

KODAK 500T Color Negative Film 5230/7230

Kodak

TECHNICAL DATA / COLOR NEGATIVE FILM

March 2011 • H-1-5230t

KODAK 500T Color Negative Film 5230/7230 is a high-speed tungsten balanced color negative camera film. It performs well with under- and over-exposure and has very good grain structure. KODAK 500T Color Negative Film 5230/7230 renders smooth, sharp images; beautiful skin tones; and consistent, predictable color rendition and tonality.

BASE

KODAK 500T Color Negative Films 5230 and 7230 have an acetate safety base with rem-jet backing.

STORAGE

Store unexposed film at 13° C (55° F) or lower. For extended storage, store at -18° C (0° F) or lower. Process exposed film promptly. Store processed film according to these recommendations:

	Short Term (less than 6 months)	Long Term (more than 6 months)
Unexposed film in original, sealed package	13° C (55° F) RH below 60%	-18 to -23° C (0 to -10° F) RH below 50%
Exposed film, unprocessed	-18 to -23° C (0 to -10° F) RH below 20%	Not recommended. Process film promptly.
Processed film	21° C (70° F) RH 20 to 50%	2° C (36° F) RH 20 to 30%

This relates to optimized film handling rather than preservation; static, dust-attraction and curl-related problems are generally minimized at the higher relative humidity. After usage, the film should be returned to the appropriate medium- or long-term storage conditions as soon as possible.

Warm-up Times

To prevent film telescoping, moisture condensation, and spotting, allow your film to warm to room temperature before use:

Film Package	Typical Warm-up Time (Hours)	
	14° C (25° F) Rise	55° C (100° F) Rise
16 mm	1	1 1/2
35 mm	3	5

For more information about film storage and handling, see ANSI/PIMA ISO-18911, SMPTE RP131-2002, and KODAK Publication No. H-845, *The Essential Reference Guide for Filmmakers*, available online at www.kodak.com/go/referenceguide.

DARKROOM RECOMMENDATIONS

Do not use a safelight. Handle unprocessed film in total darkness.

EXPOSURE

Exposure Indexes

Tungsten (3200K) - 500

Daylight - 320 (with 85 filter)

Use these indexes with incident- or reflected-light exposure meters and cameras marked for ISO or ASA speeds or exposure indexes. These indexes apply for meter readings of average subjects made from the camera position or for readings made from a gray card of 18-percent reflectance held close to and in front of the subject. For unusually light- or dark-colored subjects, decrease or increase the exposure indicated by the meter accordingly.

Color Balance

These films are balanced for exposure with tungsten illumination (3200K). You can also expose them with tungsten lamps that have slightly higher or lower color temperatures (+/- 200K) without correction filters, since final color balancing can be done in printing.

Light Source	KODAK Filters on Camera *	Exposure Index
Tungsten (3000 K)	None	500
Tungsten (3200 K)	None	500
KINO FLO 29 KINO FLO 32	None	500
Daylight (5500 K)	WRATTEN 2 Optical Filter / 85	320
Metal Halide	WRATTEN 2 Optical Filter / 85	320
H.M.I.	WRATTEN 2 Optical Filter / 85	320
KINO FLO 55	WRATTEN 2 Optical Filter / 85	320
Fluorescent, Warm White †	CC30R + CC05M	320
Fluorescent, Cool White †	CC40R	160

* These are approximate corrections only. Make final corrections during printing.

† These are starting-point recommendations for trial exposures. If the kind of lamp is unknown, a KODAK Color Compensating Filter CC30R + CC20Y can be used with an exposure index (EI) of 250.

Note: Consult the manufacturer of high-intensity ultraviolet lamps for safety information on ultraviolet radiation and ozone generation.

Exposure Table—Tungsten Light

At 24 frames per second (fps), 180-degree shutter opening, use this table for average subjects that contain a combination of light, medium, and dark colors:

Lens Aperture	f/1.4	f/2	f/2.8	f/4	f/5.6	f/8	f/11	f/16
Footcandles Required	5	10	20	40	80	160	320	640

Reciprocity Characteristics

You do not need to make any filter corrections or exposure adjustments for exposure times from 1/1000 of a second to 1 second.

PROCESSING

Process in Process ECN-2.

Most commercial motion-picture laboratories provide a processing service for these films. See KODAK Publication No. H-24.07, *Processing KODAK Color Negative Motion Picture Films, Module 7* available online at www.kodak.com/go/h24, for more information on the solution formulas and the procedure for machine processing these films. There are also pre-packaged kits available for preparing the processing solutions. For more information on the KODAK ECN-2 Kit Chemicals, check *Kodak's Motion Picture Films for Professional Use* price catalog, also available online at www.kodak.com/go/motion.

IDENTIFICATION

After processing, the product code numbers 5230 (35 mm) or 7230 (16 mm), emulsion, roll, and strip number identification, KEYCODE Numbers, and manufacturer/film identification code (EZ) are visible along the length of the film.

POST PRODUCTION

Scanning

The dye spectra of 5230 Film is the same as KODAK VISION3 500T Color Negative Film 5219/7219. Additionally, the contrast and color balance of 5230 Film is very similar to that of 5219 Film; hence the same scanner configuration can be used with this product.

Laboratory Aim Densities (LAD)

To maintain optimum quality and consistency in the final prints, the laboratory must carefully control the color timing, printing, and duplicating procedures. To aid in color timing and curve placement, negative originals should be timed relative to Laboratory Aim Density (LAD) Control Film supplied by Kodak. The LAD Control Film provides both objective sensitometric control and subjective verification of the duplicating procedures used by the laboratory.

In the LAD Control Method, the electronic color analyzer used for color timing is set-up with the LAD Control Film to produce a gray video display of the LAD patch, corresponding to 1.0 neutral density (gray) on the print. The negative printing original is then scene-to-scene timed. There are specific LAD values for each type of print or duplicating film that the original can be printed on. For print films, the LAD patch is printed to a neutral gray of 1.0 visual density. For duplicating films, the specified aims are at the center of the usable straight-line portion of the sensitometric curve of the film.

Due to normal variations in exposure and processing of color negative films, particular scenes may not print exactly at the same printer lights as the LAD Control Film. The LAD Control Film is intended as a set-up tool for electronic color analyzers and printers. It is NOT a reference that every scene must match. Normal film-to-film and scene-to-scene exposure variability is accommodated by the color timing (grading) process, on an electronic color analyzer set up with the LAD Control Film. Normally exposed and processed color negatives will typically print well within the range of an additive printer setup with the LAD Control Film, although SIGNIFICANT or UNEXPECTED departures from this center point balance may indicate an exposure/filtration problem with the cinematography or with the process control. Some specialized films and/or specialized negative processing techniques (push-processing, pull-processing, "skip-bleach" processing, etc.) may require more extreme adjustment from the LAD printing condition to attain desired results.

More information is contained in KODAK Publication H-61, *Laboratory Aim Density*, available online at www.kodak.com/go/lad.

Film-to-Tape Transfers

When you transfer the film directly to tape, you can set up the telecine using KODAK Telecine Analysis Film (TAF) supplied by Kodak. The TAF consists of a neutral density scale and an eight-bar color test pattern with a LAD gray surround.

The TAF gray scale provides the telecine operator (colorist) with an effective way to adjust subcarrier balance and to center the telecine controls before timing and transferring a film. The TAF color bars provide the utility of electronic color bars, even though they do not precisely match the electronically generated color bars. Using the TAF will help obtain optimum quality and consistency in the film-to-tape transfer. For more information regarding TAF, see KODAK Publication No. H-606, *KODAK Telecine Tool Kit and Reference Manual*, available online at www.kodak.com/go/telecine.

IMAGE STRUCTURE

For more information on image-structure characteristics, see KODAK Publication No. H-845, *The Essential Reference Guide for Filmmakers* available online at www.kodak.com/go/referenceguide.



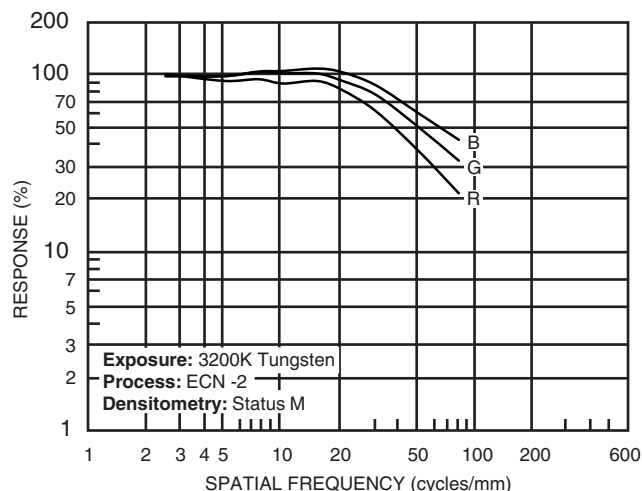
Important

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 directly to a particular box or roll of photographic material. They do not represent standards or specifications that must be met by Kodak. The company reserves the right to change and improve product characteristics at any time.

Modulation Transfer Function

The "perceived" sharpness of any film depends on various components of the motion picture production system. The camera and projector lenses and film printers, among other factors, all play a role. But the specific sharpness of a film can be measured and is charted in the Modulation Transfer Function Curve.

Modulation-Transfer Function Curves



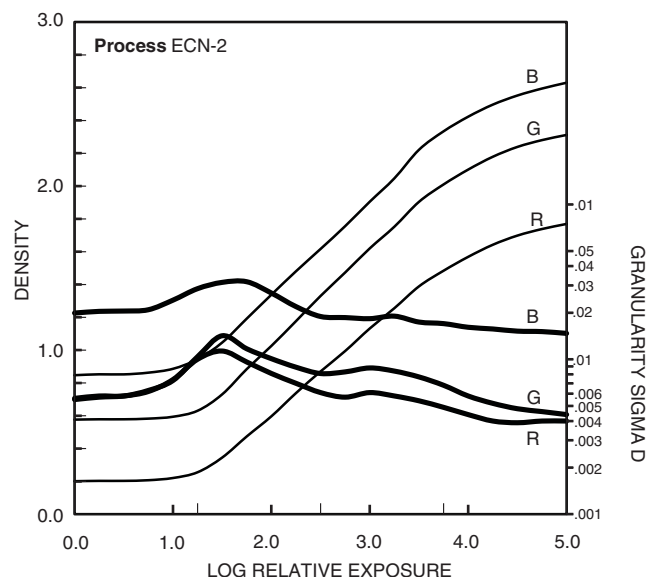
This graph shows a measure of the visual sharpness of this film. The x-axis, "Spatial Frequency," refers to the number of sine waves per millimeter that can be resolved. The y-axis, "Response," corresponds to film sharpness. The longer and flatter the line, the more sine waves per millimeter that can be resolved with a high degree of sharpness—and, the sharper the film.

rms Granularity:

Read with a microdensitometer, (red, green, blue) using a 48-micrometer aperture.

The "perception" of the graininess of any film is highly dependent on scene content, complexity, color, and density. Other factors, such as film age, processing, exposure conditions, and telecine transfer may also have significant effects.

Diffuse rms Granularity Curves



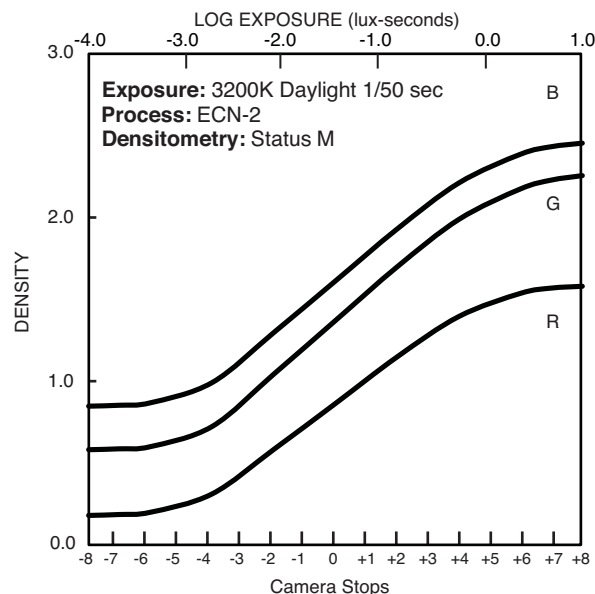
To find the rms Granularity value for a given density, find the density on the left vertical scale and follow horizontally to the characteristic curve and then go vertically (up or down) to the granularity curve. At that point, follow horizontally to the Granularity Sigma D scale on the right. Read the number and multiply by 1000 for the rms value.

Note: This curve represents granularity based on modified measuring techniques. Sensitometric and Diffuse RMS Granularity curves are produced on different equipment. A slight variation in curve shape may be noticed.

Sensitometry

The curves describe this film's response to red, green, and blue light. Sensitometric curves determine the change in density on the film for a given change in log exposure.

Sensitometric Curves

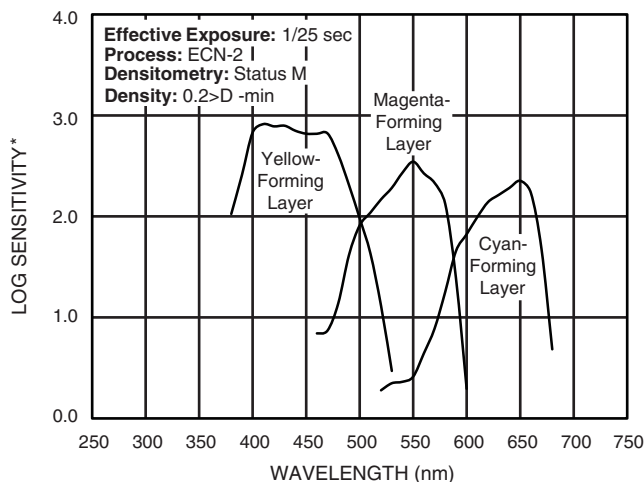


Note: The exposure scale for this film is longer than previous VISION and VISON2 Films. We are now using a 0-5 Log E scale with 21 steps.

Spectral Sensitivity

These curves depict the sensitivity of this film to the spectrum of light. They are useful for determining, modifying, and optimizing exposure for blue- and green-screen special-effects work.

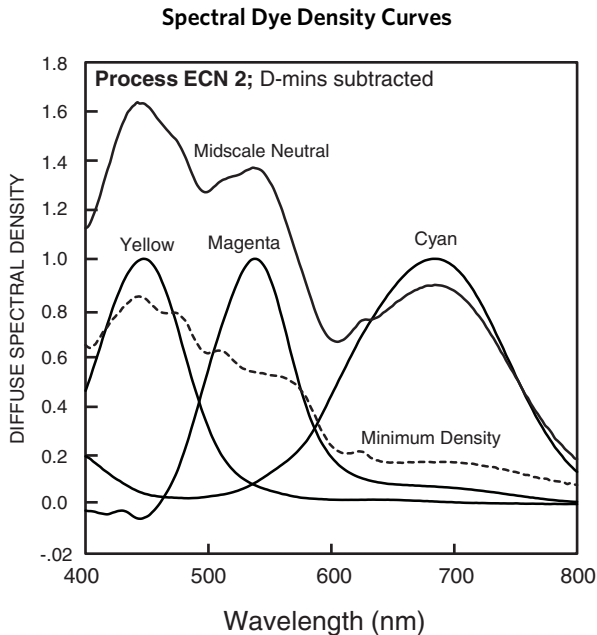
Spectral Sensitivity Curves



*Sensitivity = reciprocal of exposure (erg/cm^2) required to produce specified density

Spectral Dye Density

These curves depict the spectral absorptions of the dyes formed when the film is processed. They are useful for adjusting or optimizing any device that scans or prints the film.



Note: Cyan, Magenta, and Yellow Dye Curves are peak-normalized.

SIZES AVAILABLE

Standard Products Available

Identification No.	Length in Metres (Feet)	Core	Description	Perforations
35 mm SP718	122 (400)	U		BH-4740 (BH-1866)
35 mm SP718	305 (1000)	U		BH-4740 (BH-1866)
16 mm SP455	30 (100)	R-90 100-ft. spool	Winding B	1R-7605 (1R-2994)
16 mm SP457	122 (400)	T	Winding B	1R-7605 (1R-2994)

MORE INFORMATION

Outside the United States and Canada, please contact your Kodak representative. You can also visit our web site at www.kodak.com/go/motion for further information. You may want to bookmark our location so you can find us easily the next time.

H-2	<i>Cinematographer's Field Guide</i>
H-845	<i>The Essential Reference Guide for Filmmakers</i>
H-24	<i>Manual for Processing KODAK Motion Picture Films, Process ECN-2 Specifications, Module 7</i>
H-61	<i>LAD—Laboratory Aim Density</i>
H-606	<i>KODAK Telecine Tool Kit and Reference Manual</i>

KODAK 500T Color Negative Film 5230/7230

FOR DIRECT ORDERING IN THE UNITED STATES AND CANADA: 1-800-621-FILM

KODAK SHOOTSAVER Film Delivery Service (U.S. only) 1-800-404-2016

UNITED STATES

Hollywood, California
Phone: 323-464-6131
Fax: 323-468-1568
Fax: 323-468-2124

New York, New York
Phone: 212-631-3400
Fax: 212-631-3470
United States Toll Free:
1-800-621-FILM (3456)

KODAK SHOOTSAVER Express Film
Delivery Service
Phone: 800-404-2016

"Will Call" / Pick-up Locations
1017 N. Las Palmas
Hollywood, CA 90038

360 W. 31st Street, 2nd Flr
New York, NY 10001

61 W. Erie Street
Chicago, IL 60610

2225 Cedars Road, Suite A
Lawrenceville, GA 30043

3400 Carlisle Street, Suite 105
Dallas, TX 75204

733-A Distributors Row
Harahan, LA 70123

CANADA

Kodak Canada Inc.-Toronto
Phone: 1-416-761-4646
Orders: 1-800-621-FILM (3456)
Fax: 1-416-760-4592
Toll Free Fax: 866-211-6311

Kodak Canada Inc.-Quebec
Orders: 1-800-621-FILM (3456)
Fax: 1-866-211-6311

Kodak Canada Inc. -- BC
Orders: 1-800-621-FILM (3456)
Fax: 1-866-211-6311

LATIN AMERICAN REGION

LATIN AMERICAN REGIONAL OFFICE
Phone: 305-229-0422
Fax: 305-229-5075

ARGENTINA
El Business Center
Phone: 54-11-4778 7009 / 54-11-4773
6105
Fax: 54-11-4773 6105

BRAZIL
São Paulo:
Kodak Brasileira Com. Ind. Ltda.
Tel: 55-11-2132 6000
Fax: 55-11-2132 6104

São José dos Campos:
Kodak Brasileira Com. Ind. Ltda.
Fax: 55.12.3932.6721
Tel: 55.12.3932.6329 / 3932.6701

CHILE
Cinecolor Chile (Chilefilms S.A.)
(Kodak Motion Picture Authorized
Distributor)
Phone: 56.2.3371200
Publicine Ltda. (Kodak Motion Picture
Authorized Distributor)
Phone: 56.2.209.1396

COLOMBIA
Cinecolor Colombia (Kodak Motion
Picture Authorized Distributor)
Phone: 57.1. 743.2323 x-6043

ECUADOR
Veinco Cia. Ltda. (Kodak Motion Picture
Authorized Distributor)
Phone: 59.3.2256.5738/593.2254.2229

MEXICO
Kodak Mexicana S.A. de C.V.
Phone: 52-55.1105.1730
Fax: 52-55.1105.1706

PERU
Lighting Camera S.A. (Kodak Motion
Picture Authorized Distributor)
Phone: 51.1.247.3851 / 4335

PUERTO RICO
PJ Gaffers (Kodak Motion Picture
Authorized Distributor)
Phone: 787.798.8220

VENEZUELA
Phone: 58.212.907.3481
Fax: 58 212 907-3401

EUROPEAN, AFRICAN AND MIDDLE EASTERN REGION

BULGARIA
Kodak Cinelabs Bulgaria
Phone: +359 2 400 1360
Fax: +359 2 400 1377
Web Address:
www.kodakcinelabsbg.com

CZECH REPUBLIC
Kodak Ltd.
Phone: +42 026 707 37 11/12
Fax: +42 026 707 37 13
Web address: www.kodak.com/go/
motion

FRANCE
Kodak
Division Cinéma et Télévision
Phone: +331 40 01 35 15/+331 40 01 30
00
Fax: +331 40 01 34 01
Web address: www.kodak.fr/go/cinema

GERMANY
KODAK GmbH
Phone: +49 711 406-5596
Fax: +49 711 406-2614
Web address: www.kodak.de/go/motion

GREECE
Kodak Cinelabs Greece
tel. +30 210 814 45 45
fax. +30 210 814 44 55
Web address: www.kodak.gr/go/motion

HUNGARY
Kodak Hungary Kft.
tel: +36 1 274 0196
fax: +36 1 200 9408
Web address: www.kodak.hu/go/motion

ISRAEL
Kodak IL LTD.
Phone: +97 239 16 79 89
Fax: +97 239 28 60 11
Mobile: +97 252 55 5 2 13
Web address: www.kodak.com/go/
motion

ITALY
Kodak Spa - Milan
Phone: +39-02-66.02.85.12
Fax: +39-02-66.02.84.06
Web address: www.kodak.it/go/motion

Kodak Spa - Rome
Phone: +39 06 88 172 273
Fax: +39 06 88 00 713
Web address: www.kodak.it/go/motion

POLAND
Kodak Polska
Phone: +48 22 8511759
Fax: +48 22 8511760
Web address: www.kodak.pl/go/motion

ROMANIA
Kodak Cinelabs Romania
Phone: +40 21 668 64 45
Fax: +40 21 668 64 14
Web address: www.kodakcinelabs.ro

RUSSIA
Kodak OOO
Phone: +74 95 733 97 58
Phone: + 74 95 620 91 66
Fax: +74 95 620 91 60
Web address: www.kodak.ru/go/
motion

SPAIN
Kodak SA
Phone: +34 91 626 7155
Phone: +34 91 626 73 09
Fax: +34 91 626 7369
Web address: www.kodak.es/go/
motion

SWITZERLAND
KODAK SOCIÉTÉ ANONYME
Phone: +41 22 354 14 20
Fax : +41 22 354 14 80
Web address : www.kodak.ch/go/
motion

TURKEY
Kodak (Near East) Inc.
Phone : + 90 212 265 40 53
Fax : + 90 212 265 40 54
Web address: www.kodak.com/go/
motion

UNITED KINGDOM
Kodak Ltd.
Phone: +44 (0)870 8501904
Fax: +44 (0)870 8502418
Web address: www.kodak.com/go/
ukmotion

ASIA PACIFIC REGION

AUSTRALIA
Melbourne
Kodak (Australasia) Pty Ltd
Phone: 61 3 8417 8520
Fax: 61 3 8417 8011
www.kodak.com.au/go/motion

CHINA (Peoples Republic)
Beijing
Kodak (China) Ltd
Phone: 8610 6561 6561
Fax: 8610 6561 2199

Shanghai
Kodak (China) Ltd
Phone: 8621 5884 1000
Fax: 8621 5884 1720

Guangzhou
Kodak (China) Ltd
Phone: 8620 8666 9888
Fax: 8620 109-3191
www.kodak.com/CN/zh-cn/motion/
motion_home.html

HONG KONG
Kodak (Hong Kong) Ltd.
Phone: 852 2564 9352
Fax: 852 2564 9830

INDIA
Kodak India Private Limited
Phone: 91 22 6641 6762
Fax: 91 22 6641 6769
www.kodak.co.in/go/motion

INDONESIA
PT. Interdelta Tbk (Kodak Motion
Picture Authorized Distributor)
Phone: +6221652333 ext. 250
Mobile: +62818966655

JAPAN
Kodak Japan Ltd.
Phone: 813 6891-2010
Fax: 813 6891-2035
www.kodak.co.jp/go/motion

KOREA
Kodak Korea Ltd.
Phone: 822 3438 2625
Fax: 822 3438 2664
www.kodak.com/go/motion

MALAYSIA
Kodak Malaysia
Tel: 603 7718 1818
Fax: 603 79602428

NEW ZEALAND
Kodak New Zealand Ltd.
Ph: 64 9 360 8665
Fax: 0800-563250
www.kodak.co.nz/go/motion

PAKISTAN
Phone : 00 92 21 529 1803 & 00 92 21
529 1805
Fax: 92 21 529 1806

PHILIPPINES
Kodak Philippines Ltd.
Tel (632) 8100331 (632) 8137916
Fax: 632-840-1956

SINGAPORE
Kodak (Singapore) Pte. Ltd
Tel: 65 6371 3388
Fax: 65 6371 3377

TAIWAN
Kodak Taiwan Limited
Tel: 886-2-8751-8282
Fax: 886-2-87510707

THAILAND
Kodak (Thailand) Ltd.
Tel. 662 515 8092
Fax: 662 690 1504

Kodak