Copy No. 1

7 Dec 74

File 5.8

OPTICAL TECHNOLOGY DIVISION

PROJECT MEMORANDUM

PM-1497-X

SENSOR SUBSYSTEM TEST OBJECTIVE

ADDENDUM

SV-8 (S/N 011)

MARCH 11, 1974

Prepared By: C. Friedmann Date: 11 March 74
C. FRIEDMANN

Reviewed By: F.L. Harrigan, Jr. Date: 3-11-74
F.L. HARRIGAN, JR., Manager
Flight Operations Section

Approved By: W.C. Cottrell Date: 3-11-74
W.C. COTTRELL, Manager
Field Operations Department

Copy No. _____

PROJECT MEMORANDUM NUMBER: PM-1497-X

PREPARED BY: C. Friedmann

DATE: March 11, 1974

SUBJECT: SENSOR SUBSYSTEM TEST OBJECTIVES
ADDENDUM, SV-8 (S/N 011)

DISTRIBUTION:
SPO
C. Karatzas
R. Jones
L. Farkas
P. Petty
SSC/DCO
WCFO (2)

AFSTRACT: The Sensor Subsystem Test Objectives Addendum identifies the specific SSC test objectives for flight system SV-8 (S/N 011). 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 HSSPO, SG 0450, Rev. AN.

DESCRIPTORS:
SS Test Objectives
Flight Test Objectives
S/N 011 Flight Plan

Copy No. ____

SSC STO ADDENDUM

1. LAUNCH CONFIGURATION

1.1 Vehicle - SV - 8

1.2 Sensor S/N 011

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

1.4 Focal Length - Forward 59.9760 inches, Aft 59.9890 inches

1.5 Focus Setting - Forward 1414 = 68μ; Aft=25μ, SO-255 & FE3916 = 55μ

1.6 Film Type and Length -

FWD (A)		AFT (B)	
1414	108,854	1414	100,184
		SO-255	2,600
		FE3916	3,000
TOTAL	108,854		105,784

1.7 Film Weight - Forward 862.2 pounds, Aft 862.4 pounds

1.8 Spool Number - Forward 2481, Aft 2490

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 and FE-3916 film.

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

Copy No. ____

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 71°. ± 5°F.

3.1.3 Based on Case 803 Orbit and 27 March 1974 launch date, the allowable launch window is 1615Z to 0015Z (+60 < B < -60). The optimum launch window is 1815Z to 2215Z (+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 night COOK pass. Microwave capability is required to obtain data at the SSTC.

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.

Copy No. ____

3.2.6 Thru-focus runs shall be accomplished with 3 confirmed acquisitions at each focus position of 0, ±8, ±16μ in RV1.

3.2.7 Color Thru-focus test shall be accomplished with one confirmed clear weather acquisition at 0μ and ±14μ focus positions.

3.2.8 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 RV1.

3.2.9 Smear Slit tests shall be accomplished during SO-255 with 3 confirmed pairs at ±0.2 IPS bias in both in-track and cross-track directions.

3.2.10 Smear Slit tests shall be accomplished during FE3916 with 3 confirmed pairs at ±0.2 IPS bias in both in-track and cross-track directions.

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

3.2.12 Color Calibration test shall be accomplished during FE3916 film with 2 confirmed clear weather acquisition.

3.2.13 Lens MTF-tests shall be accomplished with 4 confirmed acquisitions in any RV at focus settings of 0, ±8μ.

3.2.14 Tuscon Culture tests shall be accomplished with one confirmed acquisition in each RV.

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

3.2.16 Smear vs. Scan test shall be accomplished with 8 confirmed acquisition pairs at ±0.2 IPS in-track and cross-track directions.

3.2.17 Quality Variability test with 2 confirmed acquisitions in each RV with all nominal settings. Para. 3.2.15 test can meet this requirement when city type and scan are compatible.

4. SENSOR SYSTEM OPERATING CONSTRAINTS

Operating constraints for the S/N 011 Sensor System are defined in HSSPO, SG 0450, Rev AN.