



KODAK X-SIGHT L/RA Film / 4891

1) Description

KODAK X-SIGHT L/RA Film / 4891 is a high speed, wide latitude, and high contrast orthochromatic medical x-ray film for use with green emitting intensifying screens. It is coated on a blue, 7-mil ESTAR base support that has a base density of approximately 0.20 with a very low amount of screen-light crossover, resulting in improved image sharpness. KODAK X-SIGHT L/RA Film is processable in existing automated processing cycles. This film incorporates a technology that we call *visually adaptive contrast* (see Figures 1 through 5 in the GRAPH section). This design increases contrast at high densities, compensating for the associated loss of visual contrast sensitivity. It puts the contrast where your eyes most need it. The result is a high contrast, wide latitude radiograph.

2) Safelight

Use a KODAK GBX-2 Safelight Filter with a frosted 15-watt bulb located at least 4 feet from the film.

3) Storage and Handling

Handling -

Hands must be clean, dry and free of lotions, etc. Film should be handled carefully by the edges to avoid physical strains such as pressure, creasing, or buckling.

Storage -

Store unexposed film at 50 to 70°F (10 to 20°C), at 30 to 50 percent RH, and properly shielded from x-rays, gamma rays, or other penetrating radiation. Keep exposed film in a cool, dry place that is properly shielded from penetrating radiation. Process as soon as possible after exposure. Processed film should be stored at 60 to 80°F (16 to 27°C), at 30 to 50 percent RH.

4) Sensitometric Parameters

Relative Speed:	Measured at a density of 1.00 above gross fog.
Contrast:	Measured as slope of the line between densities of 0.25 and 2.00 above gross fog.
Gross Fog:	Density of film base plus processing fog.

5) Process Variations

Changes to speed, contrast, and fog as a result of temperature variation from normal are included in GRAPHS Section.

6) Intermix

This film can be processed with intermixes of common medical x-ray films.

Variations of bromide and iodide ions in KODAK RP X-OMAT Developer cause sensitometric speed effects that are significantly different for X-SIGHT Films than for conventional films.

7) Automated Processing

Processing is recommended in KODAK X-OMAT and RP X-OMAT Processors, using KODAK RP X-OMAT and RA/30 Chemicals.

8) Emergency Manual Processing

(Not recommended for regular use, but can be used when automated processor fails)

Solution/Step	Temperature	Time	Agitation
KODAK RP X-OMAT Developer working solution	80°F (26.5°C)	1 min	No agitation. Tap hanger immediately after immersion to remove film surface air bubbles.
KODAK Indicator Stop Bath OR Running Water Rinse	80°F (26.5°C)	20 sec	Continuous, moderate
KODAK RP X-OMAT Fixer and Replenisher	80°F (26.5°C)	1 min	Vigorous at start
Running water wash ^[1] (8 volume changes/hour)	80°F (26.5°C)	5 min	---
Dry	120°F (49°C)	---	---

^[1]KODAK PHOTO-FLO Solution may be used after washing to minimize water spots and drying marks.

Notice: Observe precautionary information on product labels and on the Material Safety Data Sheets.

9) Emergency Manual Processing-Rack and Tank

Solution/Step	Temperature	Time	Agitation
KODAK GBX Developer and Replenisher	72°F (22°C) 80°F (26.5°C)	7 min 4 min	Tap sheet film hangers lightly on side of tank immediately after immersion to dislodge air bubbles.
NOTE: DO NOT agitate films during remainder of development step. Remove film and hanger 5 seconds before end of development. DO NOT allow films to drain excess developer back into the developer tank.			
KODAK Indicator Stop Bath OR Running Water Rinse	60 to 85°F (16 to 30°C)	30 sec	Immerse hanger rapidly; agitate continuously.
KODAK GBX Fixer and Replenisher OR KODAK RP X-OMAT Fixer and Replenisher	60 to 85°F (16 to 30°C)	2 to 4 min	Intermittent, 5 sec every 30 sec.
Running Water Wash ^[1] (about 8 volume changes/hour)	60 to 85°F (16 to 30°C)	5 min	—
Dry in a dust-free area at room temperature or a suitable drying cabinet. Temperature not to exceed 120°F (49°C).			

^[1]KODAK PHOTO-FLO Solution may be used after washing to minimize water spots and drying marks.

10) Graphs¹

Figure 1: Lesion Detection vs. Density

Figure 2: Visually Adaptive Contrast Puts the Contrast Where Your Eyes Need It

Figure 3: Sensitometric Comparison with other Kodak Latitude Systems

Figure 4: Visually Adaptive Contrast: Local comparison with other Kodak latitude systems

Figure 5: Visually Adaptive Contrast: Local comparison with standard Kodak high contrast systems

Characteristic:

- A) RP X-OMAT Chemicals (7-00)
- B) RP X-OMAT Developer Temperature Series (7-00)

Process Variations from Normal Processing Temperature:

- C) Speed (7-00)
- D) Contrast (7-00)
- E) Fog (7-00)

¹NOTICE: The sensitometric curves and data in this publication represent product tested under the conditions of exposure and processing specified. They are representative of production coatings, and therefore do not apply to a particular box or roll of photographic material. They do not represent standards or specifications that must be met by Eastman Kodak Company. The company reserves the right to change and improve product characteristics at any time.

Safelight Sensitivity:

F) (7-00)

Drying:

G) (7-00)

Spectral Sensitivity:

H) (7-00)

Inverse/Squared Sensitometry:

I) (7-00)

MTF:

J) (7-00)

Note: The Kodak materials described in this publication for use with KODAK X-SIGHT L/RA Film / 4891 are available from dealers who supply Kodak products. You can use other materials, but you may not obtain similar results.

The contents of this publication are subject to change without notice.

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Health Imaging
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End of Data Sheet

Figure 1: The human visual system loses its ability to distinguish differences in density as an image gets darker. This means that lesion detection is less likely if the lesion appears in a darker area of the radiograph.

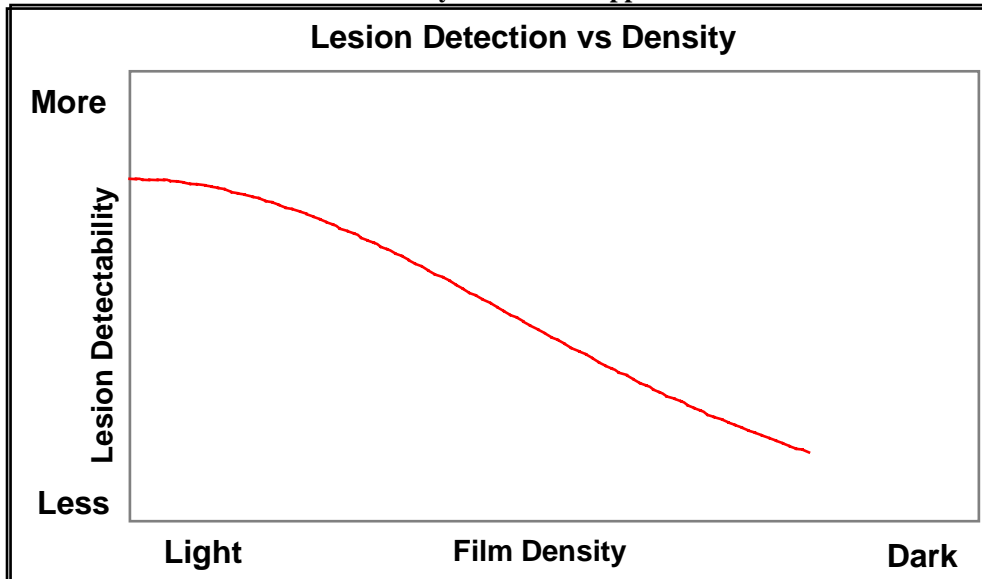


Figure 2: Visually Adaptive Contrast Puts the Contrast Where Your Eyes Need It

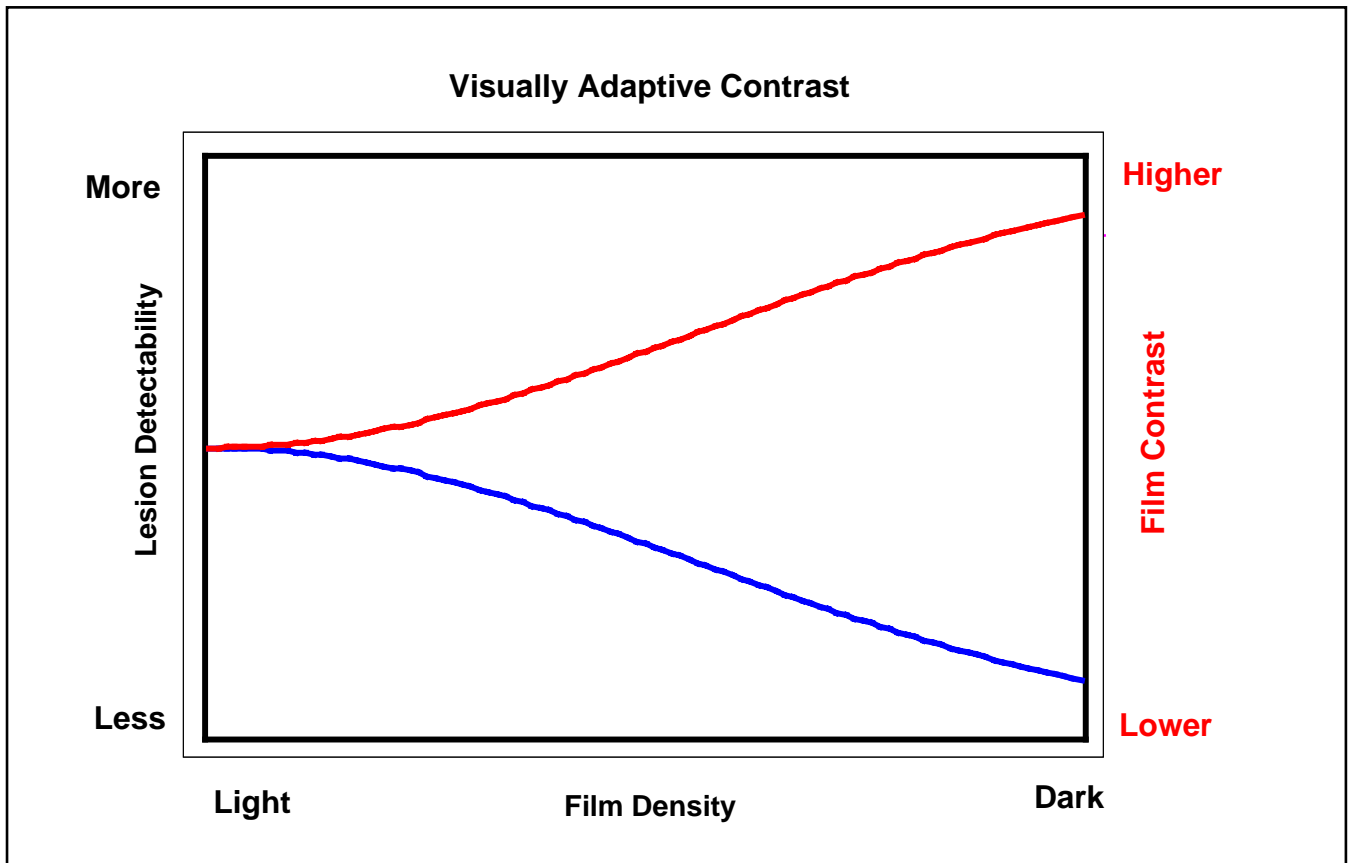


Figure 3: Sensitometric Comparison with other Kodak Latitude Systems

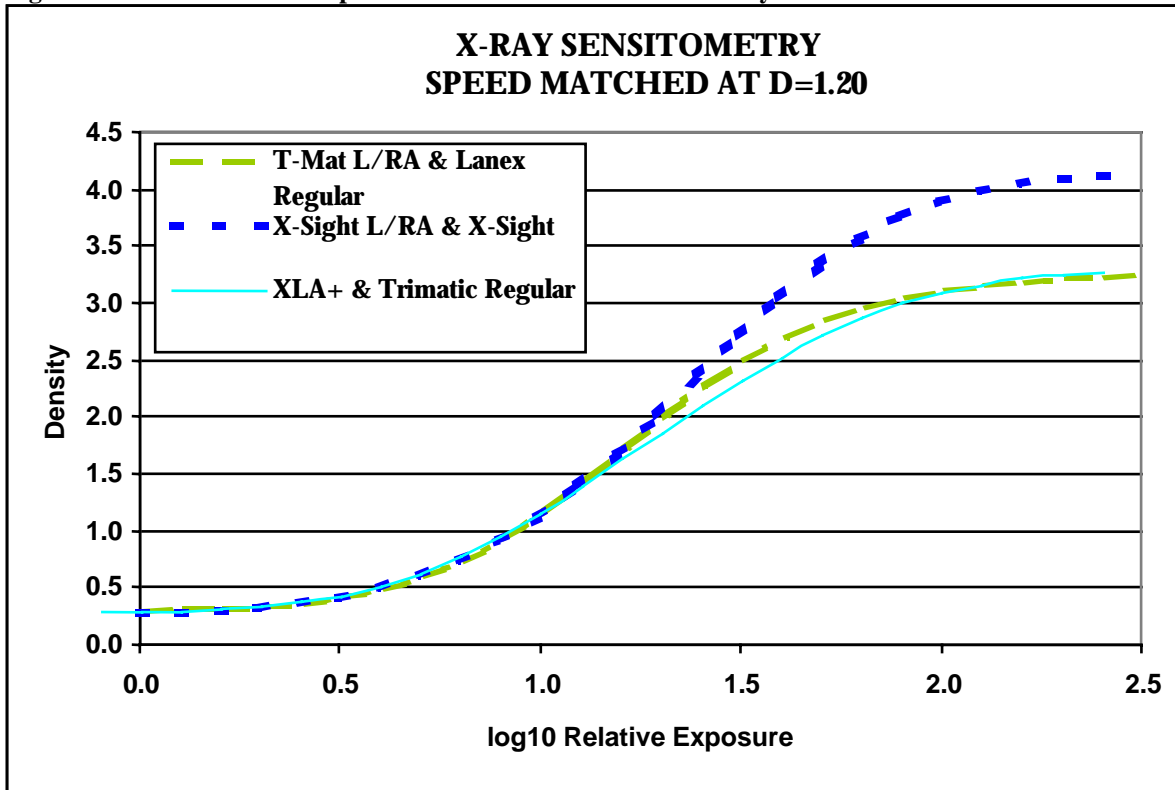


Figure 4: Visually Adaptive Contrast: Local contrast comparison with other Kodak latitude systems

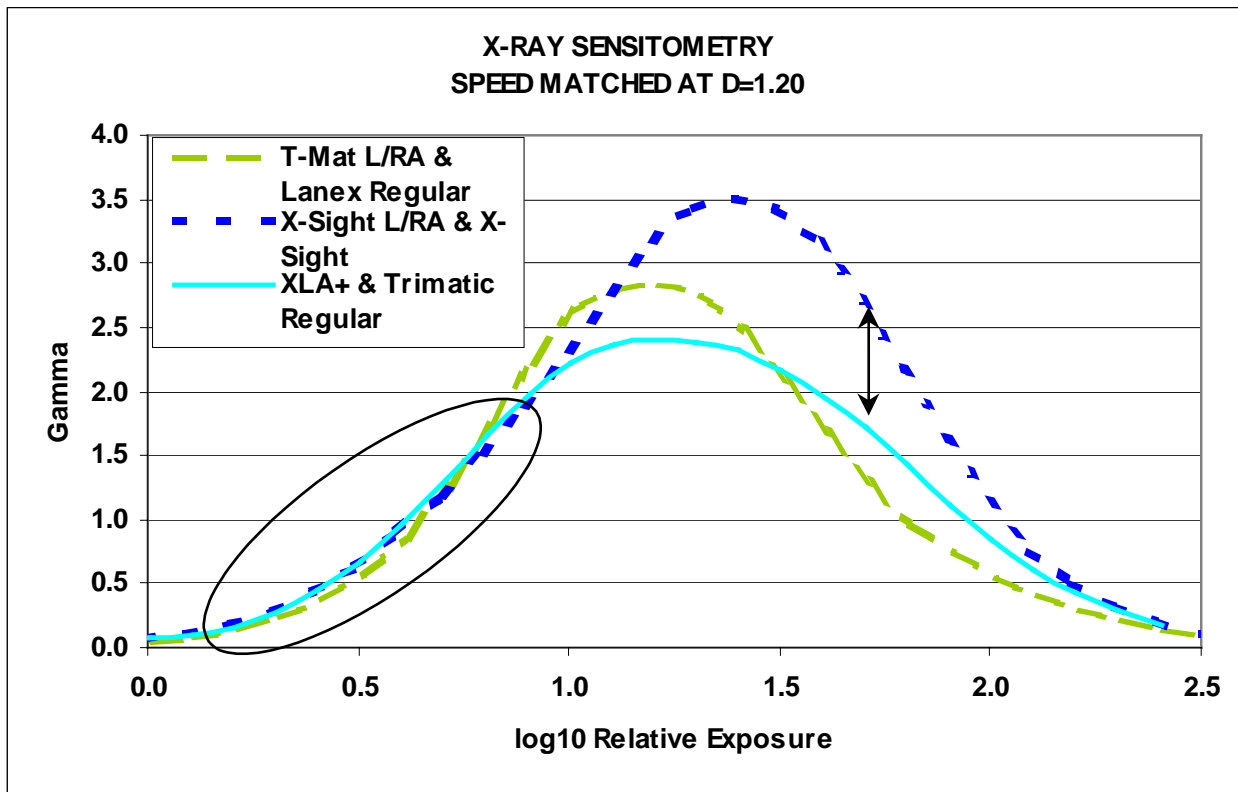
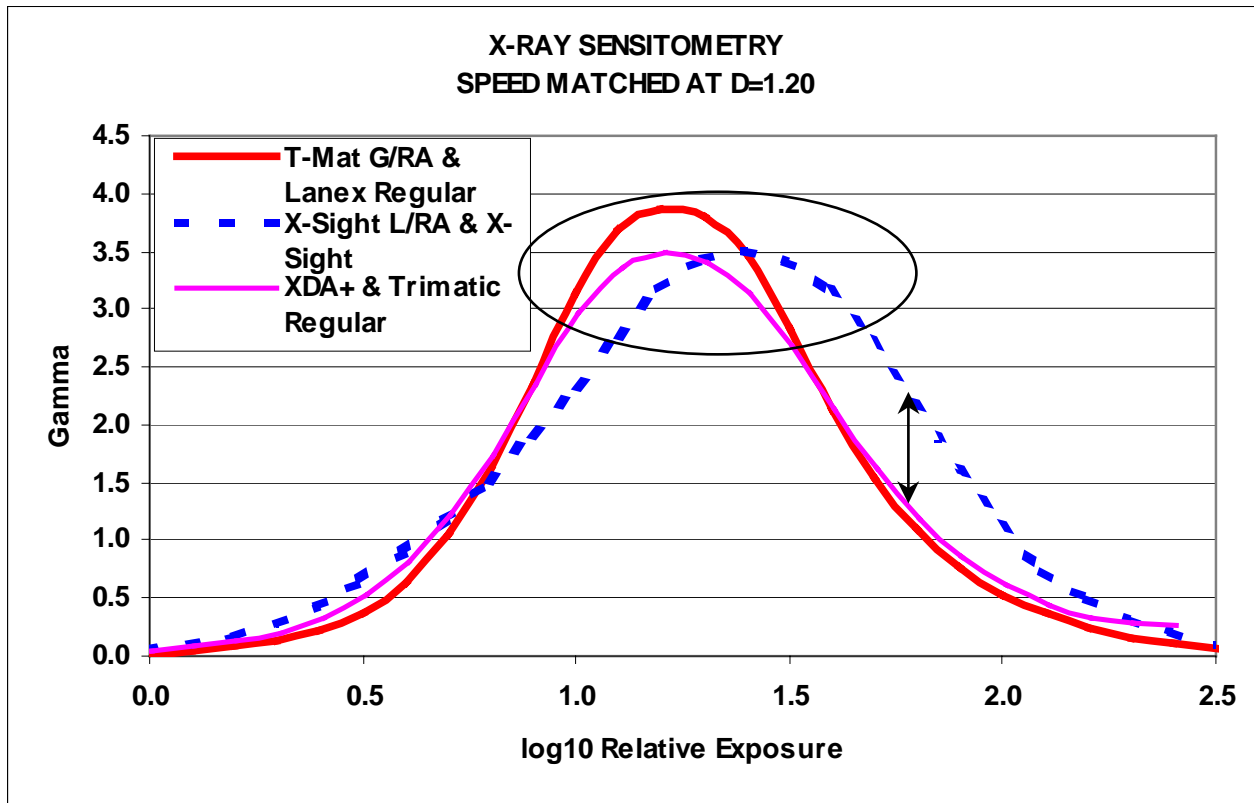
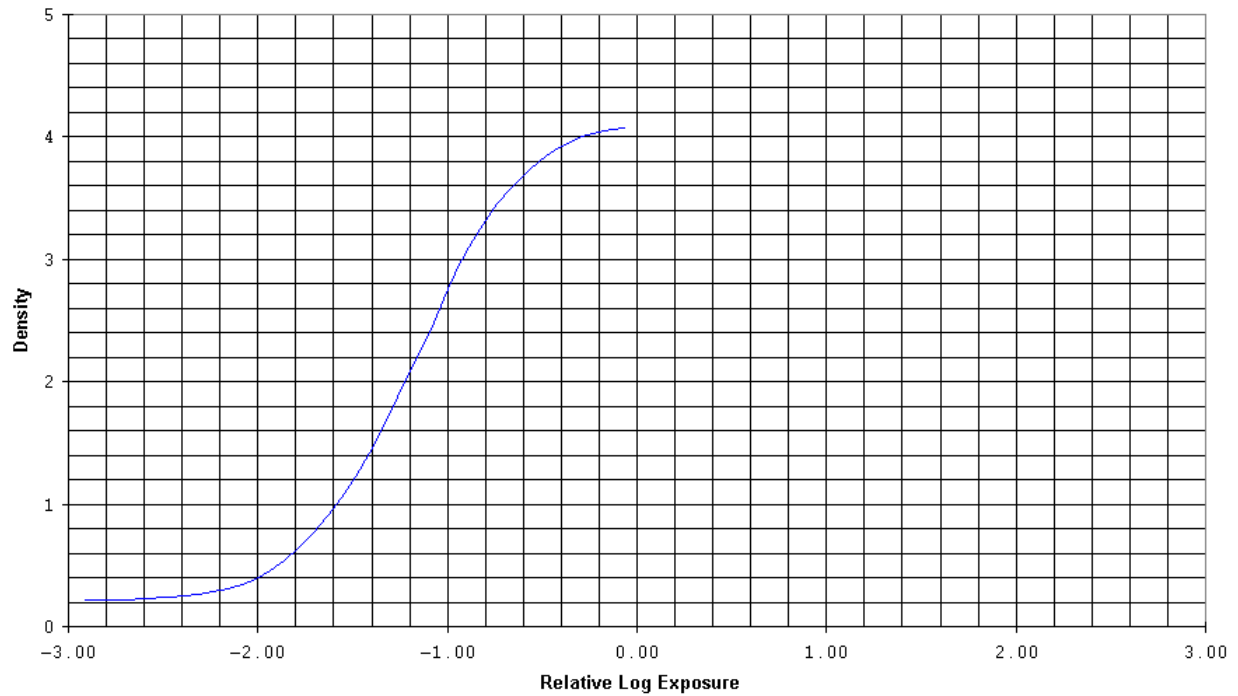


Figure 5: Visually Adaptive Contrast: Local contrast comparison with standard Kodak high contrast systems



TI5002A 07-00
CHARACTERISTIC, For Publication

KODAK X-SIGHT L/RA Film / 4891
1/50 second Simulated Green Screen Exposure
Seasoned KODAK RP X-OMAT Chemicals, 95 F (35 C); KODAK X-OMAT 480 RA Processor;
Diffuse Visual Densitometry

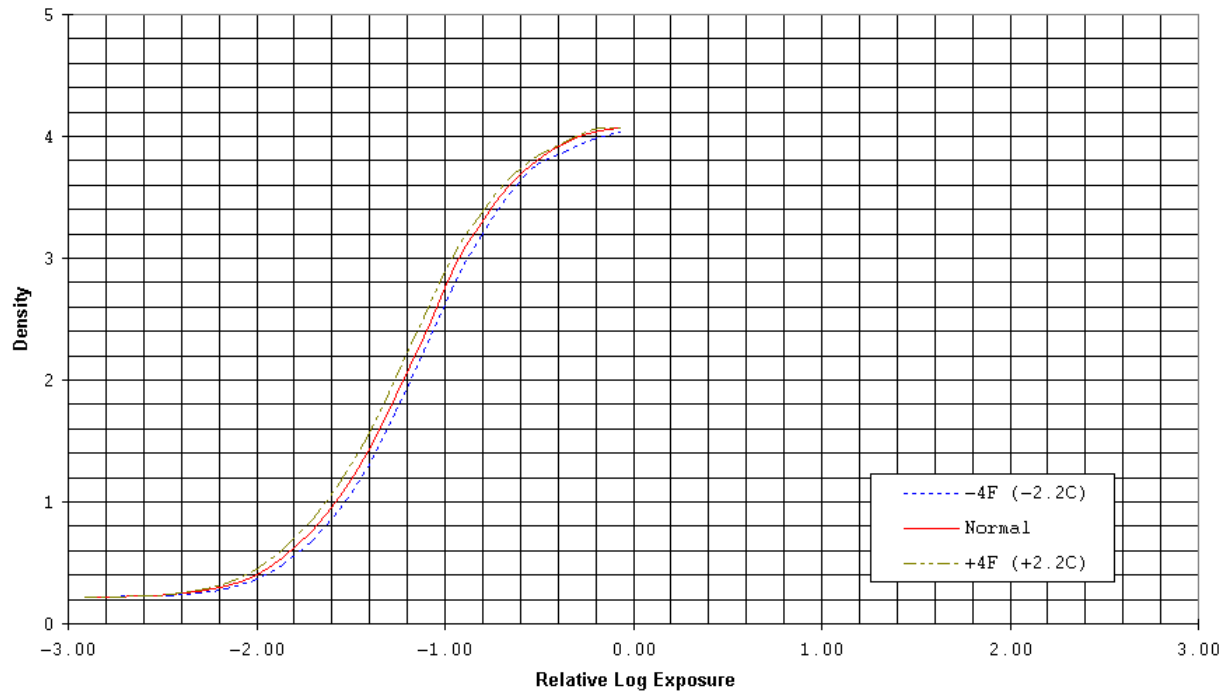


Notice: While the data presented are typical of production coatings, they do not represent standards which must be met by Eastman Kodak Company. Varying storage, exposure, and processing conditions will affect results. The company reserves the right to change and improve the product characteristics at any time.

TI5002B 07-00

CHARACTERISTIC, For Publication

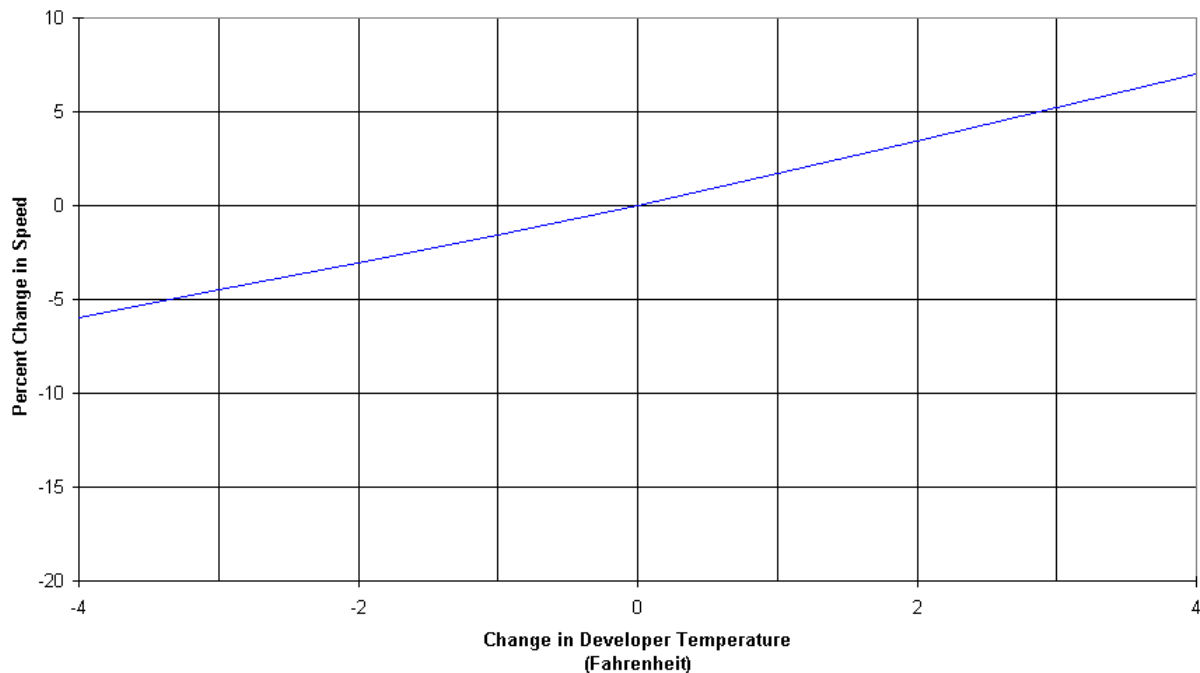
KODAK X-SIGHT L/RA Film / 4891
1/50 second Simulated Green Screen;
KODAK RP X-OMAT Chemicals; KODAK X-OMAT 480 RA Processor;
Diffuse Visual Densitometry



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TI5002C 7-00
TEMPERATURE VARIATION, For Publication

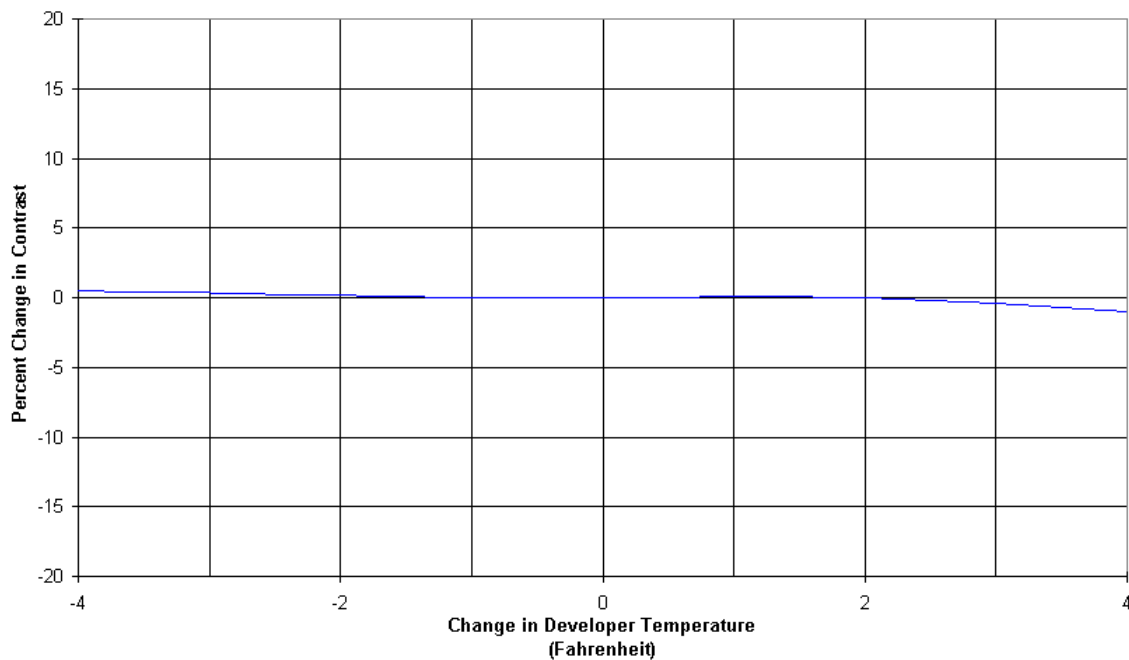
KODAK X-SIGHT L/RA Film / 4891
Percent Change in Relative Speed
KODAK X-OMAT RA/30 Chemicals; KODAK X-OMAT 480 RA Processor
(Reference: Normal Temp. = 0% Change)
(4 F = 2.2 C)



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TI5002D 7-00
TEMPERATURE VARIATION, For Publication

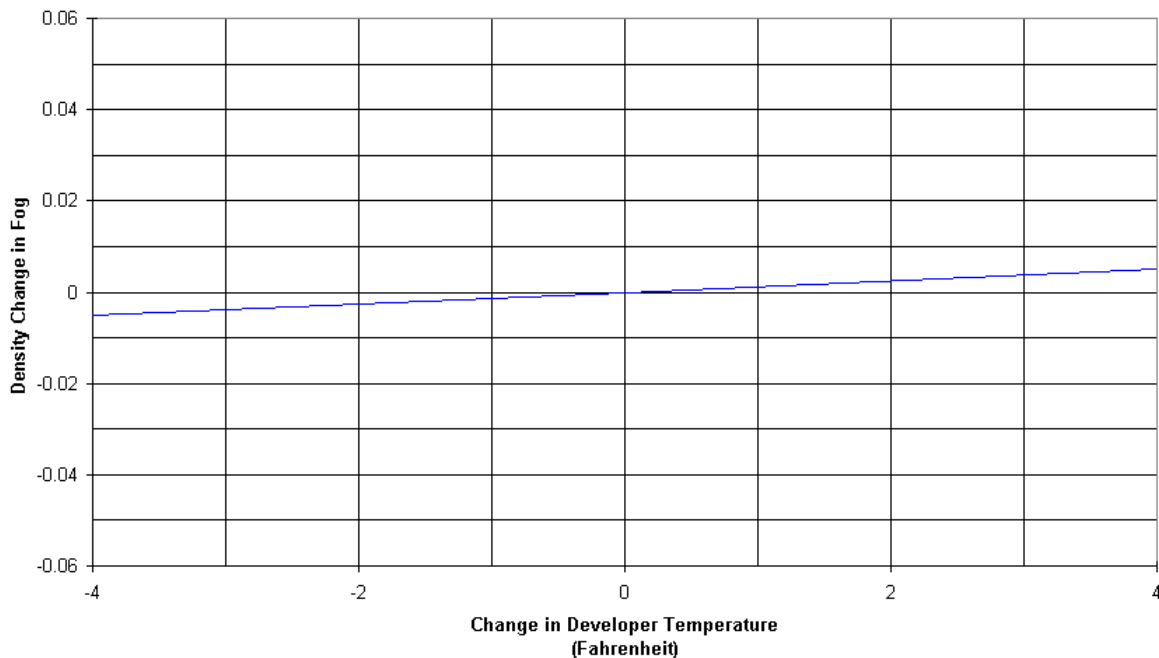
KODAK X-SIGHT L/RA Film / 4891
Percent Change in Contrast
KODAK X-OMAT RA/30 Chemicals; KODAK X-OMAT 480 RA Processor
(Reference: Normal Temp. = 0% Change)
(4 F= 2.2C)



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TI5002E 7-00
TEMPERATURE VARIATION, For Publication

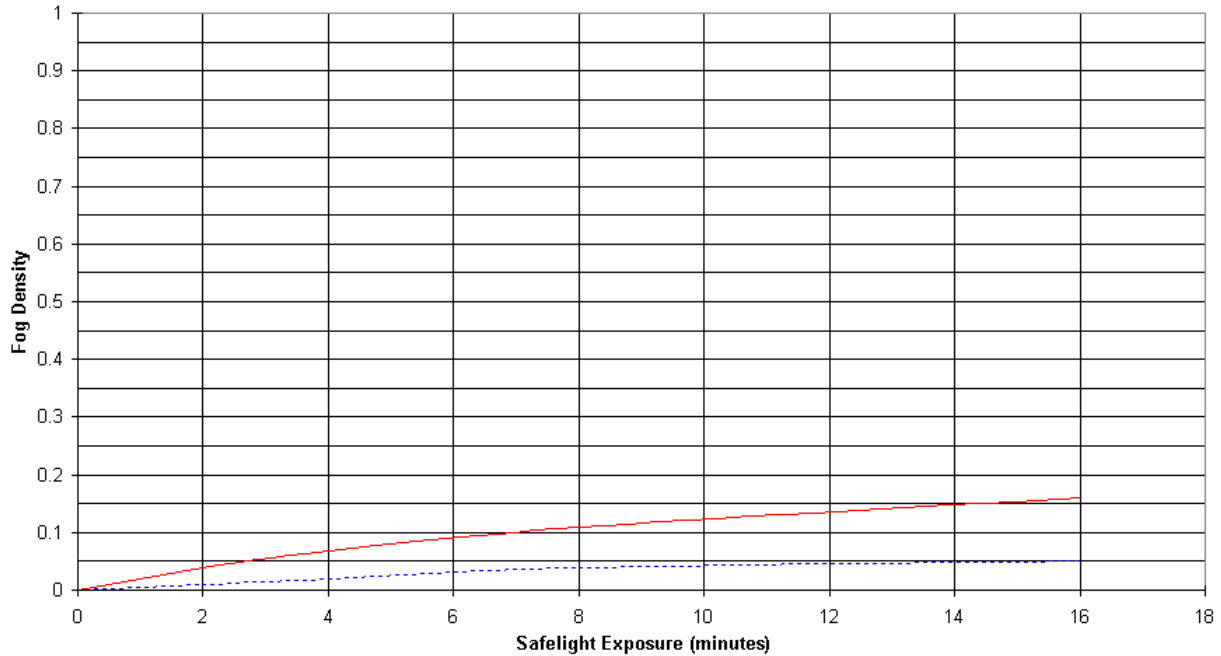
KODAK X-SIGHT LRA Film / 4891
Density Change in Fog
KODAK X-OMAT RA/30 Chemicals; KODAK X-OMAT 480 RA Processor
(Reference: Normal Temp. = 0% Change)
(4 F = 2.2 C)



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TI5002F 7-00
SAFELIGHT SENSITIVITY, For Publication

KODAK X-SIGHT L/RA Film / 4891
KODAK GBX-2 Safelight Filter, 15 watt lamp, 48 inches
KODAK RP X-OMAT Processor, Model M6; KODAK RP X-OMAT Chemicals, 95 F
(Fog growth with increasing safelight exposure)

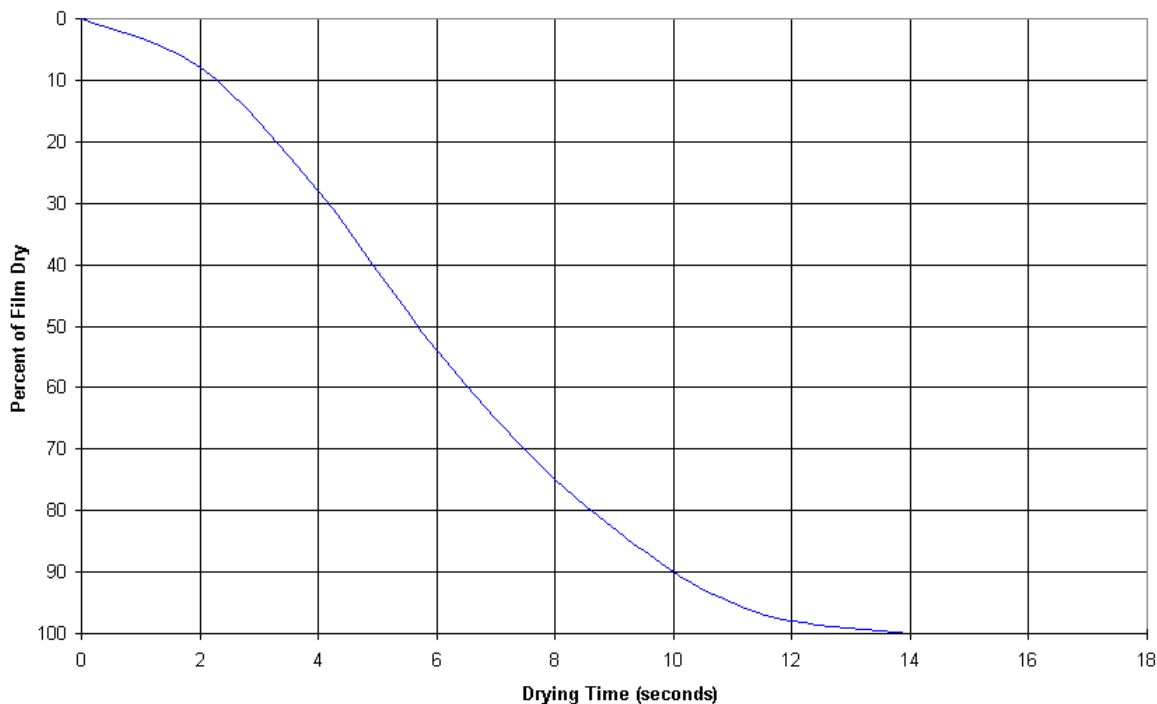


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— Latensification
- - - Hypersensitization

TI5002G 7-00
DRYING, For Publication

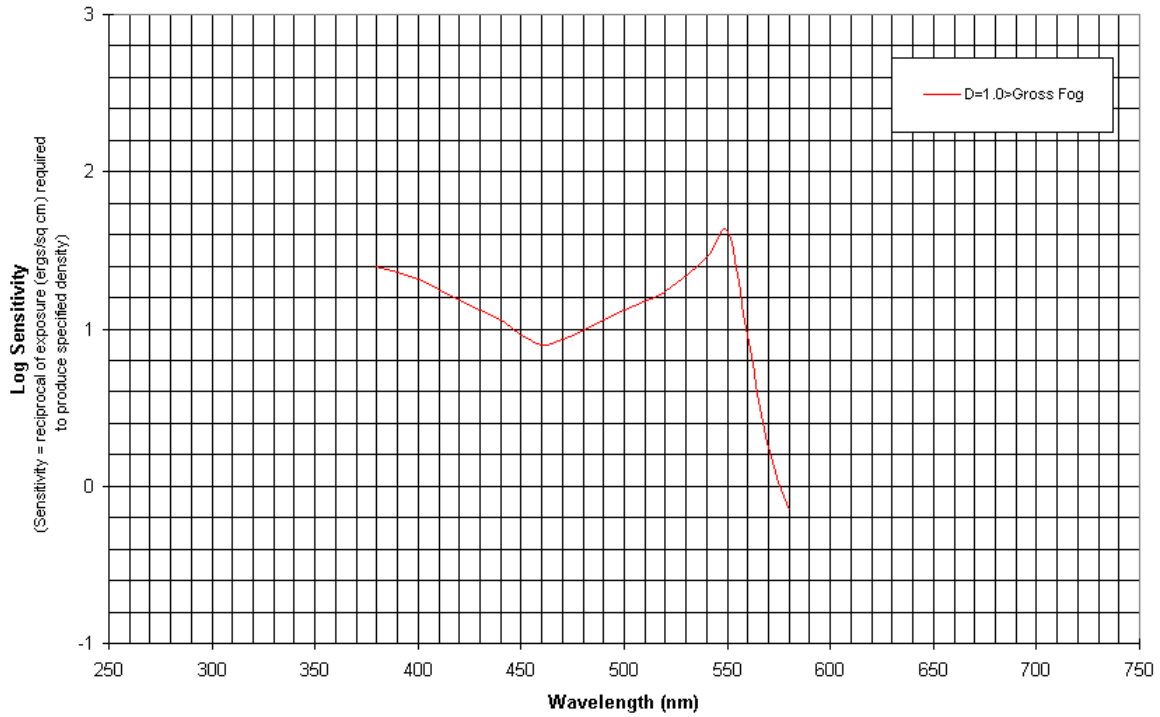
KODAK X-SIGHT L/RA Film / 4891
KODAK RP X-OMAT Processor, Model M8
KODAK RP X-OMAT Chemicals, 96 F
Dryer Capacity Used to Dry Film at 125 F



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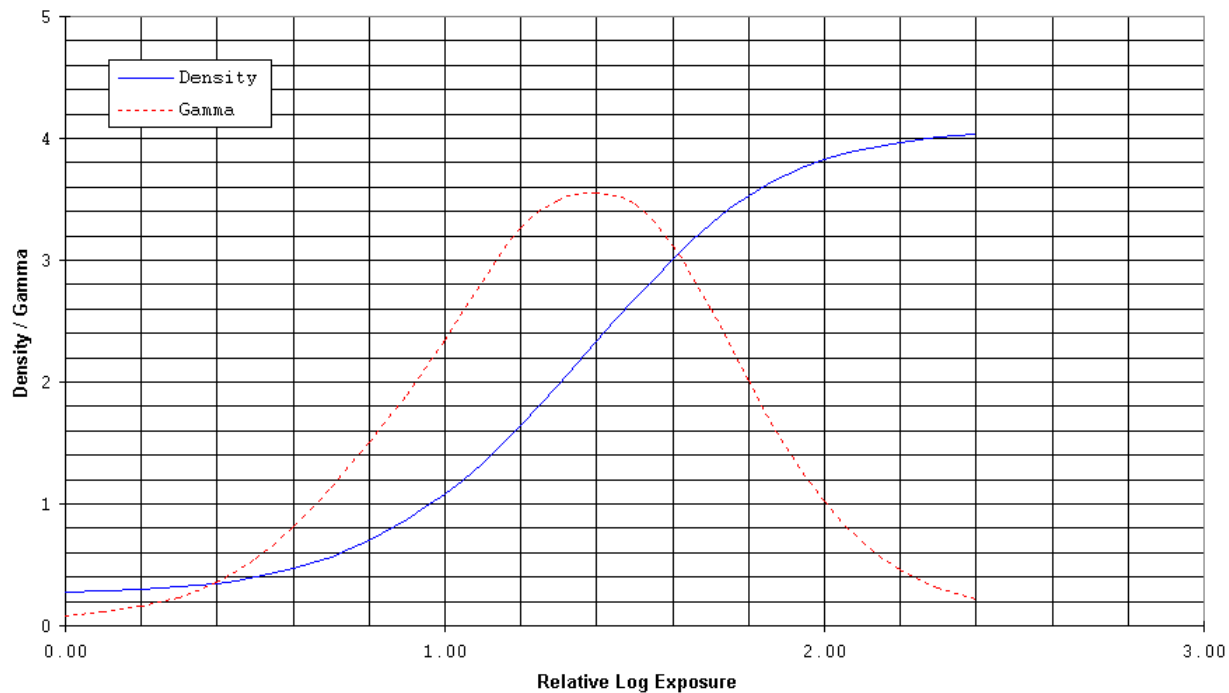
TI5002H 7-00
SPECTRAL SENSITIVITY, For Publication

KODAK X-SIGHT LIRA Film / 4891
Seasoned KODAK RP X-OMAT Chemicals; KODAK RP X-OMAT Processor, Model M6
Effective Exposure 1.4 sec; Diffuse Visual Densitometry



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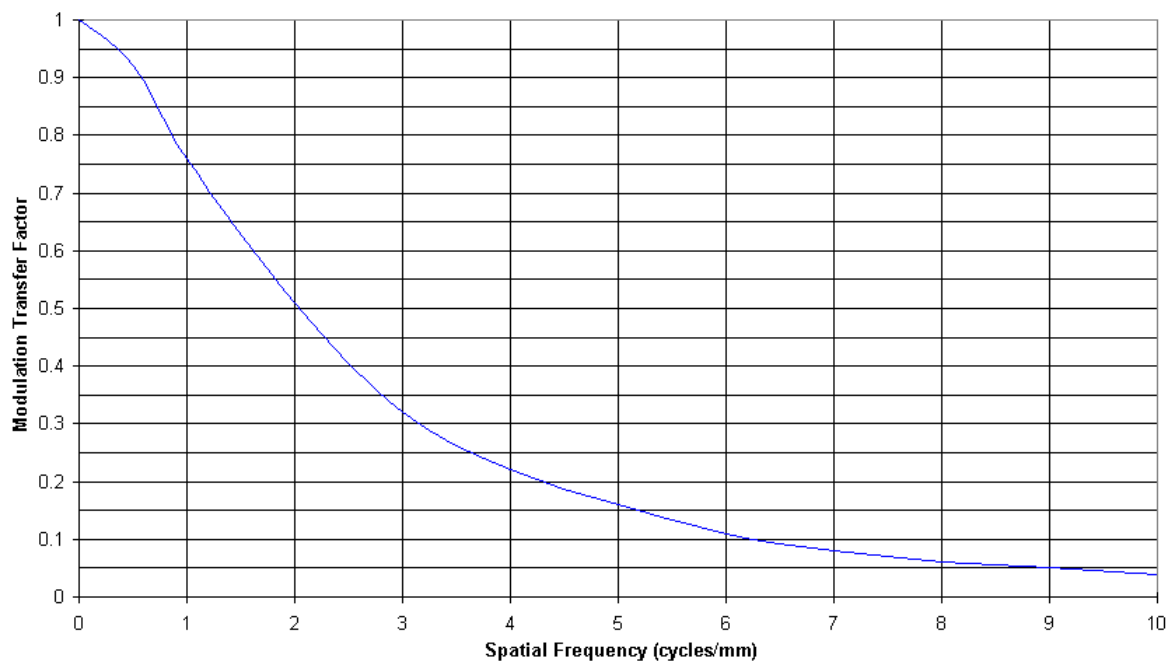
TI50021 7-00
INVERSE/SQUARED SENSITOMETRY, For Publication
KODAK X-SIGHT L/RA Film / 4891
Fresh flooded KODAK RP X-OMAT Chemistry, 95F (35C);
KODAK X-OMAT 480 RA Processor;
Sensitometry: X-SIGHT L/RA Film/X-SIGHT Screens



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TI5002J 7-00
MTF, For Publication

KODAK X-SIGHT LRA Film / 4891
Exposure: 50 kV, 1.62 mm Aluminum plus 0.13 mm Copper filtration.



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