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OPTICAL TECHNOLOGY DIVISION

PROJECT MEMORANDUM

PM-1554-X

SENSOR SUBSYSTEM TEST OBJECTIVE

ADDENDUM

SV-10 (S/N 013)

MAY 20, 1975

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Date: 20, May, 1975

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Flight Operations Section
Date: 20 May 1975

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Field Operations Department
Date: 5.20.75

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PROJECT MEMORANDUM NUMBER: PM-1554-X

PREPARED BY: C. FRIEDMANN

DATE: May 20, 1975

SUBJECT: SENSOR SUBSYSTEM TEST OBJECTIVES ADDENDUM, SV-10 (S/N 013)

DISTRIBUTION:

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ABSTRACT: The Sensor Subsystem Test Objectives Addendum identifies the specific SSC test objectives for flight system SV-10 (S/N 013). This document supplements the Sensor Subsystem Test Objectives PM-1187-XA. It also identifies the launch configuration, sensor operating requirements, and additional operating constraints not identified in HSSOP, SG 0450, Rev. AV.

DESCRIPTORS:

SS Test Objectives
Flight Test Objectives
S/N 013 Flight Plan

SSC STO ADDENDUM

1. LAUNCH CONFIGURATION

1.1 Vehicle -SV-10

1.2 Sensor S/N 013

1.3 Filter Type - Forward W-12, 2E3; Aft W-12; 2E3

1.4 Focal Length - Forward 59.972 inches, Aft 59.984 inches

1.5 Focus Setting - Forward 1414 = 30u
Aft 1414 & 124 = 30u
S0255 & 130 = 60u

1.6 OOAA Setting-Forward 0 CT, -1 IT; Aft 0 CT, - 4 IT

1.7 Film Type and Length -

FWD (A)		AFT (B)		
1414	115446	124	3750	CORE
		255	2000	
		1414	25300	
		255	5000	
		130	750	
		1414	20800	
		130	1500	
		255	2150	
		1414	40700	
		130	900	
		1414	7890	
TOTAL	115446		110740	

1.8 Film Weight - Forward 904.0 pounds, Aft 907.8 pounds.

1.9 Spool Number - Forward 2730, Aft 2740.

2. SENSOR SYSTEM TEST OBJECTIVES

2.1 Primary Objectives

2.1.1 P-102: Determine the capability of the SS Optical System to provide the specified photographic performance (quality and quantity) using 1414, SO-255, SO-130, 124 film.

2.1.2 S-105: Determine SS optics elements thermal profile under normal operating conditions.

3. SENSOR SYSTEM OPERATING REQUIREMENTS

3.1 Lift-Off

3.1.1 The total nitrogen loaded in the pneumatic system shall not be less than 33.0 pounds.

3.1.2 Prior to launch the OB temperature shall be isothermal within 3°F and the average temperature shall be 69° ± 2°F.

3.1.3 Based on Case 1001 Orbit and 28 May 1975 launch date, the allowable launch window is 1606Z to 0008Z (+60< B< -60). The optimum launch window is 1806Z to 2204Z (+30< B< -30).

3.2 Profile Requirements

3.2.1 A constant velocity run is required after SS uncage or a TU transfer prior to executing a photographic run.

3.2.2 A SS Health Check is initially required prior to executing any photographic runs.

3.2.3 A SS Engineering Test is required only the first day of operations. This test is required for a sensor system base line.

3.2.4 A MOP Engineering Run shall be planned each day over the ZI. This MOP should ideally occur over COOK but may be executed elsewhere depending on favorable weather.

3.2.5 SS thermal data is required at the following schedule:

Rev 0 - Continuous during Powered Flight, and a minimum of 4 times at 26 seconds duration for the remainder of the orbital revolution.

Rev 1, 2 & 3 - A minimum of 8 times of at least 26 seconds duration equally spaced throughout each orbital revolution.

Rev 4, 5 & 6 - A minimum of 6 times of at least 26 seconds duration equally spaced throughout each orbital revolution.

Day 1 to 10 - Once each day as described above.

Day 11 to End of Mission - Once every other day as described above.

3.2.6 Thru-focus runs shall be accomplished with 3 confirmed acquisitions at each focus position at 0, ± 10, ± 20, ± 6u in RVI.

3.2.7 Smear Slit tests shall be accomplished with 8 confirmed pairs at ± 0.2 IPS bias in both in-track and cross-track directions, beginning in RVI.

3.2.8 Color Calibration tests shall be accomplished during SO-255 film with 2 confirmed clear weather acquisitions.

3.2.9 False Color Calibration tests shall be accomplished during SO-130 film with 3 confirmed clear weather acquisitions.

3.2.10 Insite Color Calibration test shall be accomplished during SO-130 film with 3 confirmed clear weather acquisitions.

3.2.11 Tuscon Culture tests shall be accomplished with one comfirmed acquisition in each RV.

3.2.12 Tuscon Culture test shall be accomplished with one confirmed acquisition using type 124 film.

3.2.13 Tri-Bar Resolution tests shall be accomplished with one confirmed acquisition in each RV.

3.2.14 Quality Variability test with 2 confirmed acquisitions in each RV with all nominal settings.

3.2.15 GOB Detection test shall be accomplished with one confirmed clear weather acquisition using each film type SO-255, SO-130 and 1414.

3.2.16 Thru-exposure tests shall be accomplished using 124 type film with exposure bias of nominal, - 1/2 and -1 stops.

4. SENSOR SYSTEM OPERATING CONSTRAINTS

Operating constraints for the S/N 013 Sensor System are defined in HSSOP, SG 0450, Rev AV with additional constraints as defined below:

4.1 The maximum permissible rewind is 5.011 IPS.

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