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[redacted] was asked to investigate these possibilities and submit a proposal which spells out those changes which are possible, along with their relative costs.

DATE: 3 October

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PLACE:

ATTENDEES:



SUBJECT: A Study of The Effects of Exposing Photographic Materials With Lasers and additional minor items

DISCUSSION:

1. Detailed discussions were held [redacted] concerning the possible effects of exposing photographic materials with lasers. [redacted] as expected, has some of the answers at present; however, our discussions indicated that there are many definite problem areas, some of which, we had not previously anticipated. A few of these problem areas are as follows:

a. There are a number of additional items that may cause diffraction phenomena in addition to those we had considered; such as, [redacted] "Bubbles," gaps between base/emulsion and the base/gel, and variations in thickness of the extruded base -- the fluid gate won't solve this problem because the base and emulsion have different refractive indexes. Estar base has a greater variation than acetate.

Due to the polarized nature of laser light, stresses in the record film could produce diffraction patterns. Since the film, in taking and processing, is drawn through many tight radius turns, over rollers, etc., this places the external layers of the film (emulsion and gel) under alternate compression and tension. These strains could introduce permanent stresses in the film.

b. The depth to which red light will penetrate the recording film governs its scattering effects and, as a consequence, its resolution. There are some unanswered questions in this area.

c. As bases become thinner, and thinner, the heat retention of the silver halide may become a problem on dense negatives.

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2. [redacted] will submit a study plan indicating which areas they feel require research along with the cost and time considerations involved.

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3. [] has developed a small "breadboard" to demonstrate contrast enhanced viewing. The system uses back lighting along with ultraviolet incident light. It does not appear very promising. [] will send it to NPIC shortly for our evaluation and comment.

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4. [] discussed the Teleprompter slide problem. [] has taken some tentative steps toward a solution. New approaches were discussed.

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CONCLUSIONS AND RECOMMENDATIONS:

1. NPIC should seriously consider an "upgrading" of the current [] Zoom 70 and the development of a zoom tube magnifier.

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2. [] agrees that there are numerous gaps in their knowledge concerning lasers and their effect upon photographic materials, and that the proposed research study is both desirable and timely.

[]

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Development Branch, P&DS

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