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SUBJECT: Evaluation of [redacted] "Description of Equipment, SPAN Enlarger-Printer-Processor, Model EPP 9-500".

1. This mechanical photo-optical device as per proposal is to use the [redacted] Bimat process to obtain the finished exploitable transparency regardless of degree of magnification. The evaluation will cover the system in two modes, (1) the photosensitive material and (2) the optomechanical system.

2. The Bimat process was proposed; therefore, the evaluation will focus upon it as the photosensitive media although comments will be presented on other potential products later in this dissertation.

a. Photosensitive material - [redacted] Bimat process STATINTL

(1) Materials - to date no reproduction type of materials SO-105, and SO-278 (8430) have been "bimatted", that is the mono-bath chemistry does not exist. Experimentation has been almost STATINTL completed for [redacted] Special High Definition Aerial Film, Type SO 243 (equivalent SO 132, 4404). This is a taking film and is not STATINTL processed to a gamma of 1.0 but to higher gammas; therefore, there is no chemistry available to perform experiments which would give qualitative values were the film used for reproduction purposes.

(2) Processing Time - The thinner emulsions process to completion STATINTL more rapidly than the thicker characterized by the faster Aerial STATINTL taking films. [redacted] of [redacted] Research Labs postulated that SO 243 could be processed in 60 seconds and possibly the reproduction type film in 30 to 60 seconds.

(3) Subsequent treatment - the negative and positive can be used almost immediately since they are "virtually" dry when separated after processing. If they are to be stored for any length of time or retained for archives there is a requirement for subsequent washing only for a short time. This would also require drying

consequently the necessity for more time.

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(4) Quality - The negative, [redacted] Res. Lab., assures me is very high quality. But the positive formed by the diffusion process cannot ~~entertain~~ provide much more than a transfer of 70% of the information in the negative.

(5) Roll vs cut film - The SPAN E-P-P is designed to use roll film. It seems reasonable to believe that it could be designed to

STATINTL use cut film and the [redacted] people feel that it is feasible to do Bimat with cut film.

b. Opto-mechanical system

(1) The enlargement constants appear to be satisfactory. The full 9½" film width will be utilized regardless of film being viewed.

(2) A question arises as to adequacy of exposing light for slow photo sensitive reproduction type materials with varying magnifications; will the 940 type light tables furnish enough exposing light? It can be expected that there will also be a significant reduction in the contrast due to the diffuse light source of the table itself.

(3) The continuous roll processing is not at all acceptable. Cut film is mandatory. Too much waste would incur with the continuous roll film approach.

(4) Regarding usage of the finished print, if it is to be a working copy and there is volume requirement for enough near real time (quickie) reproductions then this device can be of significant service. Conceptually it looks good but will require considerable change in some of its elements i.e., cut film handling so that individual copies can be called for, adequate

light source, etc. A system analysis after the design phase should be performed in an attempt to determine the efficiency of the device prior to hardware fabrication.

3. This is in essence another "chip" printer only the chip is larger and has no data block.

4. There are other potential photosensitive materials that are being developed, some in late stages of development, that show greater promise than the Bimat process both from quality of output and ease of handling. They are dry processed and have a near real time print production possibility. The Air Force has a high degree of confidence that Diazo materials (800 l/mm and 21 step grey scale) (vapor processed in seconds) will be the reproduction standard for them. Other processes known in house, [redacted] for instance, shows considerable promise. At this time there are no specifics in terms of resolution or grey scale rendition known on the [redacted] material. It is heat processed.

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5. In summary these facts must be considered regarding the [redacted] device as a potential developable device:

a. Requirement for a quick print

b. Real Time capability for producing the print

c. Degree of magnification required

d. Quality of the reproduction material

e. Quality and quantity of image producing light

f. Weighing development time of [redacted] device with Bimat process against availability of a simplified dry processed photosensitive material consequently requiring a subsequent later development.

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Contract No.	Task No.	Name of Contractor	RFP Proposal No.
none	none	[redacted]	unnumbered

Description of Project

SPan Enlarger-Printer-Processor

Type of Contract	Classification	Consignee	Total Cost
none	Uncl		

Date Proposal Rec'd	Staff Work Completed	TEC Action	Executive Approval	Date of Contract	Estimated Completio
19 Mar 64	15 Apr 64	none			

Comments John I cant see where we can make any further progress on this. I recommend that we place it in the files and cancell the Project # 997704.

Contacts - Name, phone, etc.

[redacted] SPan Enlarger-Processor

DATE REQ'D | STATINTL | RECEIVED BY | DATE APPROVED BY

ASSIGN | STATINTL by Mr. Lundahl | 19 March 64 by [redacted] | 20 Mar 64

PROJ [redacted] | DATE ASSIGNED BY 20 March 1964 by [redacted] | DUE DATE

DUE DATE | DATE COMPL | % COMPL

[redacted] Description of Equipment STATINTL

Span[illegible]arger-P[illegible]inter-Processor Model EPP9-500.

[illegible]s your evaluation with [redacted] STATINTL

3. Prepare your immediate and thorough evaluation to go to Mr. Lundahl.

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2[illegible] 1964, Project reassigned to [redacted] STATINTL

23 July 64, Project reassigned to [redacted]

CONTR

CONSIGNEE		CONTRACT NO	TYPE
		CLASSIFICATION	TOTAL COST
PROPOSAL RECEIVED	STAFF STUDY COMPLETED	SENT TO TDC	TDC ACTION
EX DIR APPROVAL	CONTRACT DATE STATINTL	ESTIMATED COMPLETION	COMPLETION DATE
MONITOR [redacted]			

PROCESSOR

* Minor

NPIC FM-204 (1-64)

1-6-64

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Major Assignment: [redacted]

Evaluate Bimat as an Immediate P.I. Reproduction Technique.

1. Coordinate with:
   a. [redacted] STATINTL
   b. In house
   c. [redacted], AL-14 STATINTL
   d. Other government Agencies

2. Evaluate with respect to other systems for:
   a. Resolution, tone, Speed implementation feasibility
   b. Enlargement Printing
   c. Contact Printing

3. Prepare Evaluation Report

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[redacted]

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15 Mar 64

SPAN (Bimat) Enlarger [redacted]

1. Good Bimat including wash requires 6 minutes.

2. Diazo requires 1000 watts/inch

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3. [redacted] prints look good no transparency

4. Dost — density .2 – 1.4
speed ASA – 2

5. See WWJ's Trip Report on SPSE 23–30 April.