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There was an unexpected reaction....

....late in March, to the patent recently issued to Intermec covering the principles of their Code 49 symbology. Based on conversations with a number of industry representatives, we discovered that the patenting of this symbology had made some people nervous.

For example, SCAN has obtained a copy of an internal corporate memorandum prepared by one of the leading auto ID companies. The writer expresses "surprise" at the recent issuance of a patent on Code 49. He goes on to describe his investigation of the patent, and then poses the question: "Would the use of Code 16K -- clearly and openly designed to mimic the characteristics of Code 49 -- infringe on this patent for Code 49?"

Intermec introduced Code 49 at SCAN-TECH 87 with a great deal of fanfare (*SCAN* Nov 87). It was the first "two-dimensional" stacked bar code designed specifically to pack more information into less space, targeting the health and electronic industries as prime applications. The inventor was David Allais, then Intermec's Chief Scientist, who has also been credited with developing the popular Codes 39 and Interleaved 2/5.

Unknown to most people in the industry, Intermec had filed for a patent on October 13, 1987, the day before the company went public with Code 49. The patent application covered the concepts of a stacked symbology -- or "multitrack," as it is referred to in the patent documents -- which employ a unique "code word" structure and a method for determining each row's position through the use of parity patterns. The patent was approved and issued on December 27, 1988 (Patent No. 4,794,239), but word didn't get out into the trade until March 1989.

And that's when some of the questions first surfaced. Why, for example, did Intermec apply for a symbology patent in the first place -- something that they had never done before and which was rarely done by anyone else? Was the company planning to license its use? To collect royalties? To restrict the introduction of other two-dimensional symbols?

[The only other symbology-related patents that we are aware of are KPG's Telepin and a Monarch patent covering special decoding algorithms for Codabar. Commenting on the value of patenting a symbology, Jill Mandeno of KPG told *SCAN* that her company's refusal to place Telepin in the public domain had defeated its acceptance by the automotive industry back in

the mid-1970's, and ultimately severely restricted the use of the Telepin symbology. To our knowledge, Codabar, on the other hand, has always been in the public domain.]

The Code 49 situation came to a head at the March 1989 meeting of AIM's Technical Symbology Committee. On the agenda was the issuance of additional Uniform Symbol Descriptions, which AIM publishes to describe commonly used symbols and their encodations. Among the USD's under consideration were Intermec's Code 49 and the newer, also 2-dimensional, Code 16K (*SCAN* Nov 88). Code 16K was developed by Ted Williams (President of Laserlight Systems), who is also, coincidentally, the current Chairman of the Technical Symbology Committee.

It was at this TSC meeting that members learned of the new patent and some of the nervousness about Code 49 first manifested itself. Although Intermec had made it known informally (see David Allais' remarks in *SCAN* Nov 87) that Code 49 would be placed in the public domain, the company had not issued a clear-cut, unequivocal statement to that effect. In addition, some Committee members thought there had been a contrary signal sent out when Intermec agreed to license the use of Code 49, royalty-free, to any company which agreed "to support the symbology." That statement was viewed as something less than a full, unrestricted release of the technology. The final decision made by the TSC was that all AIM members should be polled and requested to sign a general statement placing into the public domain any symbology they may have developed.

We contacted Intermec to obtain their response to all of these questions. Sprague Ackley (whose title at Intermec is Scientist, and who is also a member of the TSC), emphatically stated that his company's intention has always been to place Code 49 in the public domain for free access by anyone.

Confirming this statement, *SCAN* received a letter from Intermec, dated March 31, 1989, which noted in part: "As Intermec has previously stated, Code 49, like all other Intermec-invented symbologies, is and always has been considered by Intermec to be free and available for public use."

That reply seemed clear and unequivocal enough, but there were other nagging questions that had not yet been answered to everyone's satisfaction. Why did Intermec apply for a patent in the first place? And even though Code 49 has been released for unrestricted use, how will Intermec respond if a symbology is introduced which may be different from Code 49, but which, nevertheless, is perceived by Intermec to violate the claims of its patent? For example, although Laserlight's Williams told *SCAN* he does not believe his Code 16K is in conflict with the Intermec patent, he could not be sure as to how the owner of the patent might view that situation.

And so we went back to Intermec and posed this next question: "Although you have clearly released Code 49 for unrestricted use, does that same free use apply to the patent?" On April 5, hours before we go to press, the written reply came back: "Patent No. 4,794,239....is not solely a Code 49 patent....Intermec is not inclined at this time to abandon the patent, inasmuch as we have not yet fully explored the technology it covers."

That same letter goes on to say: "After careful and thorough examination by Intermec's technical and legal staff, it is Intermec's conviction that Code 16K, as presented to the AIM Technology Symbology Committee on March 29, 1989, does not infringe this patent."

COMMENT

We suspect the general litigious atmosphere in American business today may have brought on most of this flap. According to Intermec's initial response to our inquiry: "The patent on Code 49 was obtained as a matter of routine, both to protect Intermec from fraudulent claims by others who might subsequently develop similar symbologies, and to protect the public and the bar code industry from others who might subsequently attempt to restrict its use."

Based on our many contacts with the company, we do not believe that Intermec ever intended to restrict the use of the Code 49 symbology. Now that the patent has been issued, however, some members of their staff seem to be having second thoughts about the implication and the importance of the patent as separate from the symbol. Intermec's current positions on the patent sound tentative. We recommend that, in fairness to the industry, the company issue a more definitive statement as soon as possible.

* *

A Special Report on Education

It has become more and more apparent that education is one of the elements necessary for the continued growth and prosperity of automatic identification. We are referring to education in its broadest sense, including:

- Efforts to educate the user community.
- Programs targeting the personnel of the vendors of equipment, software, systems and supplies.
- Preparation of the next generation of workers and managers to be certain that we involve talented and knowledgeable successors to carry auto ID into the future.

There are two major reasons why it is of paramount importance for this industry to aggressively promote education. First, auto ID is still a relatively new technology. Except for the retail grocery sector, auto ID has probably penetrated less than 10% of its potential market. As yet, there is no large base of experienced personnel that has grown up with bar coding (or RFID, OCR or voice recognition for that matter), and a special effort must be made to reach out and enlarge that base.

Secondly, we must recognize that the only real competition that auto ID vendors face in today's marketplace is still the keyboard and the clipboard. By any objective evaluation, auto ID is vastly superior to any of the available manual systems -- and continued success does not require additional technological breakthroughs in hardware or software. Rather it depends on finding ways to enlighten the decision-making management of the user community. Education must take top priority!

Because of the importance of this topic, SCAN will address -- in this issue, and again next month -- the various educational efforts now underway in the industry. We hope you will find new ways to personally participate in as many of these projects as you can.

[We also draw your attention to the excellent editorial ("Educating the Next Generation") in the March 1989 issue of *Identification Journal*. Our colleague Tim Bitler exhorts the industry and its trade organization (AIM) to expand the "pool of expertise" by increasing efforts to educate the students in our colleges. Neither of us knew of the other's intentions to report on this same subject, which is further evidence of the timeliness and importance of this topic.]

Education: Teach Them While They're Young

In the United Kingdom, the Article Number Association (the UK's EAN affiliate) has distributed 10,000 underline education packs to schoolchildren, ages 8 to 13. The purpose of this project -- started in 1985 (*SCAN* March 1985) -- was to create a consumer group that is more knowledgeable about bar coding and scanning, while also preparing some of them for careers in retailing. So far about 60% of the packs have gone to children in the elementary schools. The material is being used to supplement course curricula in general studies, geography, computer studies and home economics.

In January, the ANA launched a revised pack, which expanded the scope in order to reach a larger group -- up through age 18, and beyond to the college undergraduate level. This new pack, developed with the help of teachers and educational advisors, contains an expanded set of instructional notes, a wall chart, 16 illustrated project cards, and a technical information pack for more advanced students. Each of these project cards comprises a separate lesson plan, introduces the concept of information communications, and leads into the use of article numbering, bar coding and electronic data interchange.

The ANA distributes all of this material free of charge. So far, the feedback has been excellent and the organization plans to expand and promote the program extensively. For further information (and possibly sample packs), contact Andrew Osborne, Secretary General, ANA, 6 Catherine Street, London WC2D 05JJ, ENGLAND; phone 01-836-0850.

Education: The Trade Shows & Seminars

The most widely used method to educate the users and potential users of auto ID is through trade shows and seminars. Part business, and part show business, these gala exhibitions have become a way of life in every industry -- and auto ID is no exception. Almost all of these events combine a teaching or seminar program along with the exhibition area where vendors may display their products.

There are also scaled-down, seminar-only programs, usually lasting from 1 to 3 days. These lectures are by industry experts who are not directly selling products, but rather charging a fee to share their expertise.

The following examples of this year's scheduled US shows and seminars are not intended as a complete calendar, but rather as a brief rundown of ways in which the user and vendor communities might avail themselves of the educational opportunities. Keep in mind that some of these programs are "horizontal," i.e. based on auto ID, but directed toward all industries and applications; while others are "vertical," and only concentrate on how the technology can be used in a particular industry.

SCAN-TECH 89: Tag-lined this year as "Hot Stuff," this is the world's
    largest and most comprehensive automatic identification show and seminar.
    Scheduled this year for October 16-19 in San Jose, CA, AIM expects more
    than 230 exhibitors to occupy at least 75,000 square feet and to attract
    over 10,000 visitors. Dozens of seminars will be covering every aspect
    of the technology. This year's show will include EDI, in addition to the
    full range of auto ID disciplines. A number of planned tours are also
    featured. AIM, 1326 Freeport Road, Pittsburgh, PA 15238; 412/963-8588.

ID Expo: Almost everything we've described for SCAN-TECH 89 can also be
    said for ID Expo (May 9-11 in Los Angeles), except on a somewhat smaller
    scale. ID Expo has become the successful "second show" of the industry.
    Sponsored by *ID Systems Magazine* and managed by Expocon, 7 Cambridge
    Drive, Trumbill, CT 06611; 203/374-1411.

APICS International Conference and Exhibition: This event is an example
    of an industry conference that is not totally devoted to auto ID, but
    has incorporated this subject as an important component. The American
    Production and Inventory Control Society is a professional organization
    offering educational courses and related materials directed toward the
    manufacturing field. The 1989 conference -- the organization's 32nd
    such event -- will be held in Orlando, FL from October 23 to 27 and 4,000
    manufacturing professionals are expected to attend. Up to now, only a
    handful of auto ID companies have participated in this show. APICS, 500
    West Annendale Road, Falls Church, VA 22046; 703/237-8344.

EDI - Information Partnerships and Competitive Advantage III: This somewhat
    clumsy title (subtitled "Maximizing the Benefit of Electronic Data
    Interchange") is for a two-day seminar scheduled June 5-6 in Arlington,
    VA. It is billed as an intensive program that "will address the issues
    that must be identified and resolved if an EDI program is to make a signi-
    ficant contribution to the corporate bottom line." EDI is an example of a
    new technology that is much talked about, but little understood. Educa-
    tional seminars of this type, therefore, are an absolute must in getting
    the information out to the public. By all accounts, EDI will become
    an important adjunct to auto ID with many crossover areas of interest.
    Phillips Publications, 7811 Montrose Rd, Potomac, MD 20854; 301/340-2100.

HIBCC 89 and AUTO-TECH 89: The Health Industry Business Communications Council
    and the Automotive Industry Action Group have each been working for over
    5 years to bring bar coding to their industries -- with limited success.
    Because of the nature of each of these industries, the educational
    challenges are quite different.

    In the health industry, it is the users -- the thousands of health care
    providers -- who must be convinced to install auto ID systems, and to
    specify to their suppliers what they want, and how and when they want it.
    Unfortunately, the hospitals don't have the knowledge, the budgets or the
    will to do the job, and they have, in effect, passed along the educational
    responsibilities to the distributors and manufacturers (*SCAN* March 89).

    In the automotive industry, the three giant US car manufacturers -- who
    are, actually, the ultimate users -- have already decided what they want.
    They have strongly endorsed the widely-accepted AIAG standards, but are
    having difficulty melding their own complex, internal corporate systems

requirements with the capabilities of their diverse supplier network.

Both the HIBCC and the AIAG have been depending on their educational programs to get this message across. HIBCC 89 is scheduled for June 21-23 in Philadelphia. AIAG's AUTO-TECH 88, which attracted over 700 manufacturers and suppliers last year, has planned the 1989 event for September 21-23 in Detroit and promises that it will be "even bigger and better."
HIBCC, 5110 North 40th Street, Phoenix, AZ 85018; 602/381-1091.
AIAG, 26200 Lahser Road, Southfield, MI 48034; 313/358-3570.

One final word about seminars. In order to be effective, we do think that there should be some restraint in designing a teaching curriculum. The April 26-28 program on "Bar Code Printing," for example, offered by the Institute for Graphic Communication (Waltham, MA), may be overkill. It will cost $900 (plus expenses) to sit for 3 days to learn about a subject that we have seen adequately covered in about 3 hours.

Education: Looking Ahead

What benefits will be derived from these types of educational programs? To the <u>users</u>, these forums will provide a better understanding of how to maximize the advantages of auto ID technology. User-management will come to recognize that the bottlenecks that are slowing down their computer systems are the data capture and input functions.

For the <u>vendors</u> in this industry, the stakes may be even larger. We suggest that the fastest road to corporate growth will not be travelled by those who concentrate solely on increasing market share. This strategy directs an inordinate amount of resources and efforts toward the competition. Rather, the greatest growth will come from a coordinated educational effort to expand the total market for auto ID products among the non-users. This tactic will increase business for both you and your competitors, allowing plenty of time later on to beat each other over the head for a better share of the market.

And for both users and vendors, everyone should be contributing to support the educational efforts in our schools. It will benefit all of us by providing more informed consumers and professionals.

[Next month, look for additional articles on special education efforts, including the expansion of AIM's Teachers' Institutes and the growth of customized in-house seminars.]

* *

We were reminded the other day....

....about the great new world that was awaiting us just over the horizon some 40+ years ago, just after World War II. We were looking forward to helicopters in every back yard (for family transportation without traffic jams) and 3 day work weeks (with lots of time for recreation).

But we especially recall the promise of the 3-dimensional movies, with special effects that would draw the audience directly into the action on the screen. There were even names for some of these film extravaganzas: the "Feelies," to

vibrate your seat during an earthquake; and the "Smellies," to perfume the air appropriately for a sexy love scene or a crisis out in the horse barn.

These thoughts were prompted by the announcement by Symbol Technologies and United Artists of the formation of a joint venture for the application of laser bar code scanning technology to movie theater operations. Under the terms of the agreement, Symbol will manufacture custom-designed laser scanners which will use bar codes to cue or control the theater film projection systems which, for example, automatically set the lens aperture, mask the picture, adjust the stereo sound format, dim the houselights and open the curtains.

> Buried in the third paragraph of the joint press release, was the mysterious phrase that triggered our flights of fancy: "Bar code strips on motion picture film may also be used to initiate other *special effects* [italics ours] in the theater." What "special effects" did they have in mind? Will we feel Scarlett O'Hara's hunger pains when she digs for that last turnip at Tara? Or struggle for air as Shelley Winters goes underwater in the Poseidon Adventure? Will the heat from the Towering Inferno sear our skin? And will we rush to the refreshment stand to slake our thirst from being out in the desert too long during Lawrence of Arabia?

The new scanners have been successfully field-tested and will soon be installed at United Artists' theaters nationwide. UA will also have the exclusive marketing rights for these systems in the motion picture industry. The joint venture is expected to result in revenues for Symbol in excess of $5 million.

On a less esoteric note, Symbol released its financial statement for the shortened year 1988. (The company changed its fiscal year from June 30 to December 31, and the report for 1988 covered only 6 months.) Sales were $58.8 million compared to $42.3 million a year ago; net income was $5.1 million ($.27/share) vs. $9.5 million ($.51/share) for 1987. The problem is that these figures (sales up, earnings down) are not really meaningful for a year to year comparison, because the last 3 months of 1988 include both the expenses of the MSI acquisition as well as an indeterminate amount of revenues and earnings from MSI operations after the merger.

In any case, the 1988 results are viewed as past history. The financial analysts we spoke with are really interested in the "new" company that will emerge after operations have been consolidated. Those results probably won't be apparent until the third or fourth quarter of this year.

As anticipated....

....the Uniform Code Council (UCC) has decided to expand the available pool of manufacturer identification numbers (*SCAN* Dec 88, Jan 89). This increase will be accomplished by opening up Number System Characters (NSC) "6" and "7" for assignments expected to begin in the first quarter of 1990.

> [The UCC has issued about 75,000 manufacturers' numbers since 1973. All have been assigned the prefix NSC "0" (zero) except for a few hundred pharmaceutical companies who use NSC "3". Since each NSC has a theoretical capacity of less than 100,000 5-digit numbers (certain blocks of numbers are not assigned), the available numbers under NSC "0" are expected to run out in about a year at the present rate.]

It is interesting to note that the UCC selected numerals "6" and "7" as their next choice. In 1983, NSC's "6" and "7" were reserved for use by the wholesalers and distributors of non-retail products -- equipment and supplies for industries such as electrical, hardware and building trades. Since most companies in those industries are opting for different symbologies employing the Data Identifier approach -- which, they feel, provides for more flexible systems than the rigid UPC 12-digit, all-numeric code -- NSC's "6" and "7" have remained available for additional use.

The UCC, recognizing the restrictions that will be inherent in the assignment of the NSC's other than "0", addressed these problems directly in its February 1989 bulletin:

1. Retailers whose scanners can only accommodate NSC "0" were cautioned to move as quickly as possible to correct that situation. It was pointed out that equipment manufacturers will be able to retrofit their scanners in the field to recognize NSC's from "0" to "9".

2. Retailer or wholesaler data files, which can only handle 10-digit formats (on the old assumptions that all numbers would automatically have NSC "0" and that the check digits could be ignored), must be expanded to accommodate the complete UPC code numbers.

3. Retailers would be wise to go all the way and have their equipment and files set up to recognize code numbers up to 14 digits. This would include the complete range of UPC, EAN and shipping container symbols. [We recently learned that the Brussels-based EAN Council is considering a new public relations campaign to convince all US retailers of the desirability of upgrading to include recognition of the 13-digit EAN code and symbol.]

4. To avoid the problem of number duplication of cents-off coupons (NSC "5"), the UCC is studying methods to identify those companies (with NSC "0") who are currently issuing coupons and to block issuance of those same numbers under NSC "6" or "7".

The UCC tends to move slowly and deliberately when making significant changes such as this. The opening of NSC "6" and "7" should resolve company numbering capacity well into the 21st century.

Next month, we plan....

....to publish the first article, of an occasional ongoing series, about the fast approaching European Community 1992. EC/92 will not only dramatically change the way business will be conducted among the 12 nations of the European Community, but promises to affect the economic balance of the entire world.

SCAN, with current subscribers in 22 countries, has always attempted to maintain an international perspective of the auto ID industry. We welcome comments and suggestions from our readers on this subject.