

Honeywell QC890 Presentation



Why standards, their process...

- AIDC standards are created on levels...
 - National
 - Multi-National
 - International
 - Industrial
- AIDC standards are created in basic forms
 - Technical base (i.e. symbologies, etc.)
 - Application base (i.e. use cases)

Standards, the organizations...

- ANSI -- American National Standards Institute
 - X3.182 -- ANSI's Print Quality Standard
- CEN -- Committee for European Normalization
 - 1635 -- CEN's equivalent to ANSI X3.182
- ISO/IEC SC31 -- International Standards Organization / International Electrotechnical Council Subcommittee 31 on Automatic Identification and Data Collection
 - WG3 -- SC31's Work Group on Conformance
 - ISO/IEC 15416 -- Equal to X3.182 & 1635
- GS1 – Formerly EAN & UCC
 - Retail (+ more) AIDC data formats & symbologies



Bar Code Symbol Quality Verification...

Where is Verification used?

- Packaging manufactures
- Source printing houses
- Label suppliers
- In-house labeling
- Manufacturing lines
- Warehouses
- POS retailers & grocery stores

Symbol Quality, symbol size...

- Determine the range of symbol sizes allowable by standards
- Determine the printing process's minimum symbol size



Symbol Quality, data accuracy...

ITEM	QTY	DESCRIPTION		TOTAL
1	500M	64 oz. Bleach-O labels, UPC-A symbol, # 614141000869, 100% target mag, black symbol on matte litho, symbol placement per attached FPO symbol, minimum ANSI grade 1.5/06/670, target ANSI 2.5/06/670	\$ 1.45	\$ 725



Cross Check

What was ordered? What is needed?

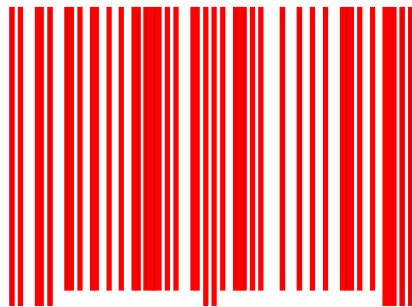
Symbol Quality Verifiers, methods...

- Traditional Analysis Parameters
- ISO/IEC 15416 - Bar Code Symbol Print Quality (same as ANSI X3.182 & CEN EN1635)

Symbol Quality Verifiers, contrast / reflectance..



Red on white looks OK to us, but not to the scanner



Symbol Quality Verifiers, contrast / reflectance..

- Substrates (background material):
 - > White spaces are best
 - > Next best: red and orange
 - > No blacks, dark blues, or dark greens
 - > Be “cautious” of translucent substrates

BEST

YES

YES

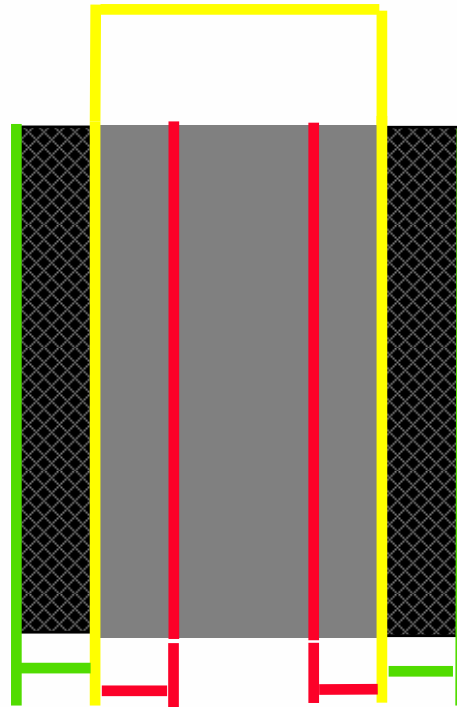
NO

NO

NO

Symbol Quality Verifiers, bar width...

Represents the goal bar width



Represents amount of **gain** or **loss** allowable

Bar growth, ink spread...



Symbol Quality Verifiers, light margins...

Allow for the appropriate quiet zones



Clear areas around the bar code necessary for the scanner to properly recognize and read the bar code. They are free of wording, graphics, closures, perforations or scores.

Symbol Quality Verifiers, wide / narrow ratio..



Width of the wide elements when compared to the width of the narrow elements.

Symbol Quality Verifiers, check character...



1. $0+2+4+6+8+0=20$
($20 \times 3 = 60$)

2. $1+3+5+7+9=25$

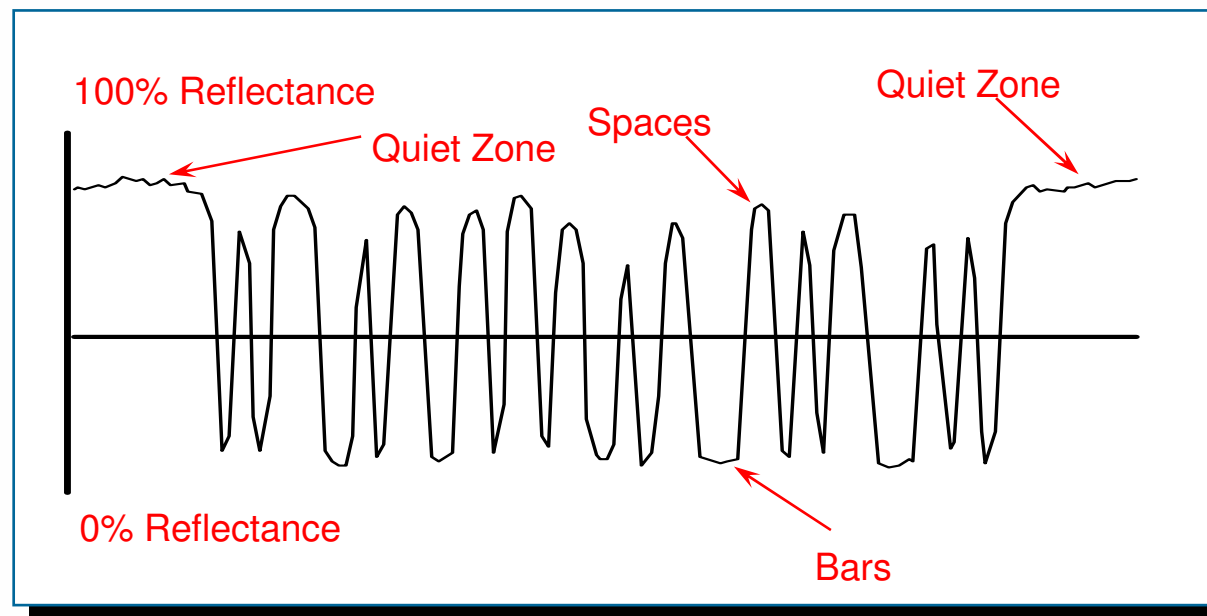
3. $60+25=85$

Check Character = the number added to the sum of 85 is a multiple of 10. The check number = 5

Example is a Modulo 10 Check Character Calculation

Symbol Quality Verifiers, ISO parameters...

ISO - Evaluation based on how the scanning or reading equipment 'sees' the bar code. Quality parameters are calculated using reflectance values from the bar code's *Scan Reflectance Profile (SRP)*.



Symbol Quality Verifiers, pass/fail parameters...

- Edge Determination
 - Finding the bars & spaces
- Minimum Reflectance
 - Threshold for bar reflectance
- Edge Contrast Minimum
 - Minimum element contrast & edge transition
- Decode
 - The right bars & space to be a bar code symbol and the proper information in it

Symbol Quality Verifiers, light margins...

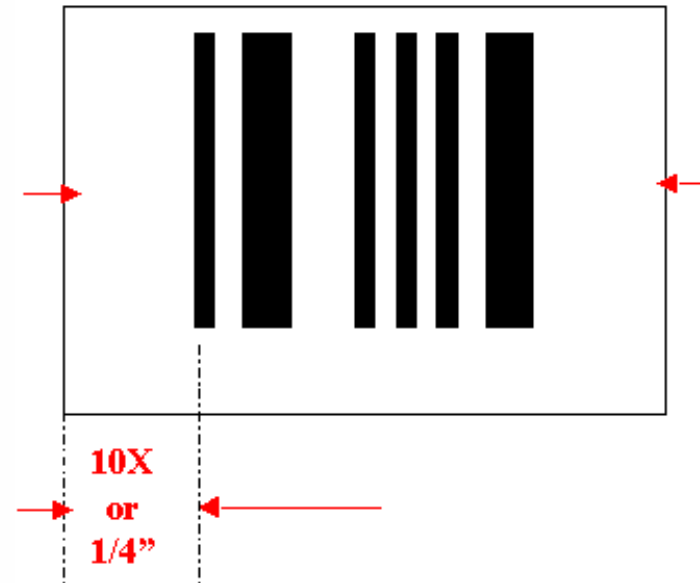
Allow for the appropriate
light margins (quiet zones)



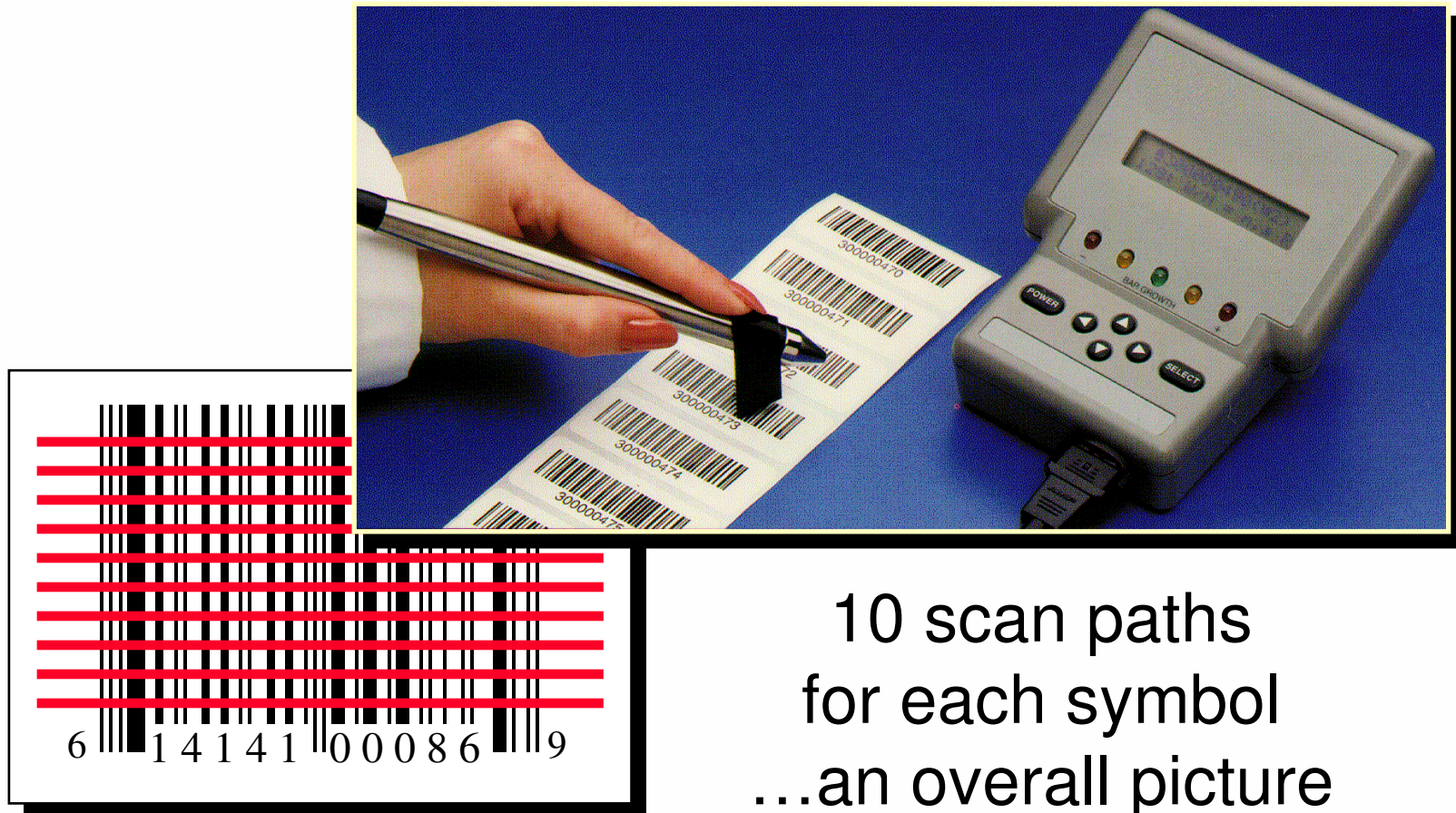
These are “clear areas” around the symbol necessary for the scanner to properly find, recognize and read. They are free of wording, graphics, closures, perforations or scores.

Quiet zone / light margin problems...

- Printing free areas, on the left & right of the symbol
- Refer to the appropriate symbol or application specification for the correct dimensions
- Typically 10X for “most” linear symbols

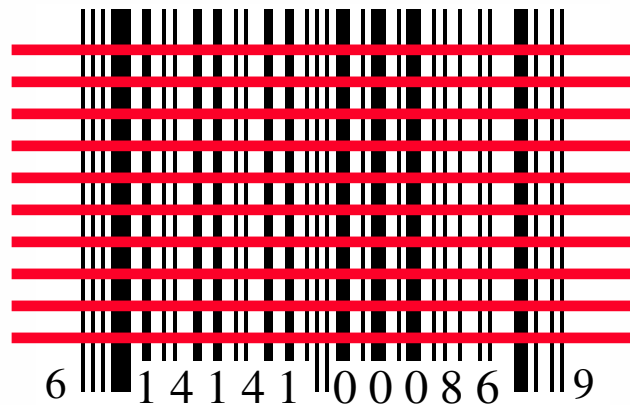


Symbol Quality Verifiers, ISO 15416 rules...



10 scan paths
for each symbol
...an overall picture

Symbol Quality Verifiers, Symbol grade...



The average of ten Scan or SRP grades equals the symbol grade

Scan Grade 1	B = 3.0
Scan Grade 2	C = 2.0
Scan Grade 3	C = 2.0
Scan Grade 4	B = 3.0
Scan Grade 5	B = 3.0
Scan Grade 6	B = 3.0
Scan Grade 7	C = 2.0
Scan Grade 8	B = 3.0
Scan Grade 9	A = 4.0
Scan Grade 10	B = 3.0

Average Grade	2.8 or B

Verification, print quality check list...

Quality Factors	ISO or Trad'l	Visual	Verifier
Edge Determination (Global Threshold)	ISO		X
Reflectance Minimum	ISO		X
Edge Contrast Minimum	ISO		X
Symbol Contrast	ISO		X
Modulation	ISO		X
Defects	ISO		X
Decodability	ISO		X
Decode	ISO		X
Print Contrast Signal (PCS)	Trad		X
Wide/Narrow Ratio	Trad		X
Quiet Zones (Clear Margins)	ISO / Trad	X	X
Average Bar Deviation	Trad		X
Check Character Calculation	Trad / ISO Opt.		X
Symbol/Human Readable Match	Trad / ISO Opt.		X
Symbol Location relative to Label	Trad / ISO Opt.	X	
Symbol Size	Trad / ISO Opt.	X	
Symbol(s) Placement on Product	Trad / ISO Opt.	X	
Data Format / Structure	ISO Opt.	X	X
Symbol and Encoded Data Match to Order	Trad / ISO Opt.	X	X

NOTE: "ISO Opt." indicates that the factor could be added into the ISO grading if an optional requirement of the application under test.

QC800



NOTE: Shown with optional Pen Wand or Mouse Wand (left) and standard QC3800V (right)

QC800

- Proven hardware concept
 - > Durable, Reliable, Accurate
- Multiple optical devices
 - > Pen Wand, Mouse Wand & QC3800V Imager
- Portable
 - > Battery operated, AC charger included
- Flexibility
 - > Full ISO (with Mouse / Pen), multiple apertures and Industry applications
- GS1-US Certified



QC800



QC800 can be used with following Input Devices:

- Pen wand (optional)
- Mouse wand (optional)
- **QC3800V Customized Linear Imager** (standard)

