
Intermec

iNEMI Reel Labeling Workshop

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iNEMI Reel Labeling Workshop

- **Presentation topics**
  - **Elements for printing robustness**
  - **Reading robustness**
  - **Optimal label formatting**

Elements for Printing Robustness

- **Label stock**
  - **TT for long term durability**
  - **<10 mil x dimension—films generally better**
  - **Films for moisture resistance**
  - **Films or specialty ribbons for abrasion resistance, possibly overlaminate for chemical resistance**
  - **Heat resistance—continuum of materials**

Elements for Printing Robustness

- **Label adhesives**
  - **Rubber based permanent adhesives**
    - **High initial tack**
    - **Relatively low long term durability**
  - **Acrylic permanent adhesives**
    - **Moderate initial tack**
    - **High long term durability**
    - **Good heat resistance**
    - **Better chemical resistance**

Elements for Printing Robustness

- **Label adhesives (continued)**
  - **Removable adhesives**
    - **Performance varies significantly based on application surface and duration on surface**
    - **Far more challenging than permanent applications**
    - **Require thorough testing**

Elements for Printing Robustness

- **Ribbon formulation**
  - **Generally wax or wax/resin for mid-range films**
  - **Generally resin for high end films**
- **Printer**
  - **Print speed—slower generally better**
  - **DPI compatible with required resolution (200 dpi for 10 mil, 300 for 6.6 mil, 400 for 7.5 or 5 mil x dimensions)**
  - **Printer rated for volume required**
  - **Online verifier if needed**

Elements for Printing Robustness

- **Preprint strengths**
  - **Good for small volumes—no printer required**
  - **Good for very high durability labels—overlaminated**
- **On-demand strengths**
  - **Real time data printing**
  - **High volume printing**
  - **Easy to reprint labels**

Elements for Printing Robustness

- **Pitfalls**
  - **High resolution (<10 mil) formats on paper labels or with 200dpi printheads**
  - **Insufficient testing of removable labels**
  - **Labels not tested through actual service conditions**
  - **Labels not tested on full range of surfaces**
  - **Printer set by “guess.” (+/- 10% bar growth is ideal)**

Elements for Reading Robustness

- **Required print quality varies greatly by scanner model—important to match accordingly**
- **Match scanner to required label print resolution**
- **Imagers may have difficulty with glossy labels**
- **Match symbologies to scanner capabilities**

Optimal Label Formatting

- **Code 39—good general purpose alphanumeric symbology**
  - **2 element widths**
- **Code 128—more compact alphanumeric symbology**
  - **Somewhat more sensitive due to increased complexity—4 element widths**
- **For most 1D symbols, quiet zones must be minimum 10x**

Optimal Label Formatting

- **PDF417—stacked symbology**
  - **More compact than 1D symbologies**
  - **Requires compatible scanner—not necessarily imager**
  - **Error correction**
- **MaxiCode—true 2D matrix symbology**
  - **UPS package sorting symbology**
  - **Requires imager**

Optimal Label Formatting

- **DataMatrix—true 2D symbology**
  - **Broad acceptance in industry**
  - **10% quiet zone required**
  - **Requires imager**
  - **Highly compact method for encoding large amounts of data**

Optimal Label Formatting

- **Design considerations**
  - **Larger symbols are generally more robust**
  - **10-15 mil x-dimensions are common for short range scanning**
  - **Smaller (5 mil) symbols may require high-density scanners, printers, and media**
  - **Non-rotated 1D bar codes are more vulnerable to printhead failures**

Optimal Label Formatting

- **Design considerations (continued)**
  - **Layout with multiple orientations (rotated and non-rotated) may require testing; some printers are better at thermal management than others**
  - **Multiple symbologies on a single label are generally acceptable, but will require correct scanner selection**
  - **High density symbols (5 mil x) require correct printer, media, and scanner**

Thank you.

- **Questions?**