SENSITOMETRIC TECHNIQUE FOR EVALUATION OF PROCESSING (STEP)

1. For calibration of your sensitometer:

   1.1 Set the dip switches of the sensitometer to an exposure value that will produce a density of 1 + base plus fog between steps 9 to 11;

   1.2 Select the films that you will use. You must use the same type and batch of films for all your tests.

   1.3 Find two or three processors that operate at optimum conditions (correct temperature for processing cycle used, fresh chemicals (± 3 days after replacement) and recently serviced. The manufacturer or his agent of the processors can assist you with this. If possible use different make of processors and <u>complete systems</u> (e.g. Agfa or Kodak, etc.).

   1.4 Perform paragraphs 2-9 and average the values for the processors.

   1.5 The step number obtained in paragraph 9 is the calibration step **(C)** for the sensitometer.

   1.6 Now you are ready to perform field surveys and evaluate the <u>processing speed</u> of different processors.

2. Expose the control film (OUR FILM - NOT THE FILM OF THE FACILITY) preferably four times (once on each side), but at least at the top (notched edge side) and bottom (ensure that the sensitometer is on the correct colour setting). CAUTION. The emulsion side MUST face the light source of the sensitometer. If you use a single emulsion film. **NB:** The emulsion side is facing you when the notched edge is top right.

3. Develop the film on the right hand side of the feed tray, emulsion side up and with the notched edge as the leading edge, and label this film with the file number, sensitometer number, date and processor number; if more than one is used by the facility.

4. Zero the densitometer (If the densitometer is switched off it must be zeroed before use.) and measure the base plus fog as close as possible to the centre of the film. Make at least three measurements at different points close to the middle and take the average. **NB: For consistency and accuracy the emulsion side must face upwards for all densitometer measurements.**

5. Determine the speed density by adding 1.00 to the Base + Fog (1.00 + base plus fog).

6. Select adjacent steps of the strips on the control film above and below the speed density (1 + base plus fog).

7. Measure the densities of the above-mentioned two steps on the four sides. These measurements must be performed at the CENTRE of each selected step.

8. Determine the mean density for each step. Disregard data from any strip if the density reading for the same step differ by more than 0.10. The numbers should be the same for all four strips.

9. Plot the step number and its average step density. Connect the two points with a straight line. Determine the intercept point of the line corresponding to the speed density (1.00 + base plus fog) and read its step number from the graph's Y-axis.

10. The STEP NUMBER from paragraph **9** is (M) the step with density of 1+B+F of processor under investigation.

11. Calculate the processing speed by inserting the value under paragraph 1.5 and the value under paragraph 10 into the following formula;

   $$\text{Processing Speed} = (10^{(C-M) \times 0.15}) \times 100$$

12. If the processing speed is less than 80 (under developing), it needs to be investigated OR if more than 120 (over developing).

PROCEDURE FOR STEP

Processor: Manuf.:	Model:	Date.

Processing time in sec: Standard (S) or Extended (E)	Develop. Temperature in ^{0}C

Developer manufacturer:	Developer type:

Sensitometer ser. No	Calibration step no– C (see par 1.5)	Density for B+F	1.0 added to B+F

	Left side		Right side		Top side		Bottom side		Mean Densities	
	Below	Above	Below	Above	Below	Above	Below	Above	Below	Above
Numbers										
Densities										

Processing speed: (Step No.)	Processing speed: (%)

STEP NUMBER

OPTICAL DENSITY