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On its face....

....the February 8, 1994 memorandum from Don Anderson (AIM/US Executive Director) to all members seemed routine and inconsequential: The AIM Board of Directors proposed that all new specifications -- previously known as Uniform Symbology Specifications (USS) -- will be known in the future as AIM/US Technical Specifications (ATS). This new name was adopted as a result of an examination by the Board (at its January meeting) of the question: "Should AIM/US limit its standards activities to public domain technologies?"

Anderson's memo reported the Board's unanimous reply:

"AIM/US will develop and publish specifications without notice of the ownership or rights to use the underlying technology. In order to address the change in policy and the preconception of 'Public Domain' associated with a USS, the Board of Directors has elected to issue future specifications as AIM/US Technical Specification (ATS) documents....This change in policy combined with the name change and an appropriate disclaimer will allow AIM/US to put aside the question of ownership/rights/licenses/patents, etc. and concentrate on the warranty of a specification which is to validate technical merits and accuracy."

This decision by the AIM/US Board was specifically intended to defuse an imbroglio that has been brewing for the past year involving PDF 417, the two-dimensional symbology developed by Symbol Technologies. AIM's current policies and procedures specify that a USS could only be issued to cover symbologies which have been placed in the public domain. The question posed by a number of AIM members was whether or not PDF 417 was truly in the public domain. Since AIM was unsuccessful in arriving at a solution that satisfied all of the interested parties, it decided to sidestep the problem by creating a new category which did not address that issue.

Several months ago (*SCAN Dec 93*), Rich Bravman, Senior VP Marketing, told *SCAN*: "When we released PDF 417 earlier this year [1993], we clearly stated that we were giving up all rights to the use of the symbology. We also stated -- and this situation has been accepted and confirmed by AIM/US -- the following: 'Symbol represents that the PDF 417 symbology presented in the specification is entirely in the public domain and free from all use restrictions, licenses and fees. No implied license is granted to any hardware or system.' I would also



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INCLUDING THE INTERNATIONAL EDITION

note that we will continue to protect Symbol's large and growing portfolio of patents."

That Symbol statement would seem to be unequivocal -- designed to satisfy even the most skeptical observer. Why, then, did the AIM Board find it necessary to create a brand new category of specifications designed to take no "notice of the ownership or rights to use the underlying technology?" Why was this criterion adopted only for "future" specifications? And why was it apparently intended to single out PDF 417?

One prominent -- and very knowledgeable -- member of the auto ID industry phoned SCAN and angrily put it this way: "It would take a major stretch of the imagination to consider PDF 417 in the public domain. As you look at Symbol's patents and patent applications you will find that their strategy is to build a picket fence around the symbology so that it is impossible to use any method to decode the symbol without violating one of their patents."

Symbol's Bravman responded: "We have placed the PDF 417 symbology in the public domain. A number of label printing companies are freely printing the symbol with no interference from us. We have already licensed AccuSort, Welch Allyn and Olympus/Japan -- and we are having discussions with a number of other companies -- to manufacture and sell scanners for PDF 417. If another company develops a scanning method which does not conflict with our patents, they are free to manufacture, sell, and even patent, their device."

What about Symbol's objections to the new ATS proposal (which seems to single out PDF 417 as the only symbology that cannot pass AIM's public domain test)? Bravman replied: "We have requested that AIM treat all symbologies -- past, present and future -- the same way. We do not believe that a trade association such as AIM should have to determine the patent position on equipment -- particularly as it relates to a symbology and whether it is in the public domain. For the present, however, if the AIM Board of Directors wishes to ignore the public domain issue for all future symbologies -- including PDF 417 -- then we will accept the ATS designation."

Comment

We think that Symbol has made a wise move to drop their objections to the proposed AIM Technical Specifications. We hope that AIM will be able to move ahead quickly to implement this proposal -- and to ultimately bring all of the Uniform Symbology Specifications in under the same umbrella with no reference to their public domain status.

As for Symbol's perceived intransigence on the matter of PDF 417, we suspect that some of the criticism from Symbol's irate competitors may be partly due to an emotional response to Symbol's continued adamant position that it will "aggressively protect its intellectual property."

There is no question but that Symbol is actively promoting the use of its two-dimensional symbology and attempting to make it the de facto standard for most high-density coding applications. This is not surprising, considering a remark made by a Symbol representative at a recent industry meeting -- he stated that his company had already invested over \$50 million in the development and promotion of PDF 417 and related equipment.

At the same time that it is seeking wide acceptance of its invention, however, Symbol has been establishing what it considers its legal rights to its intellectual properties. Unfortunately, others may view these same actions as erecting barriers which limit free access to the bar code which is presumed to be in the public domain.

One final thought. Symbol may have to pay a little more attention to its image within the automatic data capture industry. The company is often perceived as the big bully on the block who uses his strength to force others into weakened market positions. This perception is not only held by competitors. We have heard it also expressed by distributors, VARS and even a few large customers. That image may not always be an accurate one, and many of the complaints cited go back a number of years, but the problem should be seriously addressed.

A possible forerunner....

....to the long-awaited automatic data capture systems for hospitals -- that will include complete patient administration -- was announced by Telxon.

For the past year -- working in partnership with two software suppliers (Health Care Expert Systems, West Des Moines, IA; TDS Healthcare Systems, Atlanta, GA) - - Telxon has been testing its spread spectrum RF terminals at the West Virginia University Hospital (Morgantown). Doctors and nurses there have been using forty pen-based PTC-1140 and PTC-1180 units to access patient's records, place orders and perform other clinical functions on-line, real-time. Bar code scanning is not currently being used in this test; however, the PTCs have bar code capability and it is anticipated that scanning -- including the use of bar-coded patient wrist bands -- will be added to the system in the future.

According to Terry Davidson, Marketing Director of Telxon's Healthcare Technology Group (HTG), the tests were successful and a full complement of 70-80 units will soon be installed to cover the complete 10-story, 360-bed hospital.

"The Telxon portable PCs emulate the hard-wired PCs now operating in the back rooms or nursing stations," Davidson explained. "We ran a thin wire up the elevator shaft and spotted a few antennas -- or 'repeaters' -- on each floor. Our PTCs transmit their data to these antennas which then send the signals by wire directly to the three hospital host computers. The need to hardwire directly into each room has been eliminated, thus greatly reducing the cost of installation. We have totally bypassed the time-consuming and error-prone procedures which required the doctors and nurses to go back to the PCs on each floor to enter patient data from memory or from notes on little scraps of paper stuffed into their pockets."

Telxon demonstrated this system at the Healthcare Information Management Systems Society conference in Phoenix in mid-February. According to Davidson: "There was a very high level of interest." Although the company's announcement stated that the West Virginia trial was the "first ever test of a wireless LAN system in a hospital," Davidson was careful to point out that other companies have installed wireless hand-held devices for hospital applications. "Ours is a step above," he explained. "It is an open, non-proprietary architecture, and I believe we may be the first in actual production."

Telxon's Healthcare Technology Group is part of the recently formed Vertical Systems Group (headed by Senior VP James Cleveland) which markets to four industries: Healthcare, Finance/Insurance, Manufacturing and Transportation. The HTG is one of those profit centers (called Strategic Business Groups) that Telxon organized last year and which may be spun off as separate companies in the near future (SCAN Jan 94).

In another vivid demonstration....

....that automatic data capture can be effective in a very wide range of practical applications with social benefits (see above for Telxon's work in hospitals), Texas Instruments announced the use of its TIRIS RF system in the "recycling and reduction of waste" -- aka garbage collection.

In response to government efforts to encourage recycling and to reduce the amount of trash sent to landfills, the city of Victoria, BC (Canada) is testing a solid waste storage, collection, measurement and information system developed by Mobile Computing Corporation (Toronto) using TIRIS technology. Based on a pay-by-weight formula, the pilot program uses 11,000 special carts outfitted with TIRIS RF/ID tags which contain a unique identification code.

As the collection vehicle dumps the carts, the system automatically identifies the home owner via the TIRIS transponder and reader, weighs the full and empty carts, records the time and date of service, and then transmits the information using a wireless wide area network to a host computer. The vehicle's data collection system is fully automatic -- requiring no driver or collection personnel input. Once the pay-by-weight system is fully installed in March, officials are hoping that the residents of Victoria will opt to recycle much of their trash rather than pay to have it hauled away. [A similar, and even larger waste disposal project -- also using TIRIS transponders and readers -- is currently under way in Brisbane, Australia.]

Which leads us to speculate: If all of his trash had to be sorted for recycling and weighing, would this system have helped or hindered the FBI when they were picking up and rummaging through the garbage of Aldrich Ames, the recently uncovered CIA mole?

Reflecting the growing concerns....

....with retail front-end productivity -- as well as increasing reports of scanner-induced injuries to the wrists and backs of checkout personnel -- Spectra-Physics has introduced "the industry's first 360-degree supermarket scanner."

Called the "Magellan" (named for the explorer who first sailed around the world -- Get it?), the device can read the bottom (not the top) and all four sides of a product simultaneously. According to Tom Durant, VP Marketing, Sales and Service: "Bi-optic scanners still have large [90 to 150 degree] 'blind spots'Magellan virtually eliminates this problem with its 360-degree capability."

In the promotional literature and video tape released by the company, a great deal of emphasis is placed on the actual and potential losses suffered by

retailers as a result of excessive handling and rescans necessary to achieve high first-time read rates at the front end.

Spectra's innovation suggests that in the not-too-distant future, we may see the ultimate scanner, one which will not require any handling at all as the moving belt transports purchases past a laser that will find and read the bar code anywhere on the package -- even on the top.

[In a closely related matter, a recent front-page article in *Supermarket News* (2/21/94) described the development of "ergonomically improved equipment at the checkout." The focus was on the checkstand itself -- rather than the scanner. But the concern was also about repetitive stress injury and carpal tunnel syndrome, "two wrist-related maladies that can occur when reaching, scanning, writing, bagging and [performing] other frequently repeated tasks at the checkout."]

It was originally envisioned....

....as far back as 1973 -- when UPC was first introduced -- that one of the key benefits of supermarket scanning would be to automate the redemption and validation of cents-off grocery coupons.

The problems associated with this marketing tool are enormous. There were 330 billion (that's not a misprint!) coupons distributed in the US last year. Eight billion were redeemed, placing almost \$5 billion in the pockets of savvy consumers. In addition to that sizeable payout, it is reliably estimated that a \$300 million dollar per year coupon-processing industry has been created just to handle the counting and verification of this "funny money."

Although more than 90% of all coupons are UPC-coded, fewer than 20% are scanned when redeemed (by consumers) at checkout counters. For the rest, the checkout clerks manually enter the face amount of the coupon. After the coupons are redeemed -- by whatever means -- they are gathered up, bundled and shipped off by the retailers to special clearing houses which work for them under contract. Almost all of these clearing houses are in Mexico, where thousands of workers manually sort and tally the coupons by product manufacturer.

After totalling the coupons' worth, the clearing house sends a check to the retailer for the face value of the coupons, plus eight cents per coupon for handling. Manufacturers, in turn, are sent a statement listing coupons redeemed and an invoice for payment due. The retailer's Mexican clearing house then bundles the coupons and ships them off to the respective manufacturers.

The next step in this process is totally wacky and boggles the mind. The manufacturers actually ship all of these same coupons back to Mexico to their own clearing houses to verify the count submitted by the retailer's contractors. Following that tally, the parties negotiate in order to reconcile all of the discrepancies between the various accounts.

[There is another important factor that none of the retailers or product manufacturers like to talk about publicly. Over the years, there have been a number of reliable studies which have concluded that between \$250 million and \$500 million in fraudulent coupon redemptions occur in the US

each year. It takes many forms, ranging from the checkout clerk who stuffs the register with coupons from yesterday's newspaper and pockets the cash; to sophisticated, Mob-backed, phony clearing houses -- supported by unscrupulous retailers -- who "redeem" coupons often obtained directly from the printers that never touch the hand of any consumer.]

Two new developments promise to radically alter the entire coupon redemption process. First, Catalina Marketing and Spectra Physics have launched a joint venture named Catalina Electronic Clearing Service (CECS). CECS will install front-end scanning systems which will automatically scan, verify and redeem the coupons, reimburse the retailer, charge the manufacturer and create an audited record for full control. In addition, CECS will store the coupons for six months to resolve any disputes.

Catalina Marketing (Anaheim, CA) -- which owns 80% of CECS -- is a public company that has been in the coupon business since it was founded in 1984. The company's program is based on special devices which dispense coupons at the checkout counters -- one billion of them last year -- targeted directly at the individual consumer's actual buying patterns.

Spectra-Physics (Eugene, OR) is the leading supplier of laser scanners to the supermarket industry -- with an installed base of 200,000 units. Spectra (which owns the remaining 20% of CECS) will provide CECS with hardware and software to permit the scanning and validation of coupons at the checkout counter. (True validation requires that the coupon is not only scanned and verified, but that the purchase of the couponed product is confirmed electronically.)

Initial tests of the CECS system began early this year; participating retailers are Kroger, Giant, Ralphs, Pathmark, Dominick's and Dick's. The packaged goods manufacturers, which have signed up for the tests, are P&G, Nestles, Campbell Soup, Lever, Nabisco, Ralston Purina and Best Foods. Dan Granger, President of CECS (St. Petersburg, FL), anticipates that this fundamental change in the coupon clearing process will provide a "potential industry saving of 10 to 30 percent, amounting to \$50 to \$75 million each year." For retailers, the program is projected to cut average reimbursement time from one month to seven days.

[Although they are currently the most active, CECS is not the only player in the automated coupon redemption game. Advanced Promotion Technologies (Pompano Beach, FL) was recently granted a patent for its "Coupon Eater" system which is also designed to automatically verify and validate coupons. The Coupon Eater was tested by Kroger several years ago but was rejected because of inadequate coupon coding at that time.]

The second important attempt to bring order out of cents-off coupon chaos is a new standard -- "The Coupon Extended Code and In Store Coupon Code." -- which was drafted by The Joint Industry Subcommittee of the Grocery Manufacturers Association (GMA) and the Food Marketing Institute (FMI) and is currently out for review. The proposed extended code incorporates additional important marketing information including the coupon's origin (newspaper/magazine/mail drop), expiration date, offer code and household code. This information would be encoded into a separate UCC-128 add-on symbol printed alongside the standard UPC coupon code. The new standard presents five different "Extended Formats" with data content ranging from five to eighteen digits.

A separate In-Store Coupon Code is also a departure from the current coupon code

arrangement. A 13-digit EAN symbol replaces the 12-digit UPC. Instead of Number System Character "5" to designate a coupon, the In-Store format will now be preceded by "99" -- which is positioned as if it were an EAN Country Code. [Could this be the long-awaited breakthrough that will require supermarkets to be equipped to scan the worldwide EAN symbology? Hallelujah!]

The Spectra-Physics scanners developed for CECS are specifically designed to read and decode the UCC-128 add-on symbols at the same time that the coupon codes are being scanned. The new standard targets January 1997 when all coupon coding will have to comply. This allows less than three years to install hardware and software upgrades to comply.

These two advances in automating coupon redemption have been greeted with optimism by both retailers and manufacturers and are expected to result in very considerable savings and improved marketing information. We first reported the potential advantages of UPC-based automated coupon redemption and the scandal of coupon fraud seventeen years ago in the very second issue of this newsletter (SCAN Oct 77) and have returned to this subject many times since. It's about time something was done about it!

A new term....

....destined to be added to our vocabulary is "Data Application Identifiers" (DAI), according to a new ANSI specification now out for review.

The DAIs are prefixes intended to unambiguously identify the meaning of the encoded characters that follow them -- particularly in environments where more than one code or symbol is found. For example, without an identifier, a decoded number "1234" on a code 39 symbol on a shipping container could represent the product number, quantity or even the date (January 23, 1994).

When the Automotive Industry Action Group (AIAG) designed the multiple-bar-coded shipping label in the early 1980s, they conceived the Data Identifiers (DI) to resolve this dilemma. The DI is an alphanumeric set, with up to four characters, which distinguishes the various codes on the label from one another.

[Thus, if the code number "1234" were preceded by the Data Identifier "1K," the code would be recognized, by definition, as: "The order number assigned by a supplier to identify a purchase transaction."]

By the late 1980s, after many other industries had adopted the DI concept, the list of assigned identifiers had grown substantially. The AIAG did not want to continue to serve as the administrative agency responsible for maintaining the Data Identifier "dictionary," so it turned the job over to the then recently formed Federation of Automated Coding Technologies (FACT). By 1989, FACT had developed the Data Identifier standard and had submitted it to ANSI. Approved two years later, the standard was published as ANSI/FACT-1, 1991.

The loosely structured alphanumeric DIs, however, did not suit the very large universe of retail scanning represented by the Uniform Code Council (US and Canada) and the International Article Numbering Association/EAN (the rest of the world). These organizations felt they needed an all-numeric coding system that was more rigidly structured. On February 27, 1991 the UCC and EAN adopted their

version -- a 2-, 3- or 4-digit code -- which was called the Application Identifier (AI) (SCAN June 91).

Which brings us to the new Data Application Identifiers. Once the two conflicting systems were adopted -- the DIs presumably for industrial applications and the AIs for retail applications -- it was quickly recognized that the real world is not so easily compartmentalized. Many companies sell products intended for both consumer and industrial consumption. How was a manufacturer or distributor to reconcile the two systems?

The two responsible organizations (FACT and UCC/EAN) finally agreed in 1992 that "the existence of two approaches to accomplish the same level of identification became a burden." FACT was asked to "develop a standard which would harmonize these two approaches." The result was called "Revision 1" of ANSI/FACT, 1991.

[An additional complication soon arose. FACT, which began to fall apart in 1992 when it lost the support and sponsorship of AIM, was formally dissolved on December 31, 1992. Responsibility for the new standard was then assumed by the ANSI MH10-SBC-8 group -- the same subcommittee that had developed the Unit Load & Transport Packages standards. By the end of 1993, it was decided to assign the ANSI/FACT revision project to a newly-formed separate subcommittee (SBC-9).]

The working draft of Revision 1 -- now formally designated ANSI/MH 10.9M FACT-199X -- was sent out for comment in July 1993. The 44-page document (plus ten appendices) contains a comprehensive listing of two-hundred-plus Data Identifiers; a complete listing of the fifty Application Identifiers; and two sections "mapping" (some call it "harmonizing") these codes to one another. Replies were received from thirty companies; then, in January, the committee met to review and reconcile all of the comments.

In a recent interview with SCAN, Craig Harmon (President of QED Systems and ex-Chairman of FACT) observed: "There is no such thing as a 'Vertical Market.' Every product is sold in a variety of markets and therefore all standards must be written in such a way as to cross industry boundaries." The DAIs seemed to have achieved that objective -- the hard way.

Getting married?....

....Stop by and register at selected locations of Target Stores, the mass merchandise chain. You will be given a portable hand-held laser gun and instructed to walk around the store and scan the bar codes on any items you would like to receive as gifts from family and friends. Your selections will be recorded in the store's Bridal Gift Registry. This program is called "Club Wedd" and, according to the chain's marketing people: "It's fun to do."

Just one more small step toward the ultimate goal of a personal scanner/terminal/computer for every consumer.

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