



Glossary – Printing Terms TIP 5112

ABS	Acrylonitrile Butadiene Styrene is a plastic used in some chip cards. Unlike PVC, it is formed through injection molding which allows the dimensions of the card and the hole into which the chip module is inserted to be precisely controlled.
Alphageometric	A Videotext display technique that produces smoother and more elaborate graphics than alphamosaic. Geometric instructions are transmitted to the terminal or computer.
Burn	Exposing the image on a printing plate with any light source high in ultraviolet radiation.
Acetate Base	A photographic film support used to prepare overlays or used as a clear base for stripping.
Acoustic Coupler	A low speed modem which converts digital signals to and from audible analogue form for transmission via an ordinary telephone handset.
Acquirer	A financial institution such as a bank which acquires transaction data from a card acceptor and enters the transaction into the relevant payment system.
Acrylic Ink	A screen printing ink that contains acrylic polymers and is used to print on some plastics and other substrates, especially ones that will be exposed to outdoors.
Activation	A secure procedure under control of the card/secure application module (SAM).
Active	Powered card, on-board battery to support RAM, processor, display, input keyboard, and operating system.

Active Smart Card	See Super Smart Card
Address Verification System	An additional point of reference to authenticate card use, for tele-marketing purposes, by confirming the cardholder's address.
ADE	see Angewandte Digital Elektronik.
AFC	Automated Fare Collection systems, usually based on magnetic stripe, chip card or RFID technology.
AFC	Automatic fare collection, as in contact or contactless smart card public transport schemes.
Affinity Card	A form of loyalty card where the co-branding partner is a charity or organization which benefits financially from card use.
AFNOR	Association Francaise pour la Normalisation. The French standards body responsible for the early smart card standards. Chips in the AFNOR position are in the top left hand corner of the card rather than in the ISO position lower down.
AKU Algorithm	Asymmetric key Unit A sequence of steps which can be carried out mechanically and which yield a defined result.
Alpha Test	The initial trial run of a new program, system or hardware within the organization that developed it. See beta test.
Alphamosaic	A Videotext display technique that divides the screen into an invisible grid and accepts signals instructing how each square is filled in, as if creating a mosaic.
American Bankers Association (ABA)	The trade association of American banks. It is also the body nominated by international agreement as the registration authority for issuer identification numbers.
American National Standards Institute (ANSI)	ANSI and ISO standards are available from the ANSI Publication Sales Office, 1430 Broadway, New York, NY 10018; (212) 354-3300
Angewandte Digital Elektronik Annual Fee	European contactless card association. (ADE) A fee paid by a cardholder for the privilege of holding financial transaction card. With some cards the cardholder pays interest and no fee. Some cards charge

both fees and interest.

ANSI	see American National Standards Institute
Antiope	A protocol developed by the French. It uses an alphamosaic configuration.
APACS	see Association for Payment Clearing Services.
Application Specific Integrated Circuit (ASIC)	A computer chip designed with special features to satisfy particular requirements. In the smart card context, an ASIC generally refers to chips with special "cells" for functions such as security (exponentiation used in public key cryptography) or communications (radio frequency).
Area 1	Part of the embossing area reserved for identification of the card issuer and cardholder (defined in ISO7811)
Area 2	Part of the embossing area provided for cardholder identification data such as name and address (defined in ISO7811).
Artwork, separated	Design that indicates each area to print in a color on a different layout.
ASCII	American Standard Code for Information Interchange. The protocol used by most small computers. It assigns a seven-bit code to 96 printable characters and 32 control characters.
Assembler	Short for assembly code, a form of programming language permitting direct manipulation for machine memory or registers; also used to mean the processor which translates assembly code into executable code.
Association for Payment Clearing Services	Umbrella body for the UK payments industry.
Asymmetric Key Cryptography	See Public Key Cryptography and Encryption.
Asynchronous	Not synchronous. The most common data transmission method for small computers.
Asynchronous Password Generation	A method of generating a unique one-time password for a computer user based on a challenge-response sequence between a host and a device possessed by the user. The device, generally referred to as a smart card or token, contains a secret ID or seed number, a cryptographic

algorithm and some method for the challenge issued by the host to be entered. This may be contacts on a traditional smart card or keypad. When the user signs onto a system, the host issues a challenge in the form of a pseudo-random number. The user enters the number into the device, and a response is displayed on an LCD. This response is typed into the terminal by the user. The host computer, which knows the user's seed and the algorithm, compares the response to what it expects in order to authenticate the presence of the device. The method can be strengthened by requiring the user to enter a PIN.

ATB	Automated ticket and boarding pass machine at an airport which accepts a financial transaction card to pay for an airline ticket and issues ticket and boarding pass.
ATM	Asynchronous Transfer Mode. A new communications protocol for the transfer of data (any type) across a network.
ATM	see Automated Teller Machine.
ATM Reciprocity	An arrangement between ATM operators under which they accept each other's cards in their own ATM machines.
ATZ	Access Tracking Zone. Part of the card memory reserved for registering secret keys or cardholder codes.
Audit/Journal Printer	The printer which records all transactions as they occur and provides an audit trail.
Authenticate	To provide identity or origin.
Authentication Routine	A cryptographic process used to validate a user, card, terminal or message contents. Also known as a handshake, the authentication uses important data to create a code that can be verified in real time or batch mode.
Authorization	A card issuer's undertaking to a card acceptor that he will honor a transaction.
Authorization Code	A specific value issued and stored with the transaction data to allow confirmation that a valid authorization occurred.

Authorization Message	Within a payment system, any message between a card acceptor and a card issuer serving to establish whether the issuer approves for a transaction to proceed.
Authorization Terminal	A terminal permitting authorization of a transaction but not necessarily capturing the transaction data into a payment system.
Automated Banking Machine (ABM)	North American term corresponding to automated teller machine in the UK.
Automated Clearing House	A facility that electronically processes payments of funds and government securities among financial institutions and businesses. Visa the only private national ACH in the US, competitive with the Federal Reserve ACH.
Automated Issuing Machine	A machine which records information on a blank identification card before its issue to the cardholder. Some issuing machines only write information on magnetic tracks, others carry out embossing too.
BACS	see Bankers' Automated Clearing Services.
Bar Code	A binary coding system using a numerical series and bars of varying thicknesses or positions that can be read by optical character recognition (OCR) equipment.
Batch Processing	A mode of data processing in which data is gathered over a period of time and aggregated for subsequent sequential processing.
Baud	A unit of signaling speed defined as the rate of change of the unit signal element on a communication channel. Note that this is not the same as bit rate if the unit signal element encodes more than one bit at a time.
Bit	Derived from the words Binary digiT, a bit is the basic element of electronic information. It has one of two states commonly referred to as "0" and "1", or "on" and "off". In memory storage, a string of bits represents a series of "0"s and "1"s.
Black and White	Originals or reproductions in single color, as distinguished from multicolor.
Bleed	Refers to a printed color(s) that runs off the edge of the card. Non-bleed means that the printing stays at least 1/8 of an inch from the card edge.

Blend	Joining two colors so smoothly that there is no perceptible line at the intersection. In digital painting, the quality of the blending process is an indication of the quality of the electronic prepress system.
Block	In art preparation, to mask, cover, opaque, or paint out portions of a copy or negative to modify the printing areas.
Block Colors	Colors printed solid, i.e., with near identical opacity and density over the entire surface and without gradations, tints, or shading.
Blowup	A photographic enlargement.
Blueprint	In offset-lithography and photoengraving, a photoprint made from stripped-up negatives or positives, used as a proof to check position of image elements.
Butts	Halftones or transparencies back to back without the use of black and white gutters to separate the images.
Byte	A group of bits (usually 4 or 8) that form a character based on a coding scheme which assigns unique meaning based on the binary representation of the "0"s and "1"s.
Camera Film	A high contrast, silver-based orthochromatic graphic arts film designed specifically for exposure using a graphic arts camera.
Camera, digital	A photographic system using a charged-coupled device to transform visual information into pixels that are assigned binary codes so that they can be manipulated, compressed, stored, or transmitted as electronic files.
Camera, process	A camera designed especially to create halftone images and color separations for photomechanical reproduction and similar work
Camera-Ready	Artwork that is generally black and white completely finished with color breaks ready to be photographed to produce negatives used for making the printing plates.
Camera-Ready Copy	All printing elements prepared to be photographed on the graphic arts camera; text type set in the correct point size and properly mounted to the page grip; headlines, copy

	<p>blocks, and screened prints; keylines showing the exact size and position of halftones or four color photographs to be stripped in; and spot color elements mounted to acetate overlays, properly registered over the black copy, and marked for screen percentage and colors. It is generally black and white completely finished with color breaks ready to be photographed to produce negatives used to for making the printing plates. Manual pasteup techniques or computer-based pagination systems may be used to create the layout. Also referred to as camera ready artwork.</p>
Card Acceptor Device	<p>The mechanism, a key component of reader/writers, into which an IC card is inserted.</p>
Card Bureau	<p>A contract service to card issuers, whereby printed blank cards can be embossed and encoded with cardholder and other data and, in some cases dispatched to cardholders.</p>
Card Encoding	<p>The original recording of information on an identification cards by the card issuer.</p>
Card Issuer	<p>An individual or organization that issues identification cards to individual or corporate cardholders.</p>
Card Jitter	<p>Poorly aligned recording on the magnetic tracks of the identification card.</p>
Card reader-writer	<p>Equipment that can electronically read the information on one or many types of cards and modify specific data fields.</p>
Cash Card	<p>A prepaid credit balance stored in card. Such card systems decrement the balance with each use.</p>
CD-ROM	<p>A disk-shaped mass storage medium that employs optical recording technology to store hundreds of megabytes of data. It is also known as a laser disk because tiny lasers are used to record data by creating micron level areas of low and high reflectivity that represent data.</p>
Challenge-response	<p>See Synchronous password generation</p>
Character Height	<p>The maximum permitted height of embossed characters on an identification card. For ISO standard card this is 4.32mm (defined in SIO 7811)</p>

Character Spacing	The nominal spacing of embossed characters on an identification card. For ISO standard cards this is 3.63mm with a minimum spacing between two consecutive characters of 3.48mm (defined in ISO 7811).
Check Guarantee Card	A financial transaction card used to guarantee the payments by check. Provided the conditions of use are met, the card issuer guarantees to honor the check mad out by the cardholder.
Check Digit	A digit calculated from the digits of a number and appended to it as a form of integrity. Check digits on ISO standard identification cards are calculated using the Luhn formula.
Chip	A piece of silicon etched with electronic circuit.
Chip Card	A card into which one or more integrated circuits have been incorporated. Also known as smart cards.
Chromatone	A photographic color print process.
Coercive Force	The energy required to saturate a given piece of magnetic material. Expressed in "oersteds."
Coercivity	The magnetic "retention value" of different ferrous oxide materials. It is a measure of the strength of the magnetic field. For example, a high coercivity strip will be less vulnerable to degaussing or erasure than a low coercivity stripe.
Color copy	The original color artwork, transparencies, photographs, keylines, or other materials furnished for reproduction.
Color Electronic Prepress System	A computer-based image manipulation and page-makeup system for graphic arts applications. CEPS replaces manual correction techniques previously accomplished with duplicate transparencies and emulsion stripping.
Color Keys	A standard proofing system; overlay materials having no inherent color cast so interpretation of color judgment is minimized.
Color overlay	Transparent film sheets, usually made of acetate, that are super-imposed over each other to represent each color in a reproduction.
Color Separation	Using red, green and blue filters to divide the colors of a multi-colored original into the three process colors and

black. The four resulting film intermediates are used to prepare the yellow, magenta, cyan and black printing plates. Color separation is most often accomplished with an electronic color scanner, but film-contacting a process camera methods are also employed on occasion.

Combo Card	A combination of a surface pad for contact applications and a dual/RF capability for contactless applications both of which are connected to the same chip.
Composite	Combining separate pieces of produced art into film and converted into one piece of composite film.
Contact	A point of electrical connection between an integrated circuit card and its external interface device. ISO standard integrated circuit cards have eight contacts designated C1 to C8 (defined in ISO 7816)
Contact Card	A smart card with a visible module cover (usually gold colored) which has five or six contact points which transfer information. Contact cards may be memory only or microprocessor.
Contactless Cards	As the name implies, contactless IC cards contain no surface contacts and employ either RFID techniques (see radio-frequency ID), which incorporate an antennae in the card, or inductive techniques, where metallic plates inside the card are used to receive power and transmit data.
CR-50	Industry name for standard finished plastic card sizes: 3.500 in. Wide 1.725 in. High.
CR-80	Industry name for standard finished plastic card sizes: 3.375 in. Wide x 2.125 in. High.
Cromalins	Dupont's single-piece laminated proofing system in both the positive and negative forms. Each process provides a highly comparable proof to ensure consistent quality.
Crop Marks	Small lines placed in the margin or on an overlay, denoting the image areas to be reproduced.
Cropping	Framing the reproduction as it appears, printed by crop marks.
Cyan	A blue-green color, complementary to red. Along with yellow and magenta, one of the three primary subtractive

	colors, or process colors used in the printing process. Cyan reflects blue and green light, while absorbing red.
Data Encryption Standard	Federal Information Processing Standard publication 46. A US standard defining a cryptosystem for use by the US Federal Government. Popularly known as DES, this cryptosystem is widely used in payment systems.
Debit Card	A financial transaction card permitting transactions to be debited to an account which may or may not allow credit to the cardholder.
Decrementing Value Card	See prepaid card
Degaussing	Magnetic stripe data erasure.
De-Lamination	A condition that occurs when the overlay of clear vinyl does not bond properly to the core stock. The overlay may peel off near the edges.
Densitometer	An instrument for measuring the optical density of a negative or positive transparency, or of a print. Reflection densitometers measure the amount of light that bounces off a photographic print at a 90 degree angle. Transmission densitometers measure the fraction of incident light conveyed through a negative or positive transparency without being absorbed or scattered. Combination densitometers measure both reflection and transmission densities.
Density	The measurement of darkness, usually determined by a densitometer.
DES	The National Institute for Standards and Technology's Data Encryption Standard is the most widely accepted public domain symmetric key cryptography algorithm.
Die Cut	The final precision trimming to size or shape of the plastic cards, i.e., rounded corners or rolodex notching.
Die Stamping	Use of a die of brass or other hard metal to stamp the card surface. The case may be stamped with ink or metallic foil.
Digital Optical Laser Card	A portable card that passively stores information in the form of high-density marks or bars.
Digital Signature	Digital signatures are used to prevent denial of a transaction or message by the sender. The technique is

being used for electronic mail, financial transactions and in sensitive data system applications. The digital signature is generated using a cryptographic algorithm and information that identifies the user, including a cryptographic key. The digital signature can be generated using either symmetric key cryptography or public key cryptography. In the public key version, the user signs the message using a secret key stored in a smart card or terminal hardware or software. The receiver employs the public key of the sender to authenticate his identity.

Digital Signature Standard (DSS)	A soon to be adopted standard for generating a non-reputable electronic code linking the user to a specific transaction. The standard specifies a government developed algorithm called the Digital Signature Algorithm (DSA), specifically designed to be easily implemented in smart cards without the need for special math co-processors. DSS also uses the Secure Hash Algorithm (SHA) for reducing message data to produce the digital signature.
Direct-to-Card (DTC)	Color printing of personalized information directly onto, or into a card surface. Used to differentiate photo printing using dye diffusion or dye sublimation from systems that place information on a core stock which is then laminated into a polyester pouch.
Dot	The individual element of halftone.
Dot etching	Enlarging or reducing the size of the halftone dots on separations; usually done chemically.
Dot Gain	The optical increase in the size of a halftone dot during prepress operations or the mechanical increase in halftone dot size that occurs as the image is transferred from plate to blanket to paper in lithography.
Drop Shadow	A dark outline in or around portions of typeset letters. The shadow effect is separated from the main body of the letter by space.
Drop-Out	Portions of originals that do not reproduce, especially colored lines or background areas (often on purpose).
Drop-Out or Reverse Out	A printing technique where the white color from the core material appears as printed on a colored background. The ink has been dropped -out.

Duotone	In photomechanics, a term for a two-color halftone reproduction from a one-color photograph.
EEPROM	Electronically Erasable Programmable Read-Only Memory is a non-volatile memory technology where data can be erased and rewritten. EEPROM is widely used in smart cards, usually in 2K-bit or 64 K-byte quantities.
Electronic Data Interchange (EDI)	The Ability to transfer information such as orders and invoices from one computer to another over a communications network. The goal of EDI is to eliminate the redundant paperwork and delays in response time inherent in mail and other delivery services. For EDI to be effective, users must agree on certain standards for formatting and exchanging information.
Electronic Purse	A special function in a smart card including an area of memory and a specific set of commands used to store value for low-dollar transactions. Cards may be dedicated to the purse function or also contain memory and programs for other applications.
Electronic Wallet	Generally refers to a calculator type or other portable device capable of executing a variety of financial transactions and identification functions. More sophisticated than an electronic purse, a wallet may include debit, credit, cash card, and other function. Some people carry the analogy to a wallet further and envision a portable device with LCD display, keyboard and reader/writer for a variety of cards. By this definition the electronic wallet is a subset of the personal digital assistant (PDA) category of computer products.
Embossed Hologram	A holographic image is embossed on special foil that can be affixed to a plastic card.
Embossing	Technique of depressing the back surface of the card in order to raise the surface of the front of the card with alphanumeric information. The height of the embossed characters is approximately .018 inches.
EMV Specifications	Specifications developed cooperatively by Europay, MasterCard and VISA (EMV) to ensure global interoperability of chip cards and terminals.
Encoder	A system or equipment designed for the encoding of magnetic-stripped plastic cards used to activate an ATM.

Encoding	Recording electronic information on a magnetic stripe.
EPROM	Electronically Programmable Read-Only Memory is a non-volatile storage circuit that can be written to only once. The memory can only be erased using ultraviolet light which is not feasible for chips packaged in plastic. EPROM is used widely in smart cards, usually in 256-bit to 32K-byte quantities.
Exposure	The step in photographic processes during which light produces the image on the light sensitive coating.
Feathering	A ragged edge on printed type. It may be caused by poor ink distribution, a bad impression, excessive in, or and ink not suitable.
Ferrous Oxide	The metal "rust" particles that are used to make magnetic stripes. The controlled rusting (oxidation) determines the recording characteristics of the magnetic material.
Film	Sheets of flexible translucent or transparent acetate, vinyl, or other plastic base materials that are coated with a photographic emulsion.
Film Laminating	Bonding a plastic film with heat or pressure to a printed sheet for protection or appearance.
Flash	A type of memory based on a modified single transistor EPROM cell technology which offers all the usual reliability attributes of EPROM, but is in-system, electrically erasable on a whole chip or block basis.
Flat	In offset-lithography, the assembled composite of negatives or positives, mostly on goldenrod paper, ready for platemaking. Also, a photograph or halftone that is lacking in contrast.
Fleet Fueling Card	A special purpose charge card used most by transport drivers to pay for the fuel on the road.
Four-Color Process	A combining of small printed dot patterns of four basic colors - cyan, magenta, yellow and black to produce a full range of colors. This process is used to give a full color reproduction similar to a color photograph.
FRAM	Ferroelectric Random Access Memory contains a thin layer of ceramic material covering a traditional circuit to provide durable non-volatile memory. The technology, fairly new to the commercial market, is used in some chip

and RFID cards.

Full Bleed	An image extending to all four edges of the press sheet leaving no visible margins.
Full Track Reading	Reading the full capacity of a magnetic track.
General Purpose Chip	A chip with electrical properties that are set for the handling of a common set of requirements, such as a microprocessor or storage unit
Global System for Mobile Communications	(originally Groupe Systeme Mobile): the standard adopted by 18 European countries in order to develop compatible digital mobile telecommunications.
Gold Card	A prestige issue of financial transaction card with up-market enhancement services. They are usually colored gold and aimed at well-off cardholders. American Express introduced them first, but other card issuers have followed suit.
Graphics	Artwork, photographs, and charts that are reproduced or presented in visual form.
GSM	Global System Mobile is a pan-European standard for portable phones that employ smart cards for identification and security.
Guillotine Cutter	A manual or electronic device with a long, heavy, sloping blade that descends to a table or bed and slices through a stack of paper.
Hairline Register	Register within + / - row of dots.
Halftones/Tone	The reproduction of continuous-tone artwork, such as a photograph, through a crossline or contact screen, which converts the image into dots of various sizes.
Hickeys	In offset-lithography, spots or imperfections in the printing due to such things as dirt on the press, dried ink skin, paper particles, etc.
Hologram	Unique photo/graphic printing that gives the image a three-dimensional effect. Usually employed for security or aesthetic effect.
Hologram Card	An identification card bearing a hologram as a security measure against counterfeiting.

Holographic Foil	The foil used to carry embossed holographic images
IATA	International Air Transport Association: defines magnetic stripe encoding position and configuration referred to as Track 1.
IC Chip Card	Any of a series of card-shaped devices that contain one or more IC chips. Includes both memory-only and smart cards.
Imagesetter	A device used to output fully paginated text and graphic images at a high resolution onto photographic film, paper, or plates.
Imprinter	A device used to print embossed details from financial transaction cards on to sale vouchers.
International Standards Organization	The major international standards setting organization for cards of all types. Relevant standards include:
ISO	International Standards Organization. A central body, located in Switzerland, for the formation and dissemination of industry standards for all national standards bodies.
ISO 1831	Printing specifications for optical character recognition. The ISO standard specifying requirements for ink-printing on documents intended for OCR.
ISO 4904	Bank cards-magnetic stripe data content for track 3. The ISO standard financial transaction cards.
ISO 7810	This ISO standard specifies the nominal dimensions for bank cards, including standards for edge burring not to exceed 0.08 mm (0.003 inc.), surface distortions, and signature panels.
ISO 7811	ISO 7811/2 specifies the magnetic stripe surface profile and ISO 7811/4 specifies the location of magnetic stripe material.
ISO 7813	This ISO standard specifies that the dimensions of financial transaction cards shall be 0.76+/-0.08 mm (0.030+/-0.0003 in.) thick 85.1 mm (3.375 in.) wide and 54.03 mm (2.127 in.) high.
ISO 7816	Specifies standards for integrated circuit cards with

contacts and has five parts: Part 1 - Physical characteristics; part 2 - Dimensions and location of contacts; Part 3 - ISO/EIC Electronic signal and exchange protocols; Part 4 - Interindustry commands (draft); part 5 - Registration system.

Key Management

A technique for securely distributing cryptographic keys to parties involved in a secure transaction. The primary standards for key management is known as ANSI X9.17. Other techniques, including proprietary methods, are used for government classified information systems. Key management generally requires a special computer dedicated to distribute keys securely. However, public key cryptography also can be used to establish session keys between two parties without the need for a third-party server.

Lamination

The process of bonding layers of core material and overlay material through heat and pressure.

Laser Card

See Optical Memory Cards

Lazerproof/Digitized Proof Recorder

Lazer exposed, continuous tone, pre-press proof. Processed onto photographic reflection transparency print material. In most cases, this is an extremely close representation to the final product.

Light Sensitivity

ISO standard identification cards are supposed to resist deterioration from exposure to light during normal use (criteria defined in ISO 7810)

Line Copy

Any copy suitable for reproduction without using halftone screen.

Litho (Offset Printing)

Ink and water are used with rollers to receive and transfer images onto plastic. Specially treated metal plates allow image areas to accept ink and non-image areas reject ink. Used for fine line printing or step and repeat patterns and reversed out of background colors. Only way to print four color process in achieving the look of a photograph.

Magenta

The subtractive transparent primary color that should reflect blue and red and absorb green light. It is one of the four process-color inks used in the printing process. Alternative term: process red.

Magnetic Stripe

A magnetic tape material applied to the plastic card to be used as a medium for storing machine readable

information. Size or width of magnetic material varies according to the number of tracks to be encoded.

Magnetic Stripe Reader	A device which reads information recorded on the magnetic tracks of an identification card.
Magnetic Stripe Writer	A device which writes information to magnetic tracks on an identification card. Note that track 1 and track 2 are read-only on ISO standard cards.
Magnetic Track	A linear path on a magnetic stripe along with data recorded. Positions of magnetic tracks are defined in ISO 7811.
MasterCard	An international payment systems organization controlled by its members.
Matchprints	3M's single piece laminated proofing system in both the positive and negative forms. Each process provides a highly comparable proof to ensure consistent quality.
Matte Finish	A dull, non-gloss finish on the final surface of a plastic card.
Mechanical	Used mostly in offset, a term for a camera-ready pasteup of artwork. It includes type, photos, line art, etc., all on one piece of artboard.
Memory Card	A card shaped device that contains one or more integrated circuit chips (OTP ROM, Mask ROM, DRAM, SRAM, EPROM, or EEPROM) capable of storing data. Memory cards normally require an on-board battery to maintain stored data.
Message Authentication Code (MAC)	A digital code generated using a cryptographic algorithm, which establishes that the contents of a message have not been changed. A MAC is generated by taking all or part of a message, such as the dollar amount and account number, and processing it through the algorithm, usually DES. The resulting code is appended to the message. The receiver, using the same algorithm and secret key, processes the message to see if the same MAC results. If not, there has been an error in the transmission or data has been purposely changed. Messages with MACs do not necessarily need to be scrambled as data integrity, not data secrecy, is the primary objective.
Mezzotint	A random-dot halftone with a strong grainy effect.

Microprocessor/Microcomputer	The brain of the smart card that functions as the central processing unit and executes application and security functions. A true smart card contains a microcomputer that includes a microprocessor CPU, ROM - which stores operating, security and application programs - and RAM - which provides temporary registers for interim processing steps.
Motorized Card Reader	A magnetic stripe reader which passes a card past its magnetic heads under motor power compare read-on-insertion, read-on withdrawal, swipe reader. Most ATM's and ABM's have this kind of reader.
Mottle	The spotty or uneven appearance of printing, mostly in solid areas.
National Bureau of Standards	The predecessor body to the US National Institute of Standards and Technology.
OCR	Optical character recognition. Computer input by reading characters printed out on paper documents in special type fonts.
Oersted	A unit of magnetic coercive force. Also used to define relative magnetic material "energy retention value."
Offset	In printing, the process of using an intermediate blanket cylinder to transfer from the image carrier to the substrate. Short for offset lithography.
Opacimeter	An instrument used to measure the opacity of paper.
Opacity	The degree to which light will not pass through a substrate or ink.
Opaque Ink	An ink that conceals all color beneath it.
Optical Memory Cards	Also known as laser cards, because a low-intensity laser is used to burn holes of several microns in diameter into a reflective material exposing a substrata of lower reflectivity. The presence, or absence, of a burned hole represents bits. The areas of high and low reflectivity are read using a precision light source. Storage capacity of the cards is generally greater than 2 megabytes. Recently magneto-optical technology has also been introduced to the optical memory card family.

Overlay	In artwork, a transparent covering over the copy where color break, instructions or corrections are marked. Also, transparent or translucent prints which, when placed one on the other, form a composite picture.
Overprint	Double printing; printing over an area that already has been printed.
Passive Chip Card	An integrated circuit card containing no programmed processing elements.
Password Tokens	Portable devices that contain integrated circuit chips, batteries, LCD and sometimes keypads. The devices are designed to generate a unique password for users logging on to computer systems and employ techniques known as synchronous or asynchronous password generation.
Personalization	The process of initializing a card with data that ties it uniquely to a given cardholder and account.
PIN	Personal identification number; also <i>Personal Identification News</i> .
PMS (Pantone Matching System)	An industry-wide color matching system used to reference or indicate printed colors.
Polished Finish	The smooth high gloss surface that results from lamination of most cards.
Polyester laminate	A raw plastic sheet material from which identification cards are made.
Polyvinyl Chloride	One of two plastics (the other is polyvinyl chloride acetate) specified by ISO 7810 as a suitable material for identification cards.
Pre-Paid Card	A card paid for at point of sale, and permitting the bearer to buy goods or services usually of a particular type up to the pre-paid value. Not all such cards are ISO standard identification cards because some do show the identity of the bearer.
Prepaid Card	A card in which monetary value is stored and then decreased as services or products are purchased. Can be accomplished with magnetic stripe or IC card technology. In Japan, hundreds of millions of magnetic stripe cards are used in this manner. Low-capacity memory-only cards with surface contacts are used in the

phone systems of over 60 nations.

Prepress	All printing operations prior to presswork, including design and layout, typesetting , graphic arts photography, image assembly and platemaking.
Press Proofs	In color reproduction, a proof of a color subject on a printing press, in advance of the production run.
Press Proofs/Progressives	The most accurate way of viewing the final printed job. However, results will vary considerably depending on the equipment, techniques and the skills of the printer producing the proofs.
Process Colors	In printing, the subtractive primaries; Yellow, Magenta, and Cyan , plus Black in four color process printing.
Process Printing	The printing from a series of two or more halftone plates to produce intermediate colors and shades. In four color process; Yellow, Magenta, Cyan and Black.
Proofs	A means of close approximation available to the actual printed piece.
Proximity Card	A non-contact card whose presence and contained data can be sensed by an interface device not in physical contact with the card. Such cards are often used in access control systems in which doors open automatically if an authorized person approaches carrying his card.
Public Key Cryptography and Encryption (PKE)	An asymmetric cryptographic method using two different mathematically related keys for encryption and decryption. One key remains secret and is maintained by the user in a terminal or smart card. The other key, since it cannot be used to derive the secret key, is made public in a system directory. When encrypting data, the sender looks up the public key of the receiver and uses it to encrypt the message. Only the user possessing the associated secret key can decrypt the message. Because of the sophisticated and extensive mathematics that allow this cypher system to work, public key cryptography is generally not used for encryption of large amounts of data. Instead, it has found the most favor as a way of generating a digital signature, which is attached to a message or transaction to confirm the identity of the sender. In this process, the user employs his own private key on part of the message, including identification information. Anyone receiving the message can

authenticate the sender's identity by decrypting the digital signature using the sender's public key. The message also may be scrambled to ensure the secrecy of the message contents. Also popular is the use of PK techniques to establish session keys for symmetric key encryption of data between two parties without the need for a central key distribution facility.

PVC

Polyvinyl Chloride is the plastic used to make most plastic cards, including smart cards. PVC is produced in sheets through a lamination process and individual cards are die cut. For IC cards, the hole into which chip modules are inserted is milled out of the blank card.

Radio Frequency Card

A proximity card in which the coupling between the card and its interface device is by radio.

Radio-Frequency ID

A class of methods for transmitting information from a card without physical contact between card and reader. A variety of techniques are used to accomplish this contactless, or proximity, reading and writing. There are two major RFID approaches for cards containing IC chips. Active RF techniques require an on-board battery to power transmission, and passive techniques induce their power for radio fields generated by the reader/writer. There are three basic classes of RF technology; high, medium, and low-frequency. Each of these has unique performance and cost characteristics for both cards and reader/writers.

Rainbow Printing

Infill printing using graded areas of color which merge into one another.

RAM

Random access memory is a volatile memory device that requires power to maintain data. In smart cards, RAM is an interim storage mechanism for registers and other byproducts of processing functions. It is used only while the card is receiving power from a reader/writer. In memory -only cards, batteries in the card provide power to maintain data in RAM.

Reflex Hologram

A hologram produced in film form similar to a photo negative which gives full 3D imagery.

Register

In printing, fitting of two or more printing images on the same paper in exact alignment with each other.

ROM	Read-only memory is non-volatile memory which is written once, usually during card production. It is used to store operating systems and algorithms employed by the microprocessor in a smart card during transactions.
RSA	A public key cryptography algorithm developed by mathematicians Rives, Shamir and Adelman of MIT. See Public Key Cryptography and Encryption.
Screen Printed Panel	One method of applying a signature panel is by screen printing with special inks on the sheets of plastic cards after lamination before they are die-cut to the finished size. These type of signature panel is more economical and allows more flexibility in the size of the panel. Also, with the screen method you can apply multiple writing panels on the same side of the card for greater personalization.
Screen Ruling	The number of lines or dots per inch on a halftone screen.
Security Printing	Printing which incorporates anticounterfeiting measures such as fine-line security patterns, infill printing, lenticular patterns, rainbow printing, serial numbering, etc. and which is carried out under tightly controlled conditions to prevent fraud.
Service Code	A code recorded on track 1 of a financial transaction card indicating what kinds of facilities the cardholder may access with the card.
Sharpen	To decrease in color strength, as when halftone dots become smaller; opposite of "thicken" or "dot spread".
Signature Panel	A receptive panel applied to the card to accept writing inks. May be applied using a printing ink in sheet form or individually using a hot stamp method.
Silk Screen Signature Panel	A receptive panel produced by printing ink on the card utilizing a pre-cut screen.
Smart Card	A card-shaped portable data carrier that contains one or more integrated circuits for data storage and processing. A typical smart card chip includes a microprocessor or CPU, ROM (for storing operating instructions), RAM (for storing data during processing) and EPROM, or EEPROM memory for non-volatile storage of information.
Step and Repeat	In photomechanics, the procedure of multiple exposure

using the same image by stepping it in position according to a predetermined layout.

Stripping

In offset-lithography, the position of negatives or positives on a flat (goldenrod) prior to platemaking.

Subscriber Identity Module

A SIM is used to link a phone number to a specific person, instead of linking the number to a specific phone set. Smart cards, which can be inserted into any reader-equipped phone, are used to carry the customer's number. A pan-European standard has been established for SIMs, and several experimental programs are scheduled in the US for personal communications networks (PCNs) using the technology.

Super Smart Card

The term given to card-shaped devices that have on-board keypads, LCDs, and batteries, as well as one or more integrated circuit chips capable of storing and processing data. Super smart cards usually contain specialized programming, stored in ROM for specific applications such as banking transactions or password generation.

Swipe Reader

A magnetic stripe reader in which the magnetic stripe is read by passing the card manually right through the reader past the magnetic heads.

Symmetric Key Cryptography

Cryptographic processes in which encryption and decryption rely on the same secret key. An example is the Data Encryption Algorithm (DEA); however, a host of other proprietary algorithms also are available. The strengths of the approach are its security and speed, especially when implemented in hardware. The major disadvantage is the complex key management procedures required to securely distribute keys. In addition, symmetric key cryptography can be used to protect the integrity of data by generating message authentication codes and to sign messages with digital signatures. The latter process, however, requires special procedures to guarantee protection of keys. See DES.

Synchronous Password Generation

A method of generating a unique one-time password for computer users based on time or transaction synchronization between a host and a device at the point of transmission. The user's device, generally referred to as a token, contains a secret ID or seed password every 30 or 60 seconds so the user never enters the same

password twice. The host computer contains a synchronized clock, the same algorithm and a file of user seed numbers, so it knows what password to expect at any given time. The method can be strengthened by requiring the user to enter a PIN also.

T&E Card	Travel and Entertainment Cards. A general term for financial transaction cards, usually charge cards, used primarily by business executives. American Express and Diners Club cards are often referred to as T&E cards because their original growth was mostly in this market.
Tints	Uniform dot valued produced photomechanically.
Topping/Tiping	The process of transferring a contrasting color foil to the embossed characters on a personalized plastic card.
Track	In magnetic stripe and optical cards, the physical band within the active area where data are sequentially stored. Regular magnetic stripe cards have three tracks. Optical cards may have more than 2500 tracks.
Transparencies	Copy and photos designed to be viewed by transmitted light.
Trapping	The ability to print a wet ink film over a previously printed ink. Dry trapping is printing wet ink over dry ink. Wet trapping is printing wet ink over previously printed wet ink.
TTS (Thrift Third Standard)	Defines the magnetic stripe encoding position and configuration referred to as Track III.
U.V. Printing	Special printing inks applied to certain cards to produce a unique symbol or code as an added security feature visible only under a special black light.
Watermark Magnetics	A magnetic tape that contains non-erasable personalized magnetics for identification purposes, hence increasing the security of magnetic media.
Watermark Plastics	The creation of images that can be seen visually in a plastic card with the objective of providing additional security in identifying the card relative to its user.
Weigand Effect	A combination of magnetic wires imbedded in a card to make a binary machine readable code.

ColorID TIP
Call ColorID at 888-682-6567 for More Information