



**Fraunhofer**

**TESTED<sup>®</sup>  
DEVICE**

FANUC Europe Corporation S.A.

M-20iB\25C

**Report No. FA 1705-911**

DUPLICATE

Statement of  
Qualification

Electrostatic  
Discharge Behavior

# Statement of Qualification

**Customer**  
 FANUC Europe Corporation S.A.  
 rue Benedikt Zender 7  
 6469 Echternach  
 Luxembourg

**Component tested**

Category: Automation Components  
 Subcategory: Robotics  
 Product name: M-20iB\25C in white paint/25kg standard cleanroom (A05B-1226-B221) (manufacturing date: 9/2/2017; serial number: E-95294)

## Measurement of the electrostatic field

Standards/Guidelines: SEMI E78-0309  
 The norms stated generally refer to the version valid at the time of the tests.

Test devices: Data capture: .....Influence-E-Fieldmeter, type EMF58  
 ..... Eltex-Elektrostatik-GmbH

Test environment parameters:

- Cleanroom Air Cleanliness Class (according to ISO 14644-1):..... ISO 1
- Airflow velocity:.....0.45 m/s
- Airflow pattern:..... vertical laminar flow
- Temperature: .....22 °C ± 0.5 °C
- Relative humidity: ..... 45 % ± 5 %

Test procedure parameters:

- Insulating base:
  - Type:.....4x insulating feet – fully-insulated hexagonal feet with  $R > 10^{12} \Omega$
  - Material:.....glass-filled polyester
  - Thickness: ..... 35 mm
- Tool weight: ..... no tools mounted
- Pause between cycles: ..... 1 s
- Motion sequence:.....typical pick & place movement
  - Axis 1: ..... -26.6° to 90°
  - Axis 2: ..... 0° to -41.03°
  - Axis 3: ..... -68.46° to 0.95°
  - Axis 4: ..... 0°
  - Axis 5: ..... -90.95° to -23.7°
  - Axis 6: ..... 0° to 26.6°
- Capacity: .....50 % of maximum capacity
- Operating stateduring the test: ..... on

## Test result / Classification

The robot M-20iB\25C in white paint/25kg standard cleanroom (A05B-1226-B221) fulfills the permissible limit values for the sensitivity threshold 2006/70 nm according to SEMI E78-0309.

Electrostatic Field			
Electrostatic Level		Test result	
Year Node	limit value [V/cm]	mean value [V/cm]	max. single value measured [V/cm]
2006 70 nm	80	43	156
<b>Limit value:</b>		<b>fulfilled</b>	

The measuring devices used for the qualification tests are calibrated at regular intervals; their results can be traced back to national and international standards. In cases where no national standards exist, the test procedure implemented complies with the technical regulations and norms applicable at the time of the test. The relevant documentation can be viewed on request at any time.

For further information about the test environment and parameters, please refer to the Fraunhofer IPA test report.

Fraunhofer Institute for Manufacturing Engineering and Automation IPA

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Nobelstrasse 12  
 70569 Stuttgart  
 Germany

on behalf of   
 Dr.-Ing. Frank Bürger, Project Manager Fraunhofer IPA