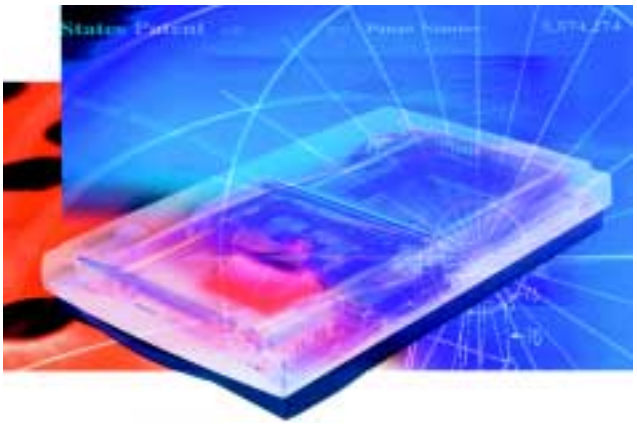
E. D. I. T.

Emulsion Direct Imaging Technology

A New Milestone in Film Scanning



What is E.D.I.T.?

E.D.I.T. stands for Emulsion Direct Imaging Technology. As in drum scanning, E.D.I.T. enables a scanner's CCD lens to read directly from the emulsion side of the film without any glass between the lens and the object being scanned.

This "glassless scanning" eliminates any possible distortion and the so-called Newton Rings otherwise caused by the interfering pane of glass. By adopting E.D.I.T., the CCD sensor is able to capture the most realistic image possible with the least distortion, render the full dynamic range from the image, and provide optimal results with sharp details.

Traditional vs. New Scanning Route

Conventional flatbed scanners were originally designed for scanning reflective media alone.

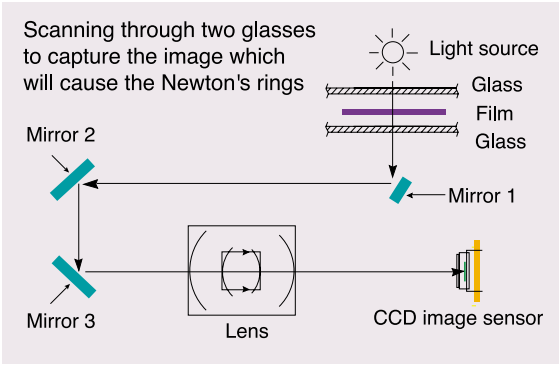
Subsequently, the TMA (Transparent Media Adapter) was introduced as a remedy for scanning transparent film, a device that was shaped much like a scanner lid that came with its own overhead lighting system.

The TMA, while adequate for the needs of general users, did not prove sufficient for the demanding uses of professional applications that required accurate color tones, full dynamic range and sharp detail in scanning.

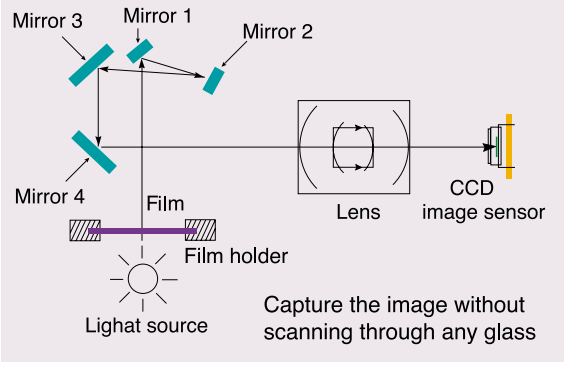
Enter E.D.I.T. — a technology developed by Microtek to resolve problems associated with transparency scanning.

Patented by Microtek (patent no. 5,574,274), E.D.I.T. has since gained widespread recognition in the industry, receiving significant attention from the Japanese professional publishing media as a technological milestone in the development of high-end scanners and transparency scanning.

Non-E.D.I.T.transparency scanning route



E.D.I.T. transparency scanning route



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Problems with Traditional Film Scanning

Without E.D.I.T., film is scanned the traditional way — sandwiched on the scanner bed between two layers of glass — that of the scanner bed below and that of the Transparent Media Adapter above. This causes problems with the resulting scanned image.

The glass itself

A loss of illumination always occurs when light passes through material other than air, and the degree of loss will depend on the penetration rate and the thickness of the glass. The loss is doubled if there are two layers of glass instead of one. Glass also causes refraction and multi-reflection.

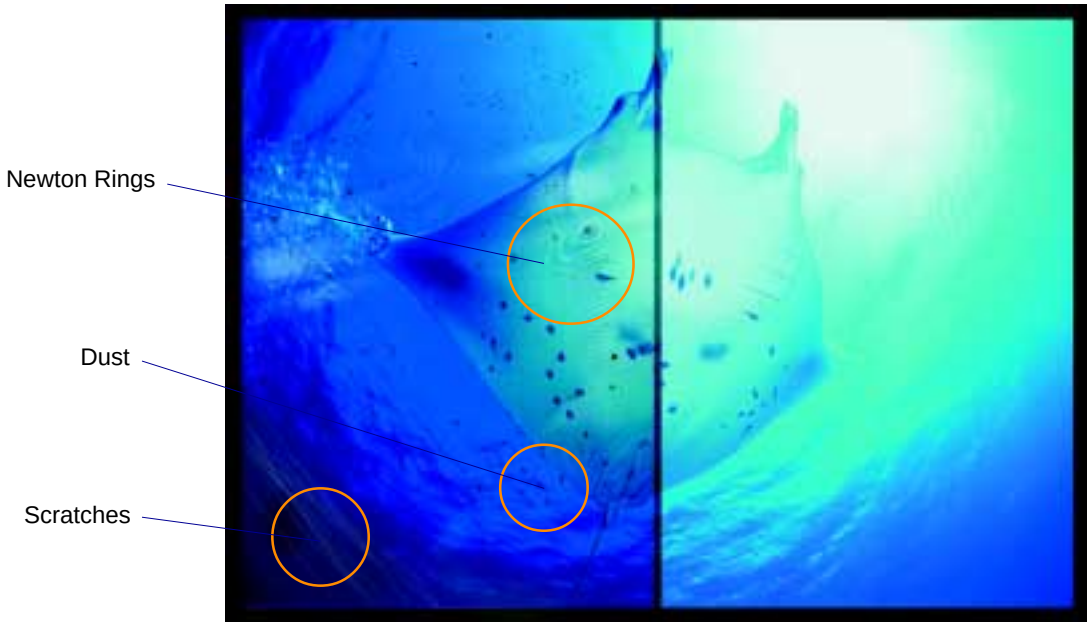
The combination of these two factors — the loss of illumination and the glass itself — leads to the formation of Newton Rings. A Newton Ring is an optical interference phenomenon in the form of irregular multicolored concentric circles taht appear on the scanned image. This interference pattern shows up because of the tiny space (air layer) existing between film and glass through which light passes when a TMA is used.

Film is not flat

When using a TMA, film placed on the scanner glass bed cannot be kept entirely flat, and a slight curvature is inevitable during positioning. In addition, there is no perfect contact between the two sheets of glass (the glass from the lower scan bed and the glass of the TMA that sandwiches the film). The result? Distortions in focus and image.

Dust and dirt

Dust, dirt and grime from fingers or the hands are easily transferred to film if the film is handled improperly. These smudges, in turn, show up in the resulting scan. Moreover, if the scanner glass is not clean or has become soiled for any reason, “noise” or artifacts can show up in the scans as well.



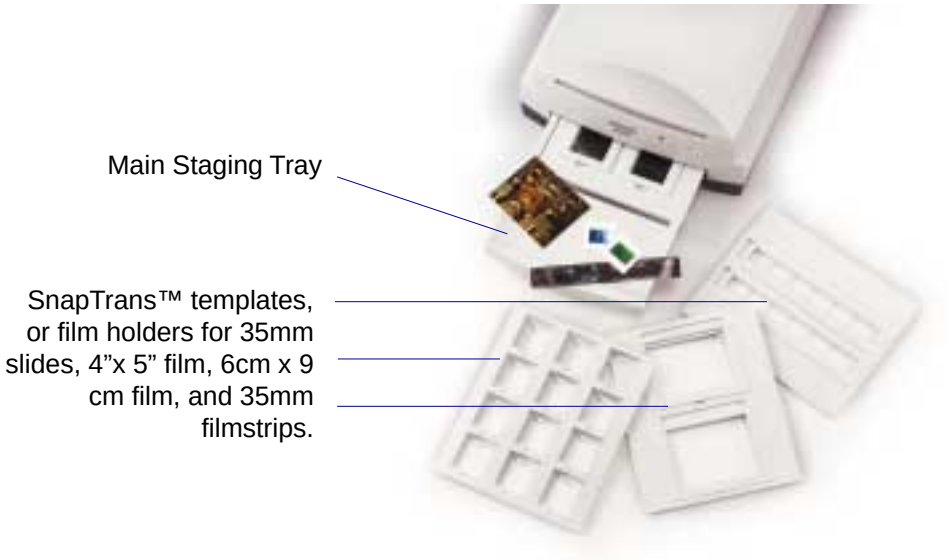
Problems with traditional film scanning: Newton rings, dust, and scratches

E.D.I.T. Technology: A New Milestone in Film Scanning

Two of the most important factors in E.D.I.T. are the switching flip mirrors and removable film holders.

A scanner incorporating the E.D.I.T design can be distinguished from conventional scanners by the presence of two beds: an upper bed, consisting of the scanner glass bed, used for scanning reflective material such as photos and prints; and a lower bed, consisting of a drawer-like removable device called the Main Staging Tray.

In an E.D.I.T. scanner, the Main Staging Tray works in tandem with a variety of SnapTrans™ templates — film holders used to accommodate various-sized film, such as 4” x 5”, 6 cm x 9 cm, 35mm slides, and 35mm filmstrips. Using these film holders, the transparencies can be aligned and secured firmly, and the whole ensemble — film holder and Main Staging Tray — is then inserted into the lower scan bed and readied for scanning.



Dual Optical Path & Flip-Mirror Design

There are two unique design concepts in the optical system behind E.D.I.T. These concepts are the dedicated light source and the flip-mirror design.

Dedicated light source for reflective & transparent media

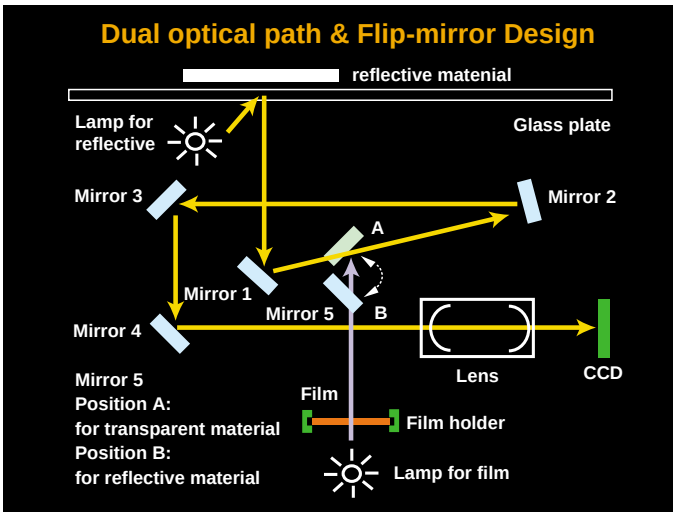
In E.D.I.T. scanners, a dedicated light source is installed on the lower scan bed that is activated when transparent film is scanned. Thus, light shined from this light source hits the film directly without travelling through any glass. The other light source is located above the transparency bay where the holders are inserted, and is activated when reflective film such as photos and prints are scanned.

Flip-mirror design

The flip-mirror design in E.D.I.T. scanners allows for the creation of a dual optical path. Depending on the nature of the target being scanned (a reflective print or a transparent film), the correct lamps are triggered in the scanner, generating light paths that travel along specific pathways, passing through certain mirrors while bypassing others to obtain optimal image results.

For instance, a print being scanned on the upper bed of an E.D.I.T scanner passes through Mirrors 1, 3, and 4 in the scanner and bypasses Mirror 2.

In contrast, film being scanned on the lower bed passes through all mirrors except Mirror 1.



Optical path for reflective materials:
Lamp for reflective material => Reflected from original => Mirror 1 (bypasses Mirror 5) => Mirror 2 => Mirror 3 => Mirror 4 => CCD through lens

Optical path for transparent materials:
Lamp for film => Passes through transparent original => Mirror 5 => Mirror 2 => Mirror 3 => Mirror 4 => CCD through lens

* Switching between 2 paths

Better Images Through Innovation

With over two decades of innovation and achievement, Microtek continues to unveil original technology, pushing the frontiers of digital imaging towards ever-higher levels of refinement and excellence. The imaging breakthroughs achieved by E.D.I.T can be found exclusively in Microtek scanners such as the ScanMaker 8700 and ScanMaker 8700 Pro Design, as well as in the Microtek Artix line of professional scanners such as the ArtixScan 2500f, ArtixScan 1800f, and ArtixScan 1100. For more details on these products, visit the Microtek Website at http://www.microtekusa.com.

ArtixScan 1800f

ScanMaker 8700/8700 Pro Design

ArtixScan 2500f

ArtixScan 1100