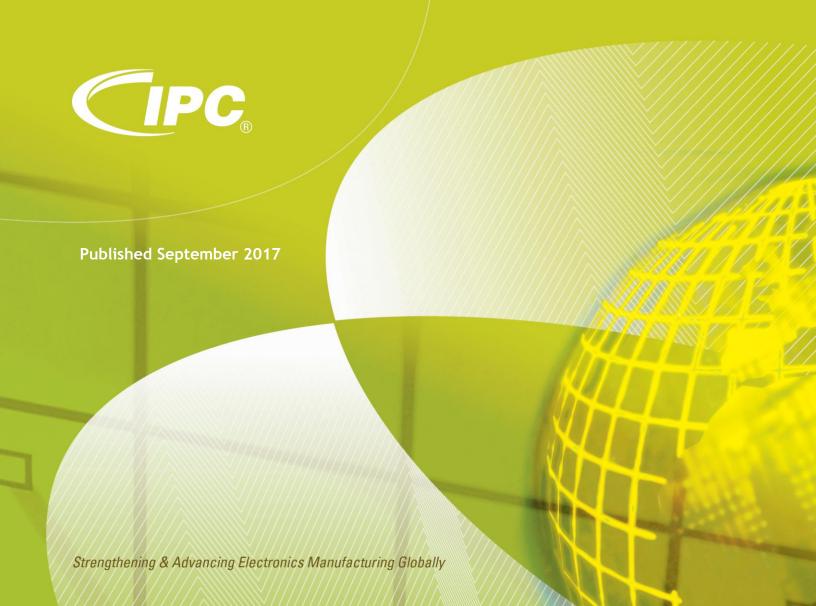
# **IPC MARKET RESEARCH**

# Study of Quality Benchmarks for Electronics Assembly 2017





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<sup>\*</sup> Averages, medians, 25<sup>th</sup> percentile and 75<sup>th</sup> percentile data are shown for most measurements. Each set of detailed results includes the subjects listed on following two pages.



# **Measurements Covered in this Study**

### **Production**

- Percentage of components placed that were:
  - o SMT
  - o PTH
- Inventory accuracy as a percentage of components on hand:
  - SMT components
  - o PTH components
- Product types produced (percent of responding companies)

### **Quality Control**

- Percentages of products utilizing assembly inspection methods:
  - Automated optical inspection (AOI)
  - Automated x-ray inspection (AXI)
- Percentages of products utilizing electrical assembly test methods:
  - In-circuit test (ICT)
  - Manufacturing defects analyzer (MDA)
  - Flying probe
  - Boundary scan
  - Final functional test
- Average first-pass yields:
  - In-circuit test (ICT)
  - Manufacturing defects analyzer (MDA)
  - o Flying probe
  - o Boundary scan
  - Final functional test
- Average yields at final inspection
- Average first-pass yields at final inspection
- Internal yields of key processes:
  - o Surface-mount
  - o Wave solder
  - Selective solder
- Defect rate in defects per million opportunities (DPMO):
  - At testing
  - At final inspection
- Facility's yield or DPMO targets
- Average cost of poor quality (COPQ) to gross sales:
  - o Rework
  - Scrap
- Percentage of board assemblies that required touch-up after wave soldering
- Percentages of products utilizing selected tests
- Percentages of companies utilizing selected quality control methods
- Frequency with which companies evaluate SPC control limits

### **Customer Satisfaction**

- Measurement system in place to assess the customer satisfaction (percent of responding companies)
- Rate of customer returns in parts per million (PPM):
  - o PCB assemblies
  - o System build items
  - o Cable and harness
  - Other
- Percentage of RMA returns during the last calendar year



- Percent of printed circuit assemblies (PCAs) shipped "dock-to-stock"
- Average rate of on-time customer deliveries during the last calendar year
- Rate of customer-returned items that failed:
  - o Zero KM (Infant mortality, dead on arrival)
  - o Within 1-year warranty
  - o After 1 year

# **Supplier Performance**

- Track supplier performance (percent of responding companies)
- Percent of on-time deliveries from PCB suppliers
- Percent of on-time deliveries from component suppliers
- Lot reject rate

### Certification

Percent of responding companies that have received, are in process of obtaining, and have no plans to obtain the following certifications:

- ISO 9001
- ISO 14001
- ISO 13485
- AS 9100
- QS 9000
- TS16949
- TL 9000
- QSO 80000
- FDA 820 Registration
- ITAR
- IPC Qualified Manufacturer List (QML)
- IPC Qualified Product List (QPL)