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Bar Codes 101

Introduction to PDF417

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Symbology profile

- Stands for Portable Data File
- AIM standard
- Introduced in 1990

- One data codeword contains 1.8 alphanumeric characters and 2.93 numeric digits
- Numeric compaction is recommended for 13 or more consecutive digits
- Has error correction codewords based on the ECL (error correction level)
- Can decode data from error correction codewords
- The higher the error correction level the more error correction codewords there are, and therefore more security

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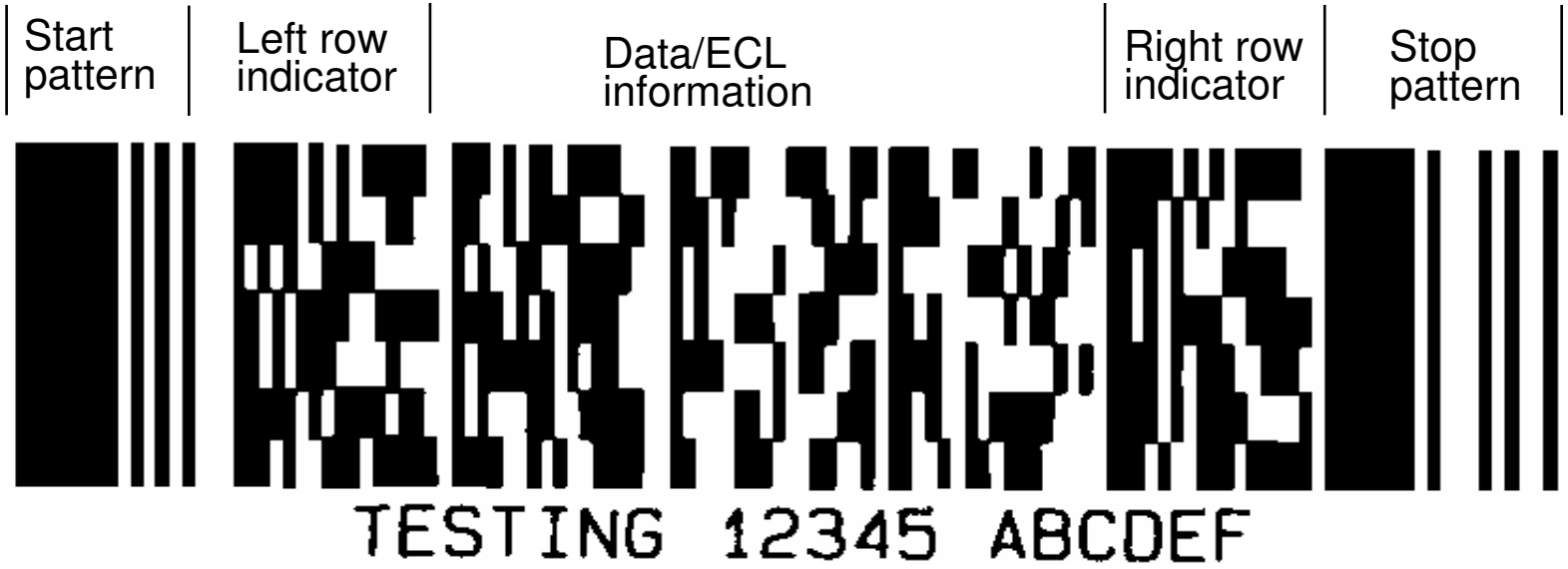
PDF417 symbol



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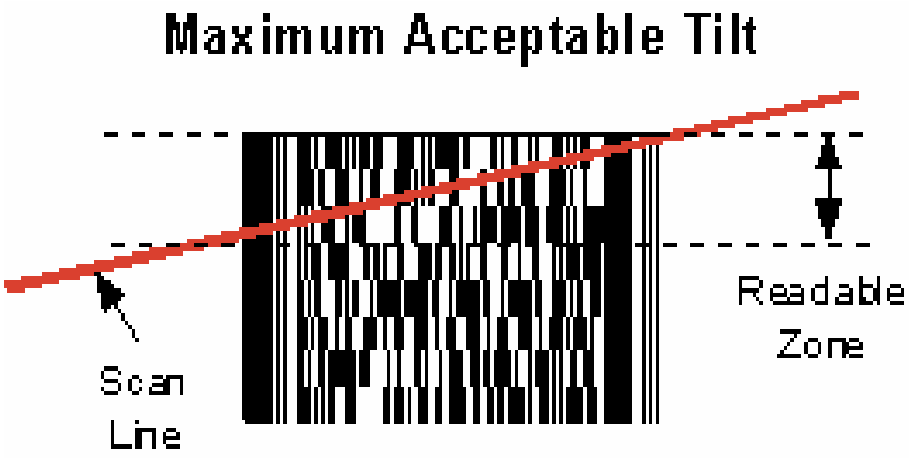
Tilt reading capabilities



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Built-in error correction

- 9 levels: 0 through 8
- Each higher level means increased security, larger labels, and slower decoding speed
- Error correction will recover two types of errors:
  - Erasures: undecodable characters
  - Errors: misdecoded characters
- Recommended ECL setting is 10% of total number of characters. For example, if encoding 50 chracters, use ECL level 2

Error Correction Level Table

ECL	Correction Codewords
0	2
1	4
2	8
3	16
4	32
5	64
6	128
7	256
8	512

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Error detection and correction capability

ECL 0

ECL 1

ECL 2

ECL 3

ECL 4

ECL 5

ECL 6

ECL 7

ECL 8

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Variable aspect ratio

- The variable aspect ratio provides major benefit for customized application layouts.

Note: Each code contains the same information

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Advantages and disadvantages

Advantages	Disadvantages
■ Built-in error correction ■ Adjustable aspect ratio ■ Encodes large amount of data ■ Can be read with traditional CCDs and laser technology, hence lower end user cost	■ Larger than 2D matrix codes ■ Sensitive to scanner tilt

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More information

- If you have questions regarding this topic, send us an e-mail to training@microscan.com
- If you would like further information about bar code symbologies, we recommend you view Intro to Data Matrix

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