CORONA
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March 1968

Ad Hoc Committee for J-3 Systems Capabilities
Minutes for Meeting #1
Date: 12 December 1967
Location: National Photographic Interpretation Center
Prepared by: [redacted]
Attendees: [redacted]

[redacted] Introduction

[redacted] welcomed all to the first meeting of the Ad Hoc Committee for J-3 Systems Capabilities. [redacted] reviewed the basic purposes of the committee and the guidelines within which the committee is to operate. The committee was established to:

1. Analyze and evaluate the effectiveness of photographic flight and processing experiments performed within the CORONA Program.

2. Recommend standard future CORONA photographic configurations resultant from the experimental program; and

3. Recommend additional CORONA photographic flight and processing experiments.

[redacted] pointed out that one of the most important functions of the committee was to insure proper community support for the flight test program, and to insure that the results of the program were properly made known to the intelligence community. The membership of the committee had been specifically constituted to this end.

[redacted] Test Plan

[redacted] reviewed the basics of the test plan as it was currently envisioned. These plans are as follows:

1. Filter Evaluation (CR-1, CR-2, CR-3)

Basic Objective

To evaluate the photographic difference between W/21, W/23A, and W/25 filters.

Evaluation

The evaluation here is primarily subjective, looking basically for differences in image quality and the trade-off in atmospheric attenuation vs. exposure time.

Discussion

[redacted] questioned the necessity for more filter tests. He pointed out that several filter tests have been done in the past on both CORONA and other systems. [redacted] pointed out that J-3 was essentially a new camera and that previous filter studies on J-1 were not directly valid as the trade-offs were now different. [redacted] agreed that this was true. It was further discussed, and agreed, that other filter tests may now be warranted. The committee tasked [redacted] to look into this and make recommendations.

2. Exposure Analysis (CR-1, CR-2)

Basic Objective

Determine what effect a range of 1 1/3 stops has on operational photography.

Evaluation

The evaluation is planned to be both subjective and objective. NPIC will be asked to perform the subjective analysis. NPIC is also making microdensitometer traces of the [redacted] targets, for quantitative exposure analysis. This data will be compared with the normal mission density (terrain) analysis to evaluate the relationship.

Discussion

It was generally agreed that the work was proceeding in the proper direction. [redacted] questioned the relationship of this work to Project SUNNY. It was agreed that the two were complementary. [redacted] agreed to arrange for the Project SUNNY reports to be provided to ITEK.

3. Bi-Color (Bi-Spectral) Photography (CR-2)

Basic Objective

Test the operational feasibility of obtaining bi-color photography from mission photography.

Evaluation

a. Obtain the best bi-color prints possible.

b. Evaluate the quality of the green (SF-05) imagery.

c. Test best method of obtaining bi-color images.

Discussion

Considerable discussion was generated relative to this subject. The highlights of the discussion were:

a. [redacted] questioned the need for this test. It was his opinion that there was not much use for this technique. [redacted] reviewed the memorandum received from OSI on the potential uses of bi-color. It was generally agreed that even though the ultimate use of bi-color is not clear, it is worth testing.

b. The question of impact on operational photography, if the SF-05 filter got stuck in the primary position, was raised. [redacted] pointed out that ITEK block testing of CR-2, in this regard, indicated no loss in resolving power between the SF-05 and the primary W/21 filter. The committee then agreed that the test should be run.

c. [redacted] questioned the speed with which we would be able to get necessary rectified and ortho-printed dupes from the ON. [redacted] agreed that the ON's could be sent to ACIC. [redacted] agreed to coordinate this activity to insure speedy response from all concerned.

d. [redacted] pointed out that, as we presently see it, the main use of the bi-color technique is as a Spectral analysis tool, for comparative PI purposes, rather than to make color prints, and this is what our analysis should concentrate on.

4. Polarizer Filter (CR-2)

Basic Objective

Determine the effectiveness of a polarizer as a haze-cutting filter.

Evaluation

a. Image Quality Analysis

b. Atmospheric effects as a functioning solar altitude and azimuth.

c. Determine effective filter factor.

d. Subjective analysis of tonal rendition.

Discussion

General agreement was reached on the desirability of this test. [redacted] reported that he has been doing some work on the polarization of ground objects and finds that some objects are highly polarized. The uses on polarization for this kind of work should be investigated. [redacted] and [redacted] were asked to work together on this potential use and make recommendations.

5. SO-230 (CR-2)

Basic Objective

Compare SO-230 with 3404 in an operational mode.

Evaluation

a. Compare image quality of SO-230 and 3404. Evaluate desirability of using SO-230 in J-1 and J-3 missions, predict performance.

b. NPIC to do a subjective evaluation of PI suitability of SO-230 vs. 3404.

Discussion

Very little discussion. All agreed that this was an important test.

6. ITEK Special Filter (CR-3)

Basic Objective

Determine if a real gain in image quality can be obtained by using a different spectral band with the second generation Petzval lens.

Evaluation

a. Image quality.

b. Subjective analysis.

Discussion

[redacted] pointed out the basic purpose of this test. This filter cuts off at both the short (about 530 mu) and the high end (about 690 mu) of spectrum. Lab testing has shown that the MTF of the Petzval (2nd gn) in the far end is very poor, and that current filters pass this region. Cutting off this longer region should help performance optically, and lens tests have indicated that this is the case. [redacted] pointed out that ITEK is currently having problems making this filter. The difficulty is not in the coating, but rather, with the glass substrate. Work will continue.

7. SO-380 (CR-3)

Basic Objective

Test SO-380 in the J-3 system.

Evaluation

a. Image quality.

b. System performance (tracking, resolution variability).

c. Lab tests (chamber).

d. Limited dimensional stability analysis.

Discussion

[redacted] wanted to know when we were going to go full 380. [redacted] said

CR-5. Discussion was held on our confidence of SO-380 in the J-3 system. [redacted] discussed the extent of lab testing, and its success, and verfied that there was very little doubt that SO-380 could be used. [redacted] pointed out that EK was doing work on the dimensional stability characteristics of SO-380. It was agreed that a summary of this work should be included in this report. When appropriate, time-wise, [redacted] will prepare such a summary.

8. SO-180 (CR-4)

Basic Objective

To obtain sample satellite photography with SO-180 (camouflage detection color film).

Evaluation

a. Subject analysis by NPIC of information content.

b. Tone reproduction at satellite altitudes.

c. Image quality (system) relative to 3404.

Discussion

It was agreed that this was one of the more interesting, and potentially useful, tests. [redacted] pointed out that the aging of the SO-180 is critical. He stated that SO-180 is very dependent on the time after making at which it is used, and that is should only be used within a certain time period. The problem rests mainly with the IR sensitive layer which changes speed rapidly as it ages. More discussion is to be held on this at a later meeting for CR-4 planning.

9. SO-340 (Night Photography)

Basic Objective

Determine what kinds of activity can be detected at night.

Evaluation

Primarily subjective to compare day coverage with the night to isolate kinds of activity that can be detected.

Discussion

[redacted] discussed the potential difficulty in running this test in the CORONA system. The difficulty being primarily one of static marking, SO-340 is 100 times faster than 3404 and is, therefore, considerably more sensitive to static marking. It was pointed out that we may have to back off to a 3401 or 3400 type of film and do a "sunline" test instead of a direct night experiment. [redacted] mentioned that chamber tests were to be run with QR-2 at AP and that we should wait for those results.

Discussion

The following points were made during the general discussion period:

a. Kodak is making an aerial version of Kodachrome II. We may want to test this on CR-5.

b. The problem of getting ITEK their information and dupes in a timely fashion was discussed. [redacted] and [redacted] assured the Committee that they would take any action necessary to expedite routing.

c. [redacted] instructed [redacted] to give the TERO (which Westover does) second priority to this work. This should help to expedite matters.

d. [redacted] instructed Westover to give any assistance to ITEK that is necessary to aid in evaluations from the ON's.

e. [redacted] is to be responsible for coordinating all necessary PI tests at NPIC.

Minutes Approved: [redacted]
Chairman