

DEFINITIONS

Code

Automated checkstand

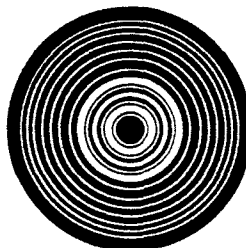
Manual price input

Automatic price input

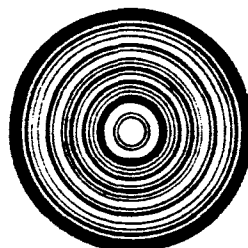
Manual code input

Automatic code input

Symbol



22220-1643



0987654321



■ C000537

REVIEW OF PROPOSED SYMBOLS

1. CHARECOGN - CIRCULAR PIE SEGMENTS
2. CHARECOGN - TWO DIMENSIONAL
3. IBM - TWO PART LINEAR BAR CODE
4. LITTON/ZELLWEGER - SEMICIRCULAR
5. PITNEY BOWES - ALPEX - 5 PART LINEAR BAR CODE
6. RCA - CIRCULAR "BULLSEYE"
7. SINGER - 5 SIDE-BY-SIDE LINEAR BAR CODES
8. SCANNER INC - HUMAN READABLE, 2 DIMENSIONAL BAR
9. DYMO - ONE PART LINEAR BAR CODE
10. ANKER/PLESSEY - ONE PART LINEAR BAR CODE

■ C000538

1. CHARECOGN

- A. FORMAT - CIRCULAR-CODED IN PIE SHAPED ELEMENTS
- B. SCANNING METHOD - HAND HELD READER - "WANDABLE"
• POSSIBLE WINDOW SCANNING WITH CIRCULAR LASER
- C. TEST STATUS • STORE - NONE • LAB - NONE
• USDA STUDY VALIDITY UNDER QUESTION (8 DIGITS ETC)
- D. ENCODATION - START CODE - 10 CHARACTERS - PARITY CHECK
• 12 CHARACTERS IN 96 RADIAL WEDGES - EACH INDEPENDENT
• EACH CHARACTER HAS 4 BLACK & 4 WHITE ELEMENTS
• "SELF CLOCKING BY HAND HELD SCANNER
- E. LOCATION - NO PREFERENCE - TOP GOOD FOR HAND HELD
- F. SIZE -
- | | | | | |
|----------------------|--------|--------------------|--------------------|--------------------|
| DIAMETER | 1.250" | 1.125" | 1.000" | |
| (3) | AREA | 1.22 ^{sq} | .992 ^{sq} | .785 ^{sq} |
| BAR TOLERANCE (mils) | 15±3 | 13±2 | 11±2 | |
- G. ERROR DETECTION (FEG) - GOOD
- H. IN-STORE MARKING - RELATIVELY SIMPLE
- I. COMMENTS - SUITED TO HAND HELD DEVICE OR NEXT GENERATION PATTERN RECOGNITION.

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2. CHARECOGN

A. FORMAT - 2 DIMENSIONAL

■ C0000528

3. IBM

- A. FORMAT - LINEAR BAR CODE WITH CENTER DIVIDER (2 PART)
• OVERLY SQUARE PARTS • REGULAR, FOLDED & SLICED
- B. SCANNING METHOD - RASTER WINDOW SCANNING - "WANDABLE"
- C. TEST STATUS - STORE - NONE • LAB - BATTELLE
- D. ENCODATION - ONE OF THE MORE COMPLEX - ODD OUT OF 7 BITS
• 28 DARK, 27 LIGHT BARS ALWAYS • SOME CHARACTER DEPENDENCE
• MODULO 10 CHECK CODED IN END CHARACTER • 91 BITS + WHITE END ZONE
• RATIO DECODING - Δ DISTANCE \therefore SELF CLOCKING • NUMBER SYSTEMS OK
- E. LOCATION - BOTTOM FOR SLOT - SIDE ACCEPTABLE.
- F. SIZE - $H = 1.040$, $W = 1.442$, $A = 1.5^{\square}$ BARS ARE 13.6 MILS \pm ?
- G. ERROR DETECTION (FEG) - EXCELLENT (BUT - A LOT OF BARS)
- H. IN STORE MARKING - CHARACTER INDEPENDENCE, LINEAR BARS,
MODULO CHECK A PROBLEM
- I. COMMENTS - SUITED TO VARIABLE SIZE

4. LITTON/ZELLWEGER

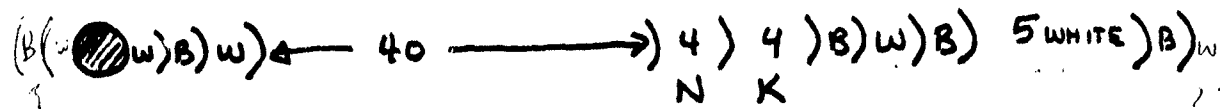
A. FORMAT - SEMI-CIRCULAR, CONCENTRIC ELEMENTS

B. SCANNING METHOD - SLOT (LINER LASER) OR WAND • SIDE SCAN

C. TEST STATUS • STORE - ACME DELAYED PAST APRIL
• LAB - SLOT & WAND

D. ENCODATION - JUST CHANGED - EQUIVALENT TO RATIO DECODE

• 61 ELEMENTS - CENTER + 3 CLOCKING, 10 OF 4 BITS, 4 BITS FOR PARITY, 4 BITS FOR NUMBER SETS (TEN), 3 CLOCKING + EDGE, & BLACK OUTSIDE



WHERE: K IS PARITY ON 1,2,3 BAR WIDTHS
N IS NUMBER SET

• MODIFIED BCD

E. LOCATION - BOTTOM OR NEAR BOTTOM EDGE

F. SIZE - JUST CHANGED
(VARIABLE)

DIAMETER	-	1.196"	2.396"
APPROX. AREA	-	.786 ^{sq}	3.156 ^{sq}
BAR TOLERANCE	-	8±0	18±10

G. ERROR DETECTION - VERY GOOD

H. IN-STORE MARKING - HARD - PROBABLY NEED SOLID STATE PRINTING AND PARITY CALCULATION FOR "K"

I. COMMENTS - RESPONSE TO INDUSTRY NEEDS EXCELLENT (SIDE MARKING AND RATIO DECODING)

5. PITNEY BOWES / ALPEX

- A. FORMAT - 5 PART LINEAR BAR CODE - CLAIMS AREA OPTIMIZATION
- B. SCANNING METHOD - X SLOT AND WAND
- C. TEST STATUS - STORE - NO DATA FOR DECISION
 - LAB - BATTELLE DATA
- D. ENCODATION - 7 BITS + GAP = 8 BITS / CHARACTER - 10 CHAR + 6 FIELDS
 - PARITY CHECKING ON BARS AND SPACES
 - NUMBER SETS BY VARIOUS BEGINNING AND END FIELD CHARACTER
 - REALLY 14 ELEMENTS PER NUMERIC CHARACTER $\therefore 140 + 48$ (FIELDS B,C,D,E @ 12 EACH) + 10 (FIELD A) = 198 ELEMENTS
- E. LOCATION - BOTTOM OR SIDE
- F. SIZE - $W = 2.050''$, $H = .732''$, $AREA = 1.5006''^2$ BARS: $\left. \begin{array}{l} .0095 \\ .0285 \end{array} \right\} \pm .0035''$
- G. ERROR DETECTION - EXCELLENT • TAMPER PROOF
- H. IN-STORE MARKING - DEMONSTRATED SIMPLICITY
- I. COMMENTS - NEED TO PROVE AREA CONTENTION

6. RCA

- A. FORMAT - CIRCULAR, CONCENTRIC RINGS - "BULLSEYE"
 - TRUNCATED & BAR
- B. SCANNING METHOD - LINEAR LASER - WANDING POSSIBLE
- C. TEST STATUS
 - STORE - ONLY SOURCE OF SLOT DATA
 - LAB - BATTELLE (NO PRODUCTIVITY)
- D. ENCODATION - 10 DIGITS OF 4 ELEMENTS PER DIGIT + 5 ELEMENTS FOR CLOCKING AND NUMBER SETS + 6 FOR OUTER BAND + 7 FOR WHITE CENTER
 - READ DIAMETER $\therefore (5 \times 2) + 7 = 109$ ELEMENTS
- E. LOCATION - PREFER BOTTOM
- F. SIZE: $D = 1.2$, $AREA = 1.12^2$, $BARS = 11 \pm 2$ MILS
- G. ERROR DETECTION - GOOD TO VERY GOOD BECAUSE OF DI
- H. IN-STORE MARKING - NEED SOLID STATE CAPABILITY
- I. COMMENTS - AN "OMNIDIRECTIONAL" SYMBOL

7. SINGER

- A. FORMAT - 5 SEGMENT, WRAP-AROUND BAR CODE (LINEAR)
- B. SCANNING METHOD - LINEAR SIDE SCAN
- C. TEST STATUS - STORE · NONE
- LAB - BATTELLE
- D. ENCODATION - UNIQUE · 10 DIGITS ENCODED IN 4 SEGMENTS (2 1/2 / SEGMENT) · CHECKING IN 5TH SEGMENT
- CHARACTERS NOT INDEPENDENT - WORST CASE SITUATION
- E. LOCATION - SIDE ONLY - BOTTOM OF SYMBOL WITHIN
- 1 TO 1.5" OF BASE.
- F. SIZE: $W = 1.5"$, $H = 0.45"$, $AREA = .675^2$ PER 5 SEGMENTS
- BAR ARE $\left. \begin{array}{l} .015 \\ .045 \end{array} \right\} \pm .005"$ H IS VARIABLE
- G. ERROR DETECTION (FEA) - VERY GOOD
- H. IN-STORE MARKING - DIFFICULT, NEED CHECKING CAPABILITY FOR PARITY ETC, DECISION MAKING ON EACH SEGMENT
- I. COMMENTS - AWARD FOR MOST COOPERATIVE

8. SCANNER INC

- A. FORMAT - 2 LINES OF READABLE BAR CODE WITH PISAC
- B. SCANNING METHOD - UNIQUE (PROBABLY COULD READ ALL)
 - 2 DIMENSIONAL PATTERN RECOGNITION
- C. TEST STATUS • STORE - TOO LATE
 - LAB - BATTELLE + SPECIAL STOP & GO TEST
- D. ENCODATION - 2 LEVELS OF BARS PER DIGIT (4 OUT OF 6 PARITY)
 - PISAC FOR PATTERN RECOGNITION & RANDOM ORIENTATION
 - EACH SET OF BARS IS READABLE
 - ASSUME PISAC = 9 ELEMENTS • $6 \times 10 = 60$ • $60 + 9 = 69$ ELEMENTS
- E. LOCATION - OPEN, BUT BOTTOM WOULD BE GOOD
- F. SIZE WIDTH = 1.229", HEIGHT = .80", AREA = .983"
 - BAR TOLERANCE .019 ± .004"
- G. ERROR DETECTION - FAIR
- H. IN-STORE MARKING - HAND HELD AND SIMPLE (CHARACTERS ARE INDEPENDENT)
- I. COMMENTS - LACK OF SPEEDY IMPLEMENTATION

9. DYMO

A. FORMAT - NON OVERLY SQUARE, LINEAR BAR CODE (ALSO LOW PROFILE)

B. SCANNING METHOD - WAND ONLY

C. TEST STATUS • STORE WANDING - LACK OF DATA

D. ENCODATION - 5 ELEMENTS + GAP(?) PER CHARACTER

• 12 CHARACTERS [12X6 = 72 ELEMENTS]

• DESIGNED FOR HAND HELD LABEL APPLICATION

E. LOCATION - OPEN (BOTTOM NOT GOOD)

F. SIZE - 3 SIZES PROPOSED

WIDTH	1.563"	1.068"	.804"	
HEIGHT	.960"	.780"	.560"	
BAR(S)(MILS)	<u>21±7</u>	12±2	12±2	ALSO
AREA	1.500 ^{sq}	.833 ^{sq}	.450 ^{sq}	~.15 ^{sq}

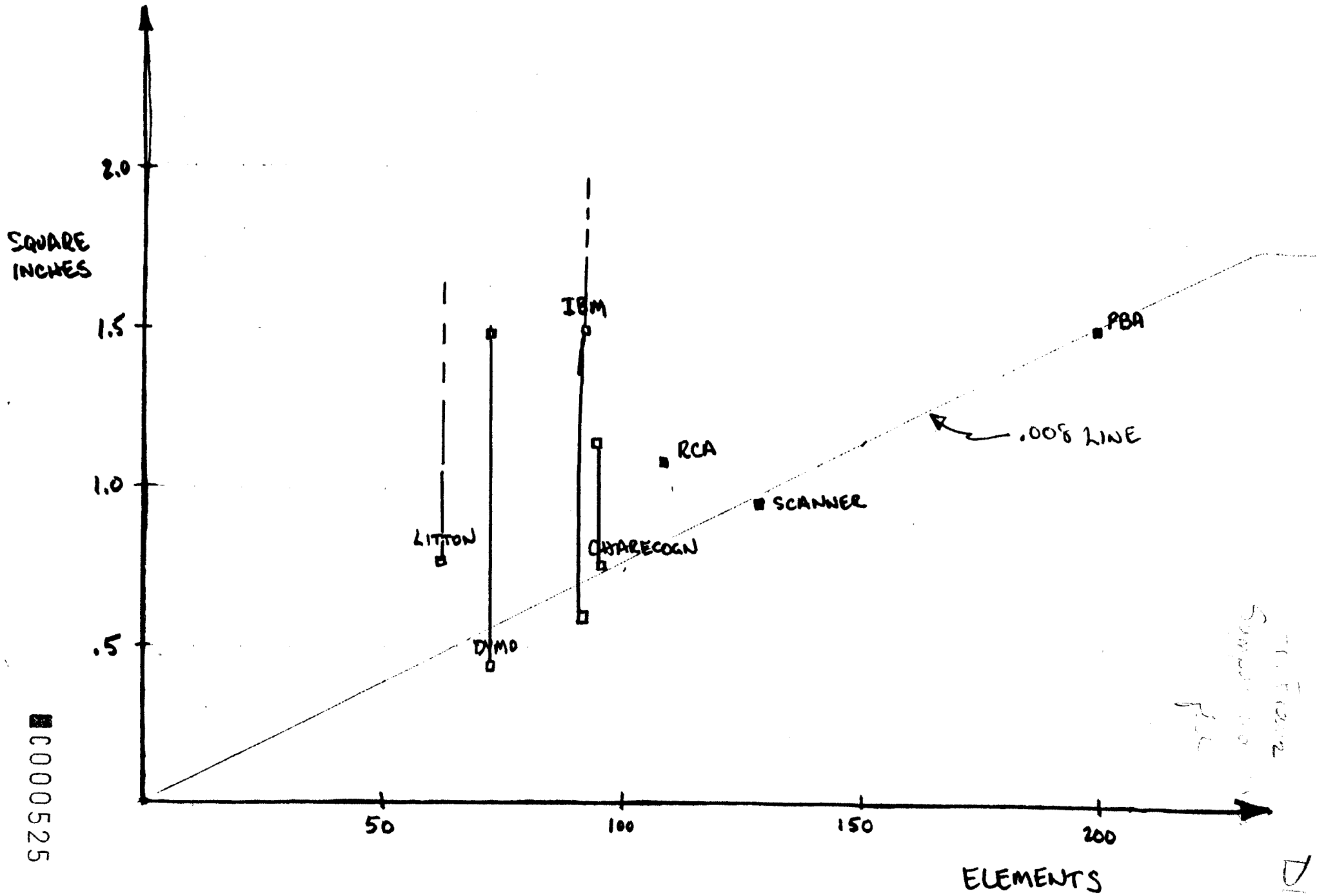
G. ERROR DETECTION - POOR

H. IN-STORE MARKING - PROVEN EXCELLENT

I. COMMENTS - ORIENTED TO HAND SCANNING

10. ANKER/PLESSEY

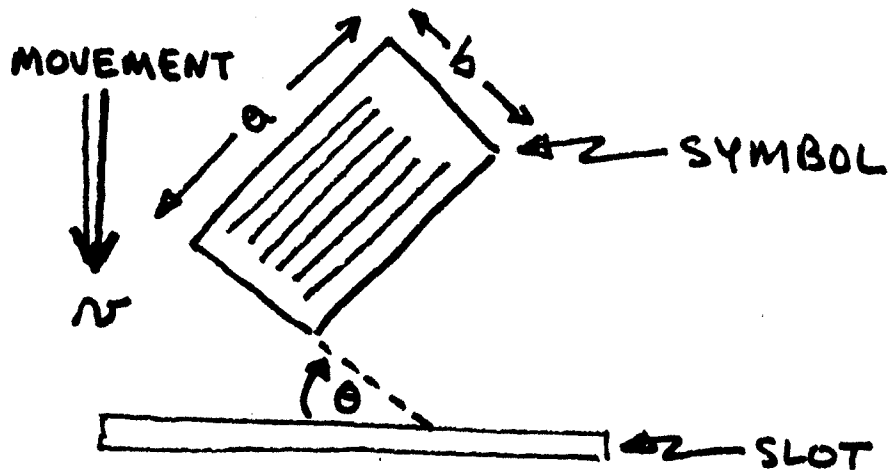
- A. LINEAR BAR CODE FORMAT (?)
- B. SCANNING METHOD - PROBABLY WAND
- C. TEST STATUS • NONE
- D. ENCODATION - DIFFICULT TO TELL - MAYBE 14 TO 16 ELEMENTS PER CHARACTER (???) SPEC POOR - 14 CHARACTERS
- E. LOCATION - UNSPECIFIED
 - 10 - UPC
 - 2 - CHECK
 - 2 - START-STOP
- F. SIZE WIDTH = 1.4" HEIGHT = ? AREA = .5^{sq}(?)
- G. ERROR DETECTION (FEC²) = GOOD, MAYBE VERY GOOD
- H. INSTORE MARKING - ?
- I. COMMENTS - DIDN'T LEARN FROM OTHER SPECS



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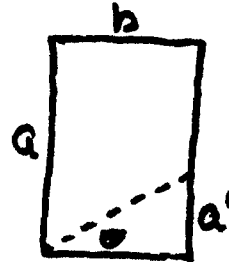
1.1012
Square
D/B

"OVER SQUARE"



GIVEN $a \neq b$ WITH $a > b$

ALSO



$$\tan \theta = a'/b$$

$$\therefore a' = b \tan \theta$$

LET $S =$ SCANS PER SEC

INSURE SCAN IF:

$$a \geq a' + v/s$$

$$a \geq b \tan \theta + v/s$$

MINIMUM IF:

$$a = b \tan \theta + v/s + e$$

SQUARE

