Statistical Process Control (SPC) Quality Rating

Developed by the Statistical Process Control Subcommittee (7-22) of the Process Control Management Committee (7-20) of IPC

Users of this standard are encouraged to participate in the development of future revisions.

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# Table of Contents

1 SCOPE ............................................................... 1
   1.1 Objectives ...................................................... 1
   1.2 Assessment Approach ....................................... 1
   1.2.1 Section 4 – SPC Objectives and Organization .... 1
   1.2.2 Section 5 – Conditions for Statistical Process Control ........................................ 1
   1.2.3 Section 6 – Elements of a Statistical Process Control System ..................................... 1
   1.2.4 Scoring Matrix ............................................... 1

2 APPLICABLE DOCUMENTS ..................................... 1
   2.1 IPC ..................................................................... 1
   2.2 International Organization for Standardization .... 2

3 TERMS AND DEFINITIONS ....................................... 2

4 SPC Objectives and Organization .......................... 2
   4.1 SPC Objectives .................................................. 2
   4.2 Financial Motive for SPC .................................... 3
   4.3 Relationships ..................................................... 3
   4.4 SPC Organization ............................................... 5
   4.4.1 Organizing for SPC Implementation ............... 5
   4.4.2 Strategic Planning ............................................ 5

5 CONDITIONS FOR STATISTICAL PROCESS CONTROL ............................................. 6
   5.1 Management Support ......................................... 6
   5.2 Understanding of SPC Tools and Methods .......... 6
   5.3 Quality System .................................................. 7

6 ELEMENTS OF A STATISTICAL PROCESS CONTROL SYSTEM ........................................ 8
   6.1 Process Documentation and Control Plan ........... 8
   6.2 Definition of Process Targets and Limits .......... 10
   6.3 Measurement System Evaluation and Control .... 11
   6.4 Documented Work Instructions ........................ 13
   6.5 Employee Training and Involvement in Process Data ................................................. 14
   6.6 Process Data Recording and Collection ............. 15
   6.7 Traceability and Production Sequence Identification ............................................. 16
   6.8 Subcontractor Performance Evaluation ............. 17
   6.9 Process Input Sequencing ................................... 18
   6.10 Process Logs ..................................................... 19
   6.11 Process Reliability .............................................. 20
   6.12 Process Output Monitoring System ................. 22
   6.13 Process Control System ...................................... 23
   6.14 Short-Term Variability Assessment .................. 24
   6.15 Long-Term Variability Assessment ................... 26
   6.16 Communicating the Results of Process Analyses ............................................... 28
   6.17 Customer Information System .......................... 29
   6.18 Internal SPC Audits ........................................... 30
   6.19 SPC Projects and Teams ................................. 31
   6.20 Process Improvement, Optimization, and Troubleshooting ................................... 32

APPENDIX A Example scoring system ..................... 33
APPENDIX B Process Control Plan – Example .......... 34
APPENDIX C Measurement System Evaluation and Control Verification Template ...... 36
1 SCOPE
This document is intended to be a tool for a customer or supplier organization’s internal audit group to assess a statistical process control (SPC) system against the requirements of IPC-9191. This document should be used by customers and suppliers of any size and for any commodity. This document should be used by trained evaluators. This tool can be used to perform an assessment of the use of SPC at both organizational and process levels.

The questions in this evaluation form are based on the guidelines for SPC implementation given in IPC-9191. IPC-9191 was developed to reflect the principals of SPC represented by the International Organization for Standardization (ISO) Statistical Methods Technical Committee’s document: ISO 11462-1. Auditors should also have a fundamental understanding of statistics and their application in manufacturing.

This audit tool should be scaled to each individual organization’s unique situation and resources by using the not applicable (N/A) response in areas of this quality rating.

1.1 Objectives
The purpose of IPC-9199 is to provide examples of SPC implementation evaluation forms that may be used by customers and suppliers. The use of these forms should be mutually agreed upon between customer and supplier.

1.2 Assessment Approach
The IPC-9199 evaluation format is a systematic assessment of each guideline section from IPC-9191 (Sections 4, 5, and 6).

1.2.1 Section 4 - SPC Objectives and Organization
This section evaluates management for the following:
• How management sets objectives for SPC and communicates the objectives to employees.
• Managements’ approach to determining the financial impact of the SPC program.
• The level of implementation of SPC as determined by the percentage of product specifications controlled with SPC vs. Quality Conformance Inspections.

1.2.2 Section 5 - Conditions for Statistical Process Control
This section is an evaluation of management’s support for SPC, including an SPC training plan and quality system infrastructure.

1.2.3 Section 6 - Elements of a Statistical Process Control System
This section evaluates twenty elements of a SPC System for an individual process or processes being assessed. Each of the sections has two assessments: Organizational and Process. The organizational assessment determines the scope of the organizational policy in addressing the elements as defined by IPC-9191. The process assessment looks for evidence of implementation of each element at the process level.

1.2.4 Scoring Matrix
Appendix A is an example scoring approach for an SPC system assessment. Each portion of Section 4 through Section 6 is assigned a specified number of points based on the total number of assessment areas shown. A percent completion is calculated based on the number of applicable elements verified as implemented on the process or processes under evaluation. The absolute score of an initial assessment should be used as a baseline. An organization or customer should set goals for continuous improvement of assessment scores.

2 APPLICABLE DOCUMENTS
The following documents form a part of this quality rating to the extent specified herein. Later issues of or amendments to these documents become part of this document unless otherwise stated. If a conflict arises, this document takes precedence.

2.1 IPC

IPC-T-50 Terms and Definitions for Interconnecting and Packaging Electronics Circuits

IPC-9191 General Guidelines for Implementation of Statistical Process Control

1. www.ipc.org