMARY SHEET

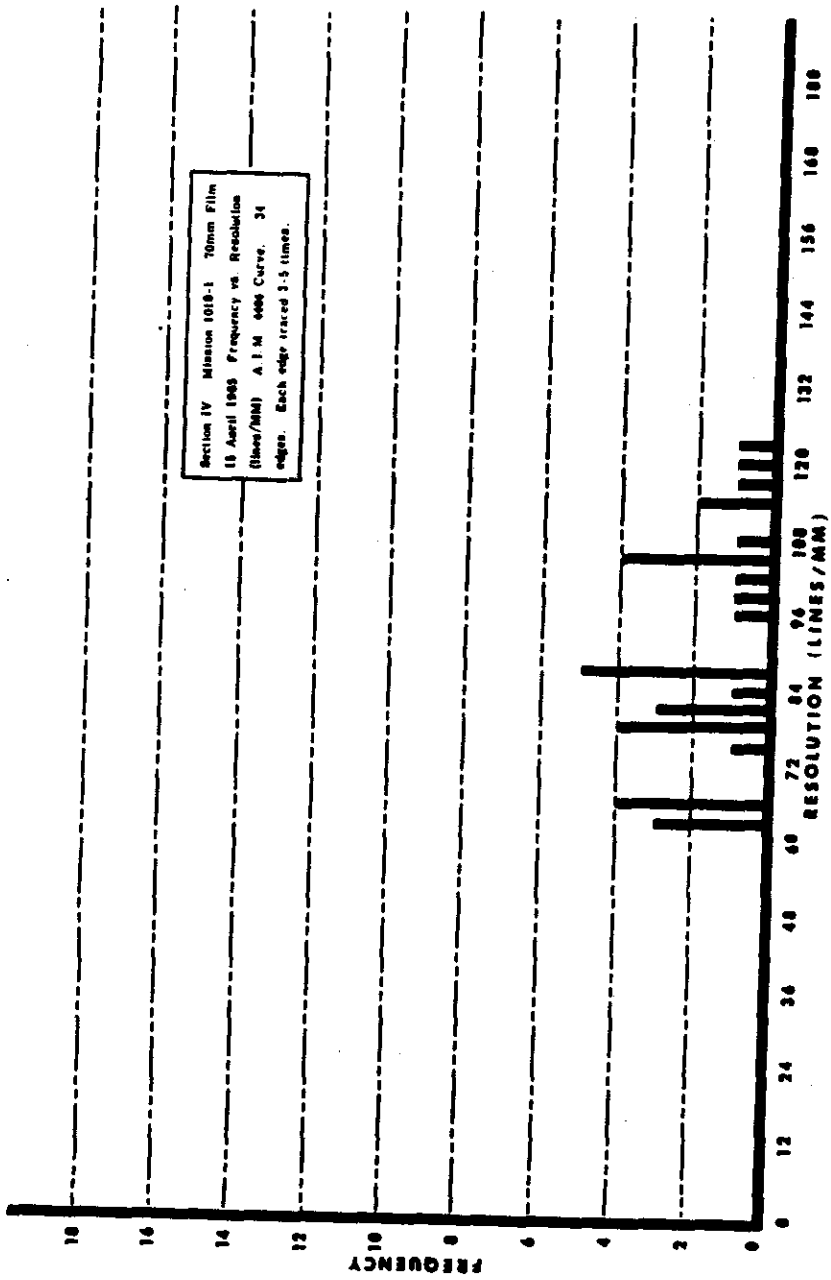
Mission Segment 1018-1

Mission Number	PI M. I. P. Rating	Resolution in lines/mm	Spread Function
1009-1	85	112 l/mm	7.3 μ
1009-2	85	---	---
1010-1	85	134 l/mm	5.3 μ
1010-2	85	136 l/mm	5.0 μ
1011-1	85	113 l/mm	6.3 μ
1012-1	85	120 l/mm	6.7 μ
1012-2	85	117 l/mm	5.0 μ
1013-1	85	95 l/mm	9.2 μ
1014-1	80	109 l/mm	5.6 μ
1014-2	80	---	---
1015-1	85	92 l/mm	8.6 μ
1015-2	85	86 l/mm	8.4 μ
1016-1	85	114 l/mm	6.0 μ
1016-2	85	106 l/mm	7.6 μ
1017-1	---	112 l/mm	7.6 μ
1017-2	---	97 l/mm	8.6 μ
1018-1	85	78 l/mm	9.9 μ

The M.I.P. rating is an arbitrary figure assigned by the PI to indicate the quality of the best photography obtained in a particular mission. The pass and frame is selected by the PI and the target to be traced is selected by the Microdensitometer operator.

SECTION IV


Section IV Mission 1018-1 70mm Film
15 April 1965 Frequency vs. 50% amplitude
width in microns, of line spread function.
34 edges Each edge traced 3-5 times.
50% AMPLITUDE WIDTH IN MICRONS
FREQUENCY


Section IV Mission 1018-1 70mm Film
15 April 1965 Frequency vs. Resolution
(lines/MM) A.I.M. 4486 Curve. 34
edges. Each edge traced 3-5 times.
FREQUENCY
RESOLUTION (LINES/MM)
18
16
14
12
10
8
6
4
2
0
12
24
36
48
60
72
84
96
108
120
132
144
156
168
180

Mission Segment 1018-1

Forward Camera

Pass	Frame	Location	Orientation	Subject	50% Amplitude Spread Function Width (Microns)			A.I.M Resolution			Pass	Frame	Location	Orientation	Subject	50% Amplitude Spread Function Width (Microns)			A.I.M Resolution		
D-30	097	X29.6 Y13.3	120	Buildings	10.2 8.1 5.4	7.9		75 85 128		98	*D-31	013	X53.7 Y10.2	125	Airfield	9.5 10.3 8.9 10.8	9.9		75 74 90 74		78
D-31	084	X38.9 Y10.4	170	Buildings	12.7 14.3 9.6	12.2		68 61 55		65	D-31	015	X32.3 Y13.5	165	Buildings	10.9 10.0 13.0	11.3		61 60 67		63
D-24	087	X41.9 Y11.6	020	Buildings	7.9 7.7 7.6	7.7		108 71 83		91	D-31	019	X54.8 Y12.0	010	Buildings	8.4 8.1 6.3	7.6		88 98 117		104
D-24	088	X63.3 Y13.3	035	Buildings	12.7 11.8 11.6	12.0		67 62 58		82	D-31	023	X44.6 Y11.0	180	Buildings	14.3 13.8 14.4	14.1		62 81 88		76
D-24	093	X51.0 Y11.5	070	Dam	17.3 14.0 9.5	13.8		70 90 70		85	D-59	041	X20.0 Y11.2	140	Buildings	8.0 10.1 11.7	8.9		83 85 78		86
D-25	038	X17.5 Y14.3	050	Buildings	12.4 11.7 11.0	11.7		84 64 71		86	D-59	041	X23.3 Y 9.5	050	Buildings	10.1 10.1 10.5	10.2		88 88 71		86
D-26	092	X26.4 Y14.3	005	Buildings	7.6 7.5 7.8	7.6		106 110 85		104	D-18E	013	X17.2 Y10.2	055	Buildings	10.1 10.0 11.1	12.7		70 58 71		86
D-31	012	X60.3 Y13.9	175	Buildings	9.2 9.3 7.9	8.8		96 88 106		100	D-18E	018	X39.8 Y12.4	015	Buildings	8.6 10.1 10.3	9.7		88 88 83		87
D-31	012	X49.5 Y14.1	100	Buildings	7.7 8.1 6.8	7.5		82 107 113		104											

*N.I.P. Frame

Mission Segment 1018-1

Aft Camera

Pass	Frame	Location	Orientation	Subject	50% Amplitude Spread Function Width (Microns)		A.I.M. Resolution	
D-08	103	X62.2 Y10.3	140	Buildings	5.6 9.1 11.4	6.8	99 80 69	86
D-24	090	X11.3 Y13.9	170	Buildings	6.3 6.6 7.5	6.8	116 120 109	115
D-24	093	X40.5 Y12.6	020	Buildings	5.5 7.8 6.8	6.7	123 108 111	114
D-24	094	X28.5 Y10.8	035	Buildings	7.2 4.5 9.4	7.0	107 132 80	106
D-24	099	X40.5 Y12.5	070	Dam	14.4 7.3 10.0	10.6	58 93 83	78
D-25	044	X73.9 Y10.8	035	Buildings	6.8 11.1 9.2	8.0	106 75 84	88
D-26	087	X64.7 Y13.0	087	Buildings	6.1	6.1	120	120
D-31	021	X56.7 Y11.5	170	Buildings	7.3 8.7	8.0	132 91	107
D-31	025	X36.6 Y14.0	180	Buildings	5.7 9.2 6.4	7.1	129 90 128	116
D-31	025	X36.8 Y13.2	015	Buildings	5.5	5.5	124	124
D-31	028	X53.4 Y11.0	068	Buildings	4.8 24.4 10.4	13.2	131 54 80	88
D-31	029	X46.8 Y14.2	178	Buildings	18.5 14.3 11.9	14.9	62 57 67	61
D-58	005	X56.6 Y11.7	178	Buildings	7.4 6.9 7.7	7.3	107 114 88	103
D-58	006	X63.3 Y13.3	170	Buildings	8.8 10.1 9.7	9.5	81 76 78	82
D-58	006	X66.0 Y10.3	150	Buildings	10.0 8.8 11.6	10.4	68 96 74	79
D-16E	019	X75.5 Y14.6	075	Buildings	11.5 10.9 8.1	9.5	84 65 115	88
D-16E	021	X46.6 Y14.2	068	Buildings	11.5 11.8 8.9	10.7	78 88 83	77

Analysis of Photographic Image to Evaluate System Performance

SECTION II SUMMARY SHEET

Mission Segment 1018-2

Resolution in lines/mm based on the aerial image modulation - 4404 curve from edge trace data reduced by computer techniques.

Arithmetic Mean	84.8 l/mm
Standard Deviation	17.4 l/mm
Coefficient of Dispersion	21%
Number of Edges	44
M.I.P. Frame	90

Spread function width at 50% amplitude in microns from edge trace data reduced by computer techniques.

Arithmetic Mean	10.1 μ
Standard Deviation	2.4 μ
Coefficient of Dispersion	23%
Number of Edges	44
M.I.P. Frame	9.7 μ

Analysis of Photographic Image to Evaluate System Performance

SECTION IIA SUMMARY SHEET

Mission Segment 1018-2

Resolution in lines/mm based on the aerial image modulation - 4404 curve from edge trace data reduced by computer techniques.

	FWD Camera	AFT Camera
Arithmetic Mean	77.8 l/mm	90.6 l/mm
Standard Deviation	16.7 l/mm	16.0 l/mm
Coefficient of Dispersion	21%	18%
Number of Edges	20	24

Spread function width at 50% amplitude in microns from edge trace data reduced by computer techniques.

	FWD Camera	AFT Camera
Arithmetic Mean	11.2 μ	9.2 μ
Standard Deviation	2.3 μ	2.0 μ
Coefficient of Dispersion	21%	22%
Number of Edges	20	24

Analysis of Photographic Image to Evaluate System Performance

SECTION III - MISSION SEGMENT 1018-2

Summary of all C/M/J Missions Traced and Computed
With the New SWRDR Computer Program

Mission Number	Number of Edges	Spread Function Width at 50% Amplitude in Microns, Computer Calculations			Resolution in lines/mm from A.I.M. 4404 Curve, Computer Calculations		
		Arithmetic Mean	Standard Deviation	Coefficient of Dispersion	Arithmetic Mean	Standard Deviation	Coefficient of Dispersion
1007-2*	106	12.2	3.9	32%	71.0	18.0	25%
1008-1*	103	10.6	3.2	30%	83.0	21.1	25%
1008-2*	123	10.2	3.9	38%	84.3	21.0	25%
1009-1	80	11.7	4.2	36%	75.3	19.9	26%
1009-2	110	13.0	5.0	39%	74.1	21.7	29%
1010-1	119	9.8	3.3	33%	89.4	22.7	25%
1010-2	110	9.8	3.2	32%	84.3	21.4	25%
1011-1	115	10.9	3.8	35%	80.5	21.6	27%
1012-1	94	10.1	3.7	36%	86.1	20.4	24%
1012-2	100	10.2	3.1	31%	84.0	21.4	26%
1013-1	49	10.8	4.1	38%	83.3	27.3	33%
1014-1	92	10.8	4.5	41%	83.0	24.7	30%
1014-2	90	11.7	3.9	34%	74.2	20.1	27%
1015-1	35**	8.8	2.3	26%	93.1	16.5	18%
1015-2	40**	9.2	2.3	25%	89.7	17.8	20%
1016-1	31**	9.7	2.3	24%	88.0	18.6	21%
1016-2	33**	9.8	3.2	32%	91.5	16.1	18%
1017-1	42**	10.2	3.5	34%	86.6	18.8	22%
1017-2	45**	11.4	3.6	31%	82.2	17.8	22%
1018-1	34**	9.6	2.5	26%	88.7	18.3	21%
1018-2	44**	10.1	2.4	23%	84.8	17.4	21%

*A 1 x 320 micron slit was used

**Each edge was traced three or more times on the microdensitometer

Analysis of Photographic Image to Evaluate System Performance

SECTION IIIA - MISSION SEGMENT 1018-2

Image Quality Ranking of C/M/J Missions

Mission Number	Average Resolution in lines/mm for A.I.M. 4404 Curve
1015-1	93.1 l/mm
1016-2	91.5 l/mm
1015-2	89.7 l/mm
1010-1	89.4 l/mm
1018-1	88.7 l/mm
1016-1	88.0 l/mm
1017-1	86.6 l/mm
1012-1	86.1 l/mm
1018-2	84.8 l/mm
1008-2	84.3 l/mm
1010-2	84.3 l/mm
1012-2	84.0 l/mm
1013-1	83.3 l/mm
1008-1	83.0 l/mm
1014-1	83.0 l/mm
1017-2	82.2 l/mm
1011-1	80.5 l/mm
1009-1	75.3 l/mm
1014-2	74.2 l/mm
1009-2	74.1 l/mm
1007-2	71.0 l/mm

NOTE: Since this is a research and development effort, modifications and improvements are continually being made in the methods of collecting edge data and in the computer data reduction. Caution is advised in making system comparisons based on lines per millimeter resolution or spread function width until better methods become available for calibration of the edge tracing technique.

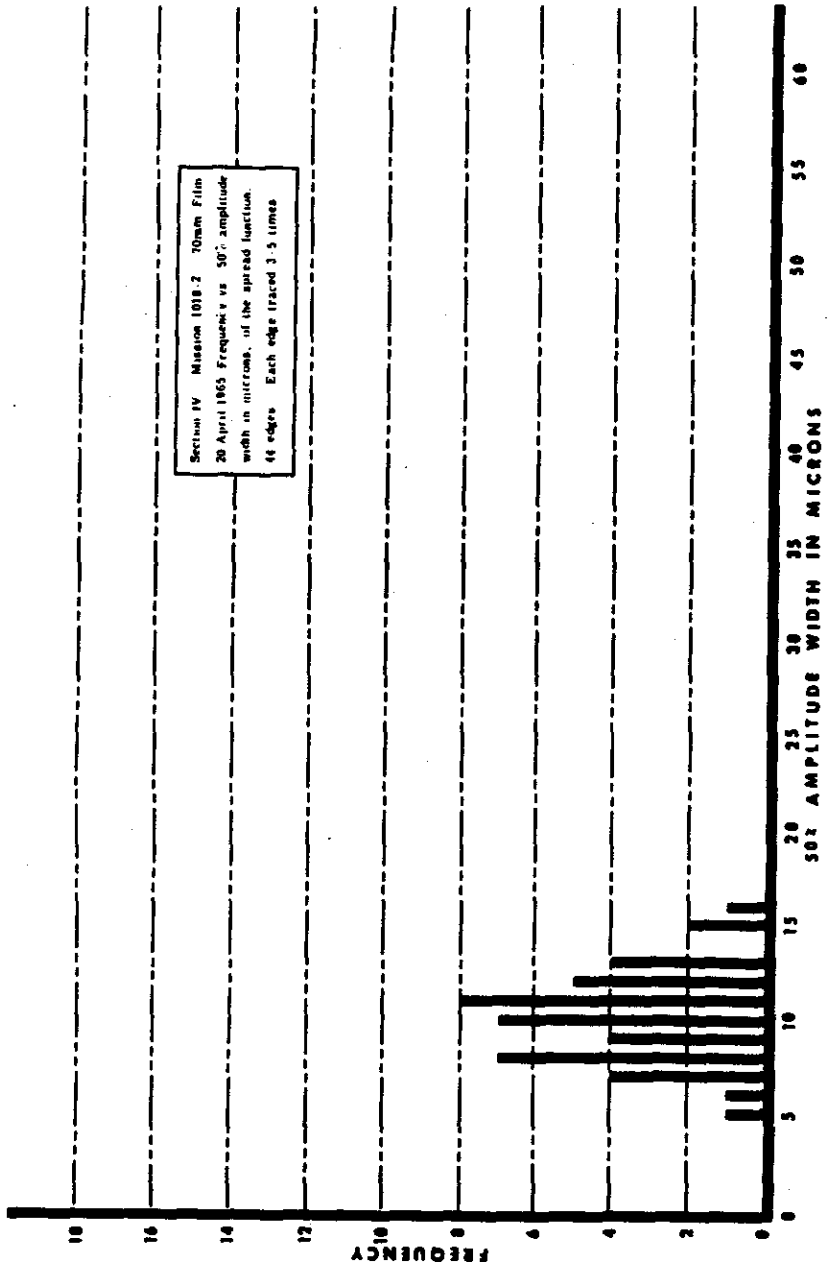
Analysis of Photographic Image to Evaluate System Performance

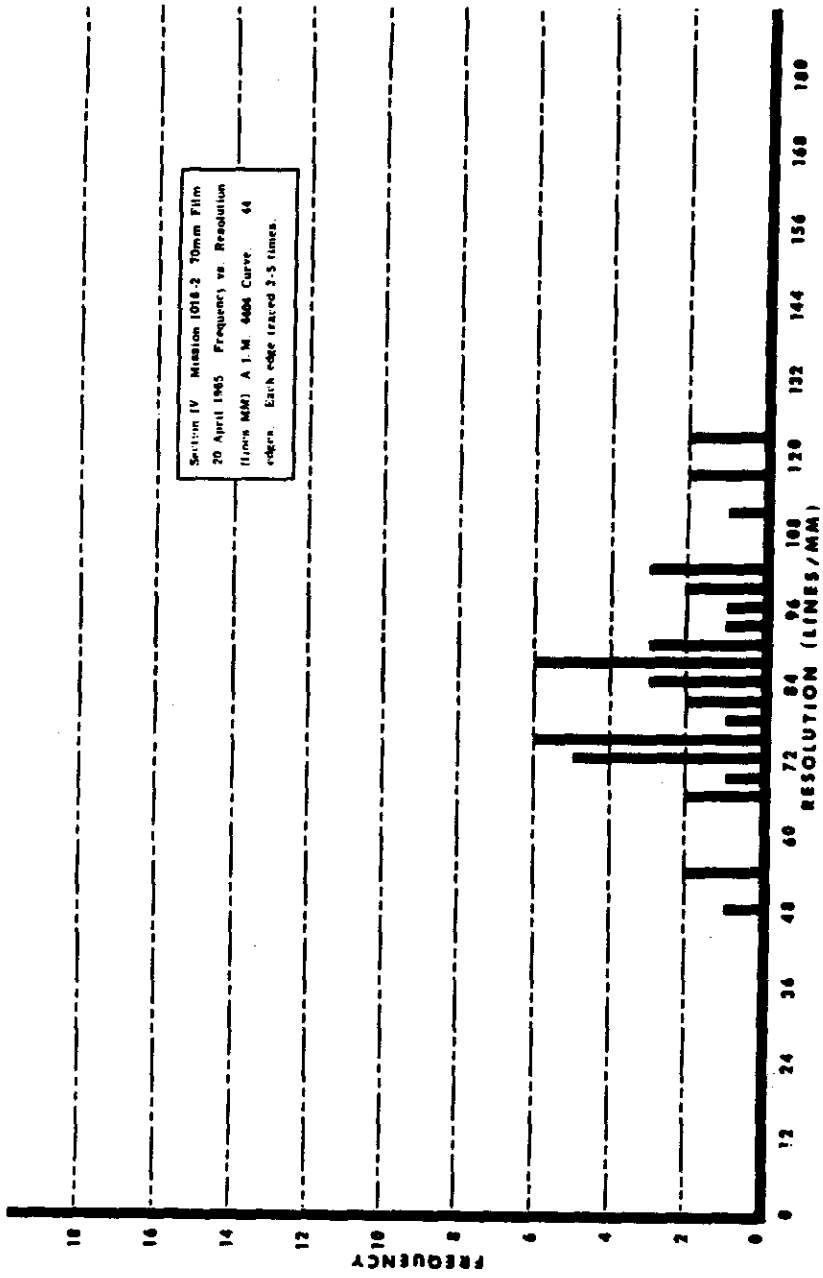
SECTION IIIB M. I. P. SUMMARY SHEET
Mission Segment 1018-2

Mission Number	PI M.I.P. Rating	Resolution in lines/mm	Spread Function
1009-1	85	112 l/mm	7.3 μ
1009-2	85	---	---
1010-1	85	134 l/mm	5.3 μ
1010-2	85	136 l/mm	5.0 μ
1011-1	85	113 l/mm	6.3 μ
1012-1	85	120 l/mm	6.7 μ
1012-2	85	117 l/mm	5.0 μ
1013-1	85	95 l/mm	9.2 μ
1014-1	80	109 l/mm	5.6 μ
1014-2	80	---	---
1015-1	85	92 l/mm	8.6 μ
1015-2	85	86 l/mm	8.4 μ
1016-1	85	114 l/mm	6.0 μ
1016-2	85	106 l/mm	7.6 μ
1017-1	---	112 l/mm	7.6 μ
1017-2	---	97 l/mm	8.6 μ
1018-1	85	78 l/mm	9.9 μ
1018-2	---	90 l/mm	9.7 μ

The M.I.P. rating is an arbitrary figure assigned by the PI to indicate the quality of the best photography obtained in a particular mission. The pass and frame is selected by the PI and the target to be traced is selected by the Microdensitometer operator.

SECTION IV


Section IV Mission 1018-2 70mm Film
20 April 1965 Frequency vs 50% amplitude
width in microns, of the spread function.
44 edges Each edge traced 3-5 times
50% AMPLITUDE WIDTH IN MICRONS
0
5
10
15
20
25
30
35
40
45
50
55
60
FREQUENCY
18
16
14
12
10
8
6
4
2
0


Section IV Mission 1016-2 70mm Film
20 April 1965 Frequency vs. Resolution
(Lines MM) A 1.M. 4404 Curve 44
edges. Each edge traced 3-5 times.
FREQUENCY
RESOLUTION (LINES/MM)
0
12
24
36
48
60
72
84
96
108
120
132
144
156
168
180
18
16
14
12
10
8
6
4
2
0

Analysis of Photographic Image to Evaluate System Performance

Mission Segment 1018-2
Section V

Forward Camera

Pass	Frame	Location	Orientation	Subject	50% Amplitude Spread Function Width (Microns)		A.I.M Resolution	
D-71	146	X30.1 Y14.2	020	Buildings	9.8 11.9 13.2	11.6	92 58 63	71
D-72	193	X39.8 Y09.8	015	Buildings	8.9 8.4 10.7	8.6	91 83 77	84
D-73	123	X29.9 Y10.6	165	Buildings	9.4 11.5 18.6	12.5	55 60 48	54
D-73	133	X15.4 Y12.2	045	Buildings	14.3 12.2 8.7	11.7	57 68 89	71
D-75	009	X45.3 Y10.2	140	Buildings	12.6 10.9 11.2	11.6	60 72 74	68
D-75	045	X34.0 Y12.0	050	Buildings	6.3 7.0 9.0	7.4	111 102 75	96
D-75	047	X35.7 Y12.9	180	Buildings	13.4 9.9 12.0	11.8	60 88 84	77
D-75	051	X36.4 Y09.3	165	Buildings	11.2 11.0 10.6	11.0	68 96 91	82
D-75	052	X36.6 Y13.9	075	Buildings	6.3 7.2 10.4	8.6	88 106 69	87
D-79	012	X44.6 Y14.2	170	Buildings	8.4 5.7 5.0	6.7	101 134 138	124
D-87	080	X51.8 Y11.1	175	Buildings	7.8 9.0 13.2	10.0	98 85 68	84
D-87	081	X50.1 H14.3	080	Buildings	10.1 10.8 10.5	10.5	62 65 73	67
D-87	118	X43.3 Y13.8	040	Buildings	9.2 11.5 12.2	11.0	92 84 80	88
D-91	141	X44.0 Y11.2	020	Buildings	16.3 13.8 16.4	15.5	46 56 44	49
D-91	144	X45.3 Y13.3	035	Buildings	9.8 11.3 10.7	10.6	68 80 71	76
D-95	029	X41.9 Y11.2	005	Buildings	11.7 11.4 10.5	11.2	80 103 73	91
D-95	030	X43.3 Y11.3	080	Buildings	14.5 14.3 14.8	14.5	55 58 54	55
D-95	030	X41.6 Y12.4	070	Buildings	11.6 12.3 15.6	13.2	105 55 53	71
D-95	031	X14.3 Y11.5	050	Buildings	12.5 11.8 14.3	12.9	73 94 60	76
D-95	032	X33.2 Y12.3	030	Buildings	16.5 13.3	14.9	72 77	75

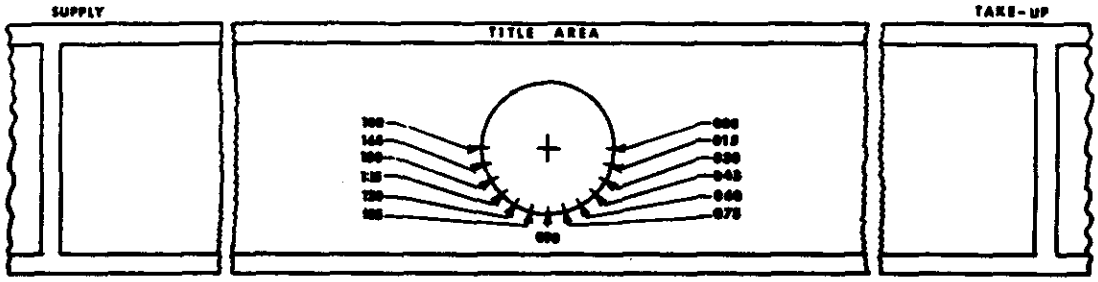
Mission Segment 1018-2

Aft Camera

Pass	Frame	Location	Orientation	Subject	50% Amplitude Spread Function Width (Microns)			A.I.M. Resolution			Pass	Frame	Location	Orientation	Subject	50% Amplitude Spread Function Width (Microns)			A.I.M. Resolution		
D-91	152	X61.6 Y10.7	030	Buildings	10.6 11.7 12.4		13.3	80 72 45		66	D-91	146	X47.3 Y13.8	045	Buildings	5.7 5.8 6.1		5.9	128 121 120		123
D-91	200	X51.6 Y11.1	020	Buildings	8.2 8.2 8.8		7.7	105 107 98		103	D-91	147	X47.7 Y13.8	025	Buildings	6.2 10.0 7.7		6.0	132 98 101		110
D-91	128	X62.2 Y14.4	170	Buildings	8.6 11.4 12.9		11.0	88 77 59		75	D-91	150	X48.5 Y11.7	035	Buildings	10.3 8.4 11.4		10.0	74 80 84		86
D-91	138	X46.9 Y13.7	090	Buildings	12.0 13.2 11.0		12.1	66 78 79		74	D-95	031	X41.5 Y14.2	100	Buildings	10.5 8.7 12.6		10.9	73 80 71		75
D-91	015	X46.5 Y14.2	140	Buildings	9.5 5.3 9.1		8.0	86 104 113		101	*D-95	031	X48.5 Y13.2	085	Buildings	12.5 8.8 7.7		9.7	79 83 89		90
D-95	051	X43.4 Y12.2	020	Buildings	9.0 8.3 7.6		8.3	87 97 111		98	D-95	034	X51.5 Y10.9	040	Buildings	11.6 8.4 10.1		10.4	87 74 74		72
D-95	053	X56.3 Y12.3	165	Buildings	5.1 6.2 5.1		5.5	131 112 111		118	D-95	035	X49.8 Y13.3	010	Buildings	9.8 10.6 11.0		10.5	81 78 78		78
D-87	046	X41.1 Y14.0	175	Buildings	11.0 13.5 8.1		11.2	73 90 80		71	D-95	036	X49.0 Y12.2	088	Buildings	13.6 11.1 10.9		11.7	86 74 115		83
D-87	124	X48.5 Y11.7	040	Buildings	6.5 7.2 7.5		7.1	112 96 89		102	D-95	036	X50.5 Y11.2	080	Buildings	4.8 6.6 8.5		6.6	139 114 95		116
D-91	143	X75.3 Y11.2	045	Buildings	12.3 8.4 9.2		10.0	65 88 106		86	D-95	038	X58.8 Y11.3	040	Buildings	8.7 9.8 6.3		8.3	89 79 108		92
D-91	145	X67.1 Y14.2	100	Buildings	7.3 8.5 8.4		8.1	94 84 84		87	D-95	038	X58.2 Y10.9	085	Buildings	7.3 8.1 8.5		8.0	86 86 103		99
D-91	146	X47.2 Y13.6	045	Buildings	8.2 10.8 8.7		8.8	86 70 113		90											

APPENDIX "A"

Reference System For Orientation Of C/M/J Mission Edges
original negative — emulsion down



Coordinate Locator Grid For C/M/J Mission Edges
original negative — emulsion down

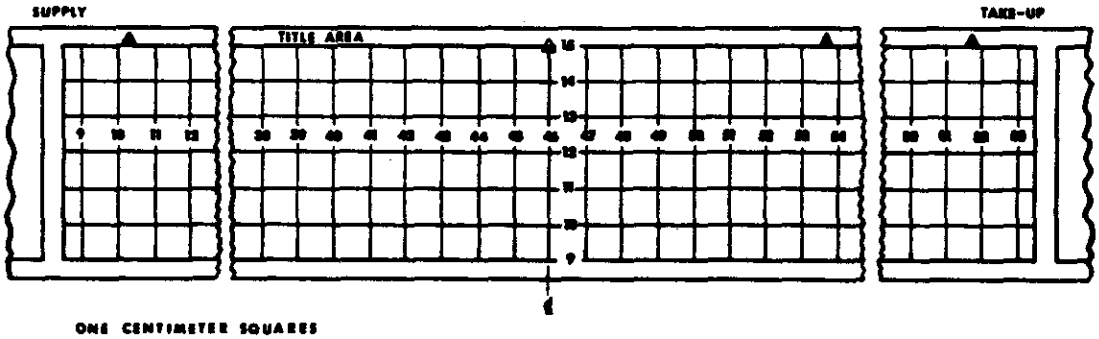


TABLE 12 - V-RES VALUES PER PASS AND FRAME

MISSION 1018-1 FORWARD CAMERA

PASS	FRAME	1 W	1 A	2 W	2 A	3 W	3 A	4 W	4 A	5 W	5 A
0 5	5					75					
0 5	25					78	12				
0 5	45					72	67				
0 5	65					72	78				
0 6	20					90	65				
0 6	40					75	85				
0 6	60		85 90				85 94				
0 6	80						111 85				
0 6	100										
0 7	15					72	90		94 85		
0 7	35					78	72				
0 7	55										
0 8	15					72	85		72 104		
0 8	34								104 94		
0 8	54					94	78				
0 8	74					104	104				
0 8	94					85	85				
0 8	114										
0 8	134										
0 8	154		104 72								
0 8	174										
0 10	5					67	65		99 85		
0 10	26										
0 10	48					82	78				
0 10	68								111 104		
0 10	88					70	67				
0 10	108					78	72				
0 10	128					85	85				
0 10	148		82 90								
0 14E	5					104	99				
0 21	15					82	78				
0 21	35					78	94				
0 21	55					85	82				
0 21	75					78	67				
0 21	95					82	72				
0 21	115					85	85				
0 21	135					85	94				
0 21	155					104	104				
0 21	175		104 90								
0 22	5					94	78				
0 22	30					94	94				
0 22	53					67	90				
0 22	73					85	63				
0 23	5				90 99	72	85				
0 23	25										
0 23	45		72 90								
0 24	5					94	90				

PASS	FRAME	1 W	1 A	2 W	2 A	3 W	3 A	4 W	4 A	5 W	5 A
0 24	25								85 90		
0 24	45					77	67				
0 24	65								94 94		
0 24	85								111 104		
0 24	105								78 78		
0 25	5			104 99							
0 25	25					94 90					
0 25	45					96 85					
0 25	65					98 85					
0 25	85					94 104					
0 26	15								90 85		
0 26	35					90 85					
0 26	55								78 94		
0 26	75					78 78					
0 26	95									104 99	
0 26	115									67 90	
0 26	135					94 90					
0 31	5					111 94					
0 31	25					96 111					
0 32	5					78 82			85 85		
0 32	20										
0 37	5					70 61					
0 37	25					78 70					
0 37	45					85 72					
0 38	5					67 58					
0 38	25					82 64					
0 38	45					82 90					
0 38	65					78 83					
0 38	85					67 65					
0 39	5					85 96					
0 39	25					78 87					
0 39	45					78 78					
0 39	65								85 78		
0 39	85					72 85					
0 39	101					67 75					
0 40	5					70 61					
0 40	25					72 65					
0 40	45					75 82					
0 40	65					70 78					
0 40	85					75 82					
0 40	105					75 70					
0 40	125					75 65					
0 40	136					67 63					
0 41	15					67 78					
0 41	35					85					

TABLE 12 - V-RES VALUES PER PASS AND FRAME (Cont'd)

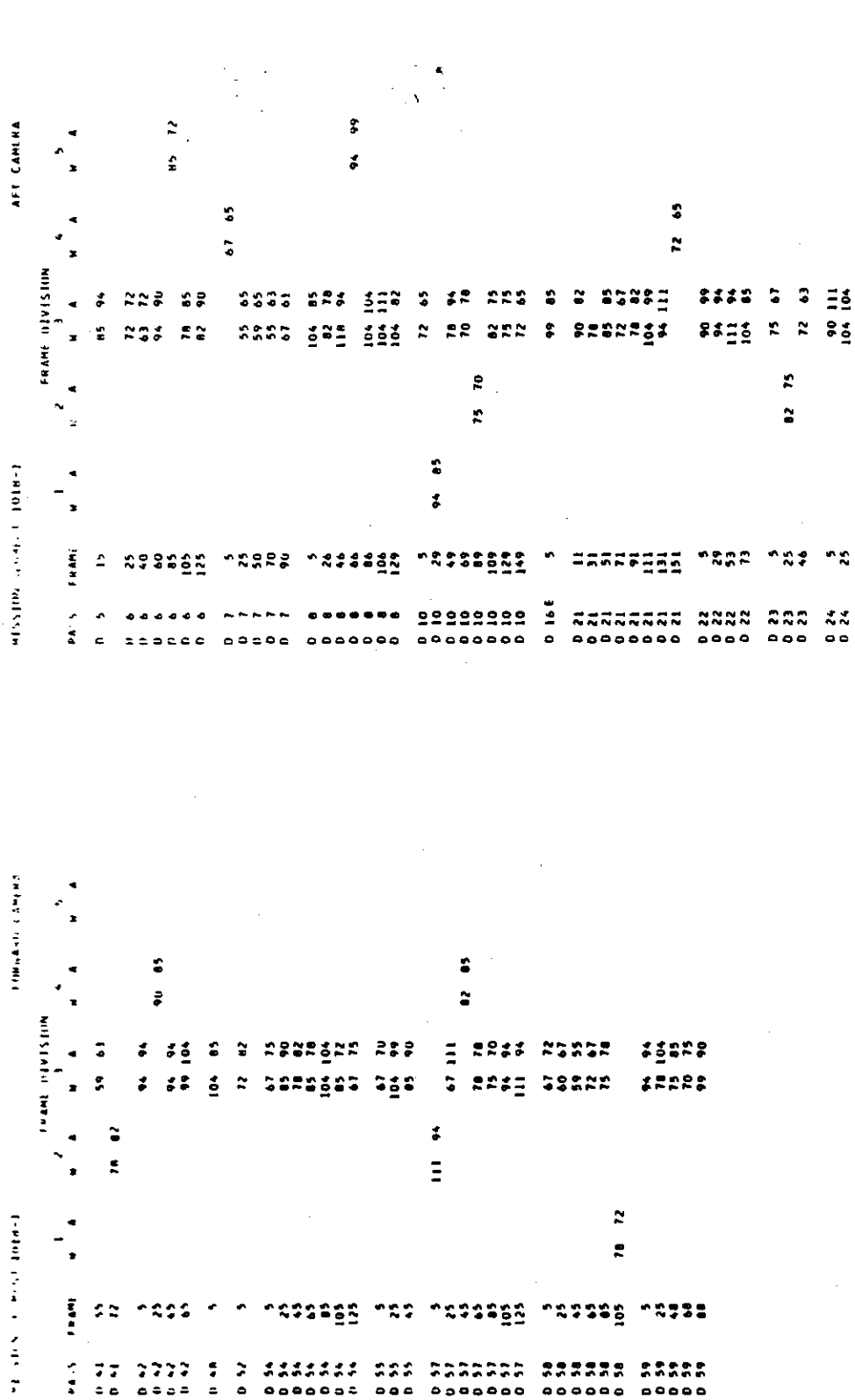


TABLE 12 - V-RES VALUES PER PASS AND FRAME (Cont'd)

MISSION [redacted] 1018-1

AFT CAMERA

PASS	FRAME	FRAME DIVISION 1 W	1 A	2 W	2 A	3 W	3 A	4 W	4 A	5 W	5 A
D 24	45			75	118	78	111				
D 24	65										
D 24	85							104	94	94	85
D 24	105										
D 25	15					72	63				
D 25	35					85	72				
D 25	55					85	82				
D 25	75					90	85				
D 25	95					82	82				
D 26	5			85	90						
D 26	39	72	67								
D 26	62					94	94				
D 26	82					72	85				
D 26	102					104	94				
D 26	125					94	94				
D 26	144					104	104				
D 31	5					104	90				
D 31	25					90	82				
D 32	5					94	78			65	70
D 37	5										
D 37	25					94	104				
D 37	45					85	63				
D 38	5					70	63				
D 38	25					85	78				
D 38	45					72	82				
D 38	75					82	78				
D 38	113			78	70						
D 38	143	85	82								
D 39	5					75	67				
D 39	25					67	72				
D 39	45					75	70				
D 39	65					70	72				
D 39	85					75	72				
D 39	105							61	67		
D 40	5					67	65				
D 40	25					85	72				
D 40	45					90	85				
D 40	65					78	90				
D 40	85					104	99				
D 40	105					72	63				
D 40	125					99	104				
D 41	5							104	85		
D 41	27			63	72						
D 41	47							85	72		
D 41	67							94	94		

PASS	FRAME	FRAME DIVISION 1 W	1 A	2 W	2 A	3 W	3 A	4 W	4 A	5 W	5 A
D 42	5					90	78				
D 42	25					85	78				
D 42	45					72	65				
D 42	65					78	90				
D 48	5					78	72				
D 48	12					85	90				
D 52	5					82	85			85	75
D 52	19							78	85		
D 54	5					78	59				
D 54	25					78	75				
D 54	45					78	80				
D 54	65					70	63				
D 54	85			75	75						
D 54	105					82	72				
D 54	125										
D 55	5					78	94				
D 55	25					82	94				
D 55	45					99	94				
D 55	65					104	94				
D 57	5					111	111				
D 57	25					104	78				
D 57	45									104	94
D 57	65			85	85						
D 57	85					72	82				
D 57	105							94	111		
D 57	125							78	75		
D 57	144							78	78		
D 58	5					72	78				
D 58	25					72	78				
D 58	45					65	72				
D 58	65					75	78				
D 58	85					85	72				
D 58	105					67	72				
D 59	5					72	78				
D 59	25					75	85				
D 59	39					82	94				
D 59	59					83	70				
D 59	79					65	70				

TABLE 12 - V-RES VALUES PER PASS AND FRAME (Cont'd)

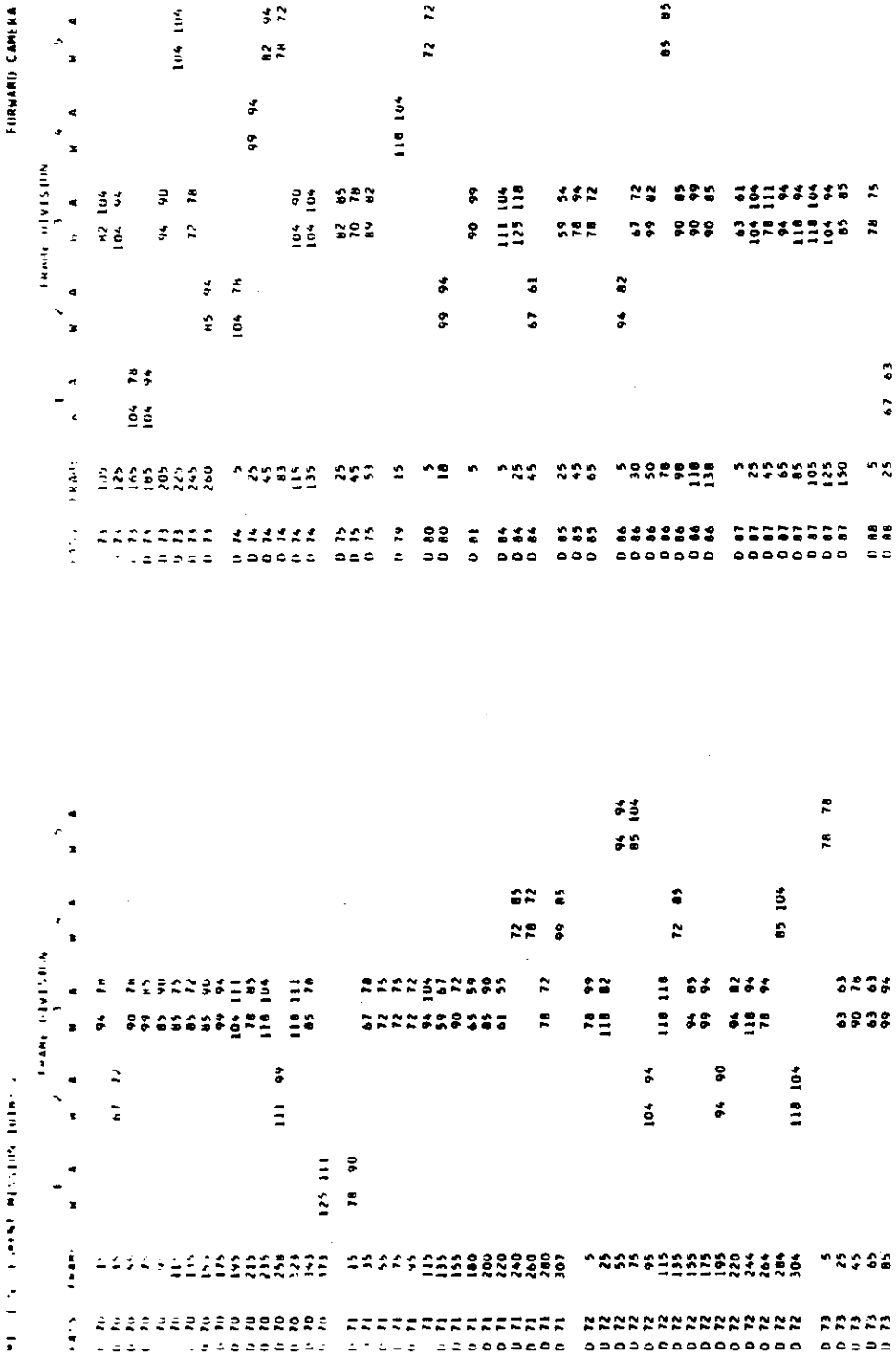


TABLE 12 - V-RES VALUES PER PASS AND FRAME (Cont'd)

MISSION SEGMENT 1018- 2 — FORWARD CAMERA

PASS	FRAME	FRAME DIVISION 1 W	1 A	2 W	2 A	3 W	3 A	4 W	4 A	5 W	5 A
D 88	65					75	72				
D 88	125					72	63				
D 88	145					70	67				
D 89	15							85	78		
D 89	35					85	75				
D 89	55					78	85				
D 89	72									82	75
D 89	95					104	94				
D 89	115					94	94				
D 89	135					94	78				
D 89	155									85	75
D 89	175					104	94				
D 90	5					75	72				
D 90	25					118	104				
D 90	73	78	90								
D 90	125									94	104
D 90	147					85	78				
D 90	167					99	99				
D 90	187					94	104				
D 91	5					78	104				
D 91	31					85	72				
D 91	55					82	90				
D 91	75			118	118						
D 91	95							118	104		
D 91	115			99	104						
D 91	145					99	82				
D 91	157					72	82				
D 95	5					118	118				
D 95	27					111	118				
D 95	50					118	118				
D 96	5					118	118				
D 97	5					118	118				
D 97	20					85	94				

MISSION SEGMENT 1018-2 — AFT CAMERA

PASS	FRAME	FRAME DIVISION 1 W	1 A	2 W	2 A	3 W	3 A	4 W	4 A	5 W	5 A
D 70	5					66	61				
D 70	35					55	55				
D 70	55					70	61				
D 70	75					75	80				
D 70	95					63	72				
D 70	115					70	67				
D 70	135					63	67				
D 70	155					78	65				
D 70	175									75	70
D 70	195					82	85				
D 70	215							85	82		
D 70	235							72	65		
D 70	325			70	70						
D 70	305							70	72		
D 71	25			59	59						
D 71	45					72	75				
D 71	65					72	63				
D 71	85					72	78				
D 71	105					59	78				
D 71	125					104	78				
D 71	145					99	104				
D 71	170					65	72				
D 71	190			72	67						
D 71	210			94	85						
D 71	237					78	82				
D 71	257					85	85				
D 71	287					59	59				
D 71	307							104	99		
D 72	5									52	49
D 72	25					65	72				
D 72	45									63	59
D 72	65					45	45				
D 72	85					49	55				
D 72	105					46	52				
D 72	125					67	59				
D 72	145					78	70				
D 72	165					75	67				
D 72	185					70	67				
D 72	205					72	70				
D 72	265					63	57				
D 72	308			70	70						
D 73	5			75	63						
D 73	25			85	80						
D 73	65					67	67				
D 73	85					55	61				
D 73	105					82	68				
D 73	125					85	82				
D 73	165					67	67				
D 73	185			61	72						
D 73	205					72	78				
D 73	225							78	68		

TABLE 12 - V-RES VALUES PER PASS AND FRAME (Cont'd)

PASS	FRAME	FRAME DIVISION 1 W	1 A	2 W	2 A	3 W	3 A	4 W	4 A	AFT CAMERA 5 W	5 A
D 89	25										
D 89	45										
D 89	62										
D 89	95										
D 89	115										
D 89	135										
D 89	155										
D 90	5										
D 90	25										
D 90	45										
D 90	75										
D 90	125										
D 90	148										
D 90	168										
D 90	188										
D 91	5										
D 91	50										
D 91	70										
D 91	90										
D 91	110										
D 91	130										
D 91	150										
D 91	158										
D 95	5										
D 95	28										
D 95	60										
D 96	5										
D 97	5										